

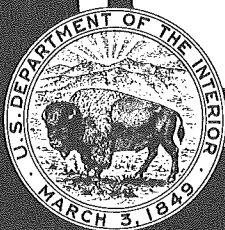
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Garden Grove Office

# Water Resources Data for California

## Part 1. Surface Water Records

### Volume 2: Northern Great Basin and Central Valley



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Prepared in cooperation with the California Department  
of Water Resources and with other agencies

# CALENDAR FOR WATER YEAR 1970

## OCTOBER 1969

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

## NOVEMBER 1969

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## DECEMBER 1969

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## JANUARY 1970

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## FEBRUARY 1970

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## MARCH 1970

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## APRIL 1970

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## MAY 1970

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## JUNE 1970

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## JULY 1970

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26	27	28	29	30	31	

## AUGUST 1970

S	M	T	W	T	F	S
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23	24	25	26	27	28	29
30	31					

## SEPTEMBER 1970

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

1970

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for  
California**

Part 1. Surface Water Records

Volume 2: Northern Great Basin and Central Valley



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DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY**

Prepared in cooperation with the California Department  
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Water-resources records, 1970, for California are in the following reports of the U.S. Geological Survey:

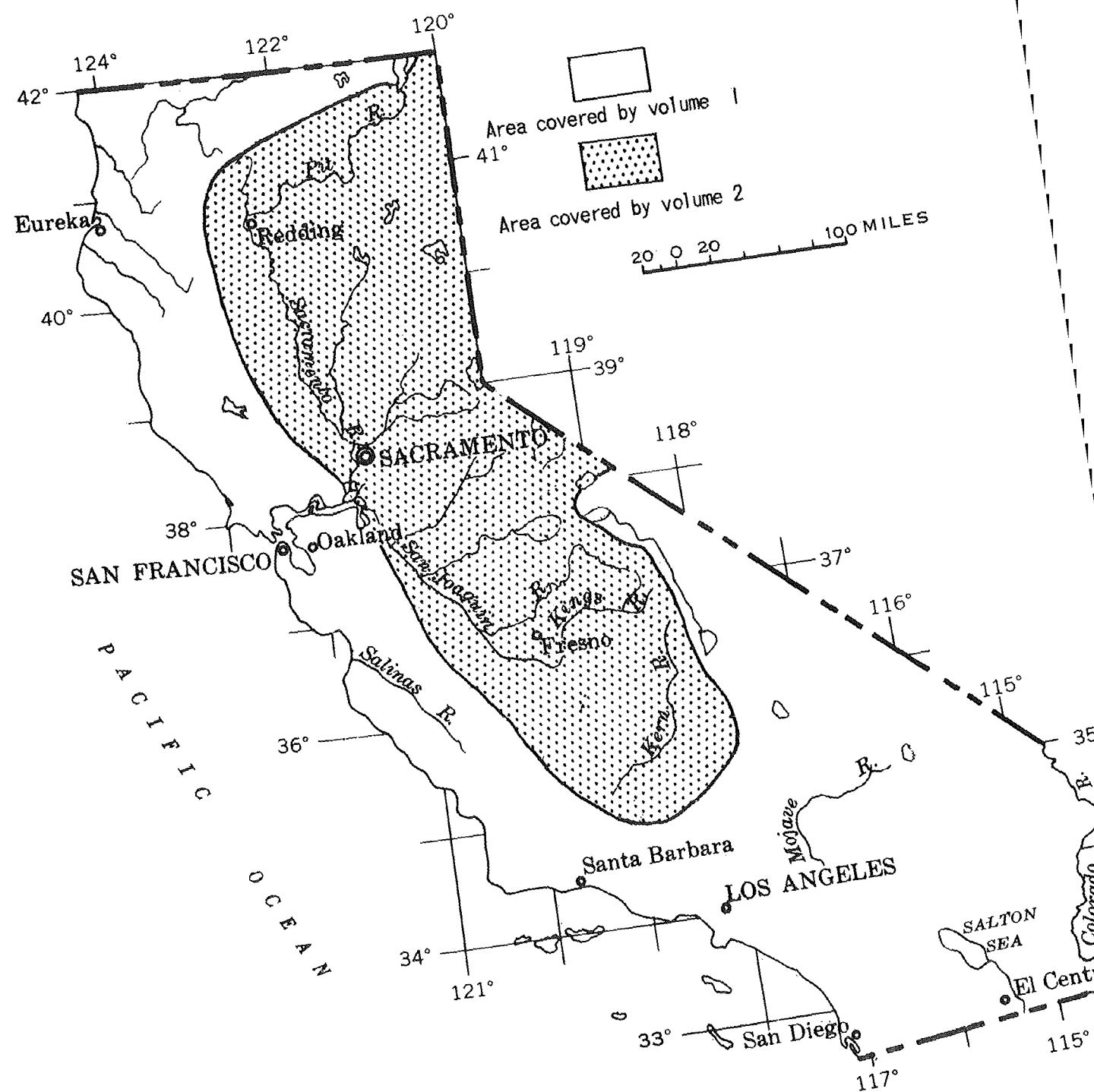
1. Water Resources Data for California  
Part 1: Surface Water Records  
Volume 1: Colorado River Basin, Southern Great Basin, and Pacific Slope Basins excluding Central Valley
2. Water Resources Data for California  
Part 1: Surface Water Records  
Volume 2: Northern Great Basin and Central Valley
3. Water Resources Data for California  
Part 2: Water Quality Records
4. Water Resources Data for California  
Part 3: Ground Water Records

Copies of these reports may be obtained from District Chief,  
Water Resources Division  
U.S. Geological Survey  
855 Oak Grove Avenue  
Menlo Park, California 94025



Prepared in cooperation with

California Department of Water Resources  
Berrenda Mesa Water District  
Alameda County Flood Control and Water Conservation District  
Alameda County Water District  
Antelope Valley-East Kern Water Agency  
Coachella Valley County Water District  
Contra Costa County Flood Control and Water Conservation District  
East Bay Municipal Utility District  
Georgetown Divide Public Utility District  
Imperial Irrigation District  
Kings River Conservation District  
Lake County Flood Control and Water Conservation District  
Madera Irrigation District  
Marin County  
Montecito County Water District  
Monterey County Flood Control and Water Conservation District  
Orange County Flood Control District  
Paradise Irrigation District  
Riverside County Flood Control and Water Conservation District  
Sacramento County Department of Public Works, Water Resources Division  
San Benito County Water Conservation and Flood Control District  
San Bernardino Valley Municipal Water District  
San Bernardino Valley Water Conservation District  
San Diego (county) Department of Sanitation and Flood Control  
San Diego (city) Water Utilities  
San Luis Obispo County Flood Control and Water Conservation District  
San Mateo County  
Santa Barbara City Water Department  
Santa Barbara County Flood Control District  
Santa Barbara County Water Agency  
Santa Clara County Flood Control and Water District  
Santa Cruz County Flood Control and Water Conservation District  
Santa Maria Valley Water Conservation District  
Santa Ynez River Water Conservation District  
Siskiyou County  
Tehachapi-Cummings County Water District  
Terra Bella Irrigation District  
Turlock Irrigation District  
University of California (Berkeley)  
Ventura (county) Department of Public Works  
Ventura River Municipal Water District  
Woodbridge Irrigation District  
Corps of Engineers, U.S. Army  
Bureau of Reclamation, U.S. Department of the Interior  
Forest Service, U.S. Department of Agriculture  
Soil Conservation Service, U.S. Department of Agriculture



## CONTENTS

	Page
List of gaging stations, in downstream order, for which records are published.....	VI
Introduction.....	495
Cooperation.....	496
Definition of terms.....	497
Special networks and programs.....	498
Downstream order and station numbers.....	498
Explanation surface-water data.....	499
Collection and computation of data.....	499
Accuracy of data.....	502
Publications.....	503
Other data available.....	503
Hydrologic conditions.....	504
Selected references.....	505
Gaging-station records.....	507
Discharge at partial-record stations.....	1003
Low-flow partial-record stations.....	1003
Crest-stage partial-record stations.....	1006
Discharge measurements at miscellaneous sites.....	1007
Index.....	1011

## ILLUSTRATIONS

	Page
Figure 1.--Map showing runoff for the 1970 water year.....	506
2-17. Schematic diagrams showing diversions and storage:	
2. Kern River basin.....	552
3. Tule River basin.....	574
4. Kaweah River basin.....	582
5. Kings River basin.....	600
6. San Joaquin River basin.....	616
7. Tuolumne River basin.....	673
8. Stanislaus River basin.....	698
9. Mokelumne River basin.....	727
10. Pit and McCloud river basins.....	758
11. South Fork Feather River basin.....	833
12. North Fork Feather River basin.....	847
13. Feather River at Lake Oroville.....	862
14. Yuba River basin.....	876
15. Bear River basin.....	911
16. Middle Fork American and Rubicon river basins.....	933
17. South Fork American River basin.....	959

THE GREAT BASINWALKER LAKE BASIN

Virginia Creek (head of Walker River) near Bridgeport.....	507
Green Creek near Bridgeport.....	508
Upper Twin Lake near Bridgeport.....	509
Lower Twin Lake near Bridgeport.....	509
Robinson Creek at Twin Lakes outlet, near Bridgeport.....	510
Buckeye Creek near Bridgeport.....	511
Swager Creek near Bridgeport.....	512
East Walker River (continuation of Virginia Creek):	
Bridgeport Reservoir:	
Bridgeport Reservoir tributary near Bridgeport.....	513
Bridgeport Reservoir near Bridgeport.....	514
East Walker River near Bridgeport.....	515
East Walker River above Strosnider ditch, near Mason, Nev.....	516
West Walker River:	
Little Walker River near Bridgeport.....	517
West Walker River below Little Walker River, near Coleville.....	518
West Walker River near Coleville.....	519
Topaz Reservoir near Topaz.....	520
West Walker River at Hoyer Bridge, near Wellington, Nev.....	521

HUMBOLDT-CARSON SINK BASINCARSON RIVER BASIN

East Fork Carson River:	
East Fork Carson River below Markleeville Creek, near Markleeville.....	522
East Fork Carson River near Gardnerville, Nev.....	523
West Fork Carson River at Woodfords.....	524

PYRAMID AND WINNEMUCCA LAKES BASIN

Upper Truckee River (head of Truckee River) near Meyers.....	525
Fallen Leaf Lake near Tahoe Valley.....	526
Taylor Creek near Tahoe Valley.....	527
Blackwood Creek near Tahoe City.....	528
Trout Creek near Tahoe Valley.....	529
Lake Tahoe at Tahoe City.....	530
Truckee River at Tahoe City.....	531
Donner Creek at Donner Lake, near Truckee.....	532
Martis Creek near Truckee.....	533
Prosser Creek Reservoir near Boca.....	534
Prosser Creek near Boca.....	535
Little Truckee River near Hobart Mills.....	536
Independence Creek near Truckee.....	537
Sagehen Creek near Truckee.....	538
Stampede Reservoir near Boca.....	539
Little Truckee River above Boca Reservoir, near Boca.....	540
Boca Reservoir at Boca.....	541
Little Truckee River at Boca.....	542
Truckee River at Farad.....	543
Truckee River at Reno, Nev.....	544

HONEY LAKE BASIN

Susan River at Susanville.....	545
Willow Creek:	
Willow Creek tributary near Susanville.....	546
Willow Creek near Susanville.....	547
Shaffer Creek near Litchfield.....	548

EAGLE LAKE BASIN

Pine Creek near Susanville.....	549
---------------------------------	-----

SURPRISE VALLEY BASIN

Eagle Creek at Eagleville.....	550
Bidwell Creek below Mill Creek, near Fort Bidwell.....	551

PACIFIC SLOPE BASINS IN CALIFORNIABUENA VISTA LAKE BASIN

Kern River:	
Kern River near Quaking Aspen Camp.....	553
Kern River near Kernville.....	554

## PACIFIC SLOPE BASINS IN CALIFORNIA--Continued

Page

## BUENA VISTA LAKE BASIN--Continued

Kern River at Kernville.....	556
Borel Canal below Isabella Dam.....	557
South Fork Kern River near Onyx.....	558
Isabella Reservoir near Isabella.....	559
Kern River below Isabella Dam.....	560
Kern River near Democrat Springs.....	561
Kern River near Bakersfield.....	563
Westside Canal:	
Buena Vista Slough:	
Wagonwheel Creek near Reward.....	564
San Emigdio Creek at San Emigdio Ranchhouse.....	565
Pastoria Creek near Lebec.....	566
Caliente Creek above Tehachapi Creek, near Caliente.....	567
Tehachapi Creek near Tehachapi.....	568

## TULARE LAKE BASIN

Tulare Lake in Kings County.....	569
Avenal Creek near Avenal.....	571
Poso Creek near Oildale.....	572
Deer Creek near Fountain Springs.....	573
Middle Fork Tule River:	
North Fork of Middle Fork Tule River near Springville.....	575
Tule River:	
Tule River near Springville.....	577
South Fork Tule River near Success.....	578
Pioneer ditch below Success Dam.....	579
Lake Success near Success.....	580
Tule River below Success Dam.....	581
Middle Fork Kaweah River (head of Kaweah River) near Potwisha Camp.....	583
Marble Fork Kaweah River at Potwisha Camp.....	585
Middle Fork Kaweah River tributary near Hammond.....	587
Monarch Creek near Hammond.....	588
East Fork Kaweah River below Mosquito Creek, near Hammond.....	589
East Fork Kaweah River at Sequoia National Park boundary, near Hammond.....	590
East Fork Kaweah River near Three Rivers.....	591
Kaweah River at Three Rivers.....	593
South Fork Kaweah River at Three Rivers.....	594
Lemoncove ditch below Terminus Dam.....	595
Lake Kaweah near Lemoncove.....	596
Foothill ditch below Terminus Dam.....	597
Kaweah River below Terminus Dam.....	598
Dry Creek near Lemoncove.....	599
Kings River above North Fork, near Trimmer.....	601
North Fork Kings River below Meadow Brook.....	602
Reservoirs in Tulare Lake basin.....	603
Helms Creek below Courtright Dam.....	604
North Fork Kings River near Cliff Camp.....	605
North Fork Kings River above Dinkey Creek, at Balch Camp.....	606
Rock Creek at Dinkey Creek.....	607
North Fork Kings River below Dinkey Creek, near Balch Camp.....	608
Kings River below North Fork, near Trimmer.....	609
Big Creek above Pine Flat Reservoir, near Trimmer.....	610
Sycamore Creek above Pine Flat Reservoir, near Trimmer.....	611
Pine Flat Reservoir near Piedra.....	612
Kings River below Pine Flat Dam.....	613
Mill Creek near Piedra.....	614
Los Gatos Creek above Nunez Canyon, near Coalinga.....	615
SAN JOAQUIN RIVER BASIN	
San Joaquin River at Miller Crossing.....	617
Granite Creek near Cattle Mountain.....	618
South Fork San Joaquin River:	
Florence Lake:	
Ward tunnel intake at Florence Lake.....	619

	Page
PACIFIC SLOPE BASINS IN CALIFORNIA--Continued	
SAN JOAQUIN RIVER BASIN--Continued	
Florence Lake near Big Creek.....	620
South Fork San Joaquin River near Florence Lake.....	621
Bear Creek near Lake Thomas A. Edison.....	622
Lake Thomas A. Edison near Big Creek.....	623
Mono Creek below Lake Thomas A. Edison.....	624
Chiquito Creek near Bass Lake.....	625
Mammoth Pool Reservoir near Big Creek.....	626
San Joaquin River above Shakeflat Creek, near Big Creek.....	627
Big Creek:	
Ward tunnel outlet at Huntington Lake.....	628
Huntington Lake near Big Creek.....	629
Big Creek below Huntington Lake.....	630
Pitman Creek below Tamarack Creek.....	631
Stevenson Creek:	
Huntington-Shaver conduit outlet near Shave Lake.....	632
Shaver Lake near Big Creek.....	633
Redinger Lake near Auberry.....	634
San Joaquin River above Willow Creek, near Auberry.....	635
North Fork Willow Creek (head of Willow Creek):	
Soquel diversion near Sugar Pine.....	636
North Fork Willow Creek near Sugar Pine.....	637
Bass Lake near Bass Lake.....	638
Pacific Gas and Electric Co. conduit No. 3 near Bass Lake.....	639
North Fork Willow Creek near Bass Lake.....	640
Willow Creek at mouth, near Auberry.....	641
San Joaquin River below Kerckhoff powerhouse, near Prather.....	642
Big Sandy Creek:	
Big Sandy Creek tributary near Tollhouse.....	643
Millerton Lake:	
Madera Canal at Friant.....	644
Friant-Kern Canal at Friant.....	645
Millerton Lake at Friant.....	646
San Joaquin River below Friant.....	647
Cantua Creek near Cantua Creek.....	648
Panoche Creek below Silver Creek, near Panoche.....	649
Fresno River:	
Miami Creek near Oakhurst.....	650
Fresno River near Knowles.....	651
Fresno River near Daulton.....	652
Chowchilla River:	
West Fork Chowchilla River near Mariposa.....	653
Chowchilla River at Buchanan damsite, near Raymond.....	654
Mariposa Creek near Catheys Valley.....	655
San Joaquin River at Fremont Ford Bridge.....	656
Merced River at Happy Isles Bridge, near Yosemite.....	657
Merced River at Pohono Bridge, near Yosemite.....	658
South Fork Merced River:	
Big Creek:	
Big Creek diversion near Fish Camp.....	659
South Fork Merced River near El Portal.....	660
Merced River near Briceburg.....	661
Maxwell Creek at Coulterville.....	662
Lake McClure at Exchequer.....	663
Merced River below Merced Falls Dam, near Snelling.....	664
Merced River at Shaffer bridge, near Cressey.....	665
Dry Creek near Snelling.....	666
Merced River near Stevinson.....	667
Merced River Slough near Newman.....	668
San Joaquin River near Newman.....	669
Orestimba Creek near Newman.....	670
Del Puerto Creek near Patterson.....	671

## PACIFIC SLOPE BASINS IN CALIFORNIA--Continued

## SAN JOAQUIN RIVER BASIN--Continued

Maclure Creek (head of Tuolumne River) below Maclure Glacier, near Tuolumne Meadows.....	672
Falls Creek near Hetch Hetchy.....	674
Hetch Hetchy Reservoir at Hetch Hetchy.....	675
Tuolumne River near Hetch Hetchy.....	676
Tuolumne River below Early Intake, near Mather.....	677
Cherry Creek:	
Cherry Lake near Hetch Hetchy.....	678
Cherry Creek below Cherry Valley Dam, near Hetch Hetchy.....	679
Eleanor Creek:	
Lake Eleanor near Hetch Hetchy.....	680
Eleanor Creek near Hetch Hetchy.....	681
Cherry Creek Canal near Early Intake.....	682
Cherry Creek near Early Intake.....	683
Cherry Creek below Dion R. Holm powerhouse, near Mather.....	684
South Fork Tuolumne River near Oakland Recreation Camp.....	685
Middle Tuolumne River at Oakland Recreation Camp.....	686
Lily Creek (head of Clavey River) near Pinecrest.....	687
Bell Creek near Pinecrest.....	688
Clavey River near Buck Meadows.....	689
Big Creek above Whites Gulch, near Groveland.....	690
Big Creek near Groveland.....	691
North Fork Tuolumne River near Long Barn.....	692
Don Pedro Reservoir near La Grange.....	693
Tuolumne River above La Grange Dam, near La Grange.....	694
Modesto Canal near La Grange.....	695
Turlock Canal near La Grange.....	696
Tuolumne River at Modesto.....	697
Middle Fork Stanislaus River (head of Stanislaus River) at Kennedy Meadows, near Dardanelle.....	699
Clark Fork Stanislaus River near Dardanelle.....	700
Donnell Lake near Dardanelle.....	701
Middle Fork Stanislaus River at Hells Half Acre Bridge, near Pinecrest.....	702
Beardsley Lake near Strawberry.....	703
Middle Fork Stanislaus River below Beardsley Dam.....	704
North Fork Stanislaus River below Silver Creek.....	705
Highland Creek below Spicer Meadows Reservoir.....	706
North Fork Stanislaus River near Avery.....	707
Stanislaus River near Hathaway Pines.....	708
South Fork Stanislaus River at Strawberry.....	710
Philadelphia Canal near Strawberry.....	711
Tuolumne Canal near Long Barn.....	712
South Fork Stanislaus River near Long Barn.....	713
Melones Reservoir at Melones Dam.....	714
Tulloch Reservoir near Knights Ferry.....	715
South San Joaquin Canal near Knights Ferry.....	716
Oakdale Canal near Knights Ferry.....	717
Stanislaus River below Goodwin Dam, near Knights Ferry.....	718
Stanislaus River at Ripon.....	719
San Joaquin River near Vernalis.....	720
South Fork Calaveras River (head of Calaveras River) near San Andreas...	721
North Fork Calaveras River near San Andreas.....	722
Calaveras River:	
New Hogan Reservoir near Valley Springs.....	723
Calaveras River below New Hogan Dam, near Valley Springs.....	724
Bear Creek near Lockeford.....	725
Delta-Mendota Canal at Tracy pumping plant, near Tracy.....	726
North Fork Mokelumne River (head of Mokelumne River):	
Salt Springs Reservoir near West Point.....	728
Tiger Creek powerhouse conduit below Salt Springs Dam.....	729

	Page
PACIFIC SLOPE BASINS IN CALIFORNIA--Continued	
SAN JOAQUIN RIVER BASIN--Continued	
North Fork Mokelumne River below Salt Springs Dam.....	730
Cole Creek near Salt Springs Dam.....	731
Bear River near Salt Springs Dam.....	732
Mokelumne River:	
Middle Fork Mokelumne River:	
Forest Creek near Wilseyville.....	733
Middle Fork Mokelumne River at West Point.....	734
South Fork Mokelumne River near West Point.....	735
Mokelumne River near Mokelumne Hill.....	736
Pardee Reservoir near Valley Springs.....	737
Camanche Reservoir near Clements.....	738
Mokelumne River below Camanche Dam.....	739
Woodbridge Canal at Woodbridge.....	740
Mokelumne River at Woodbridge.....	741
Dry Creek above Sutter Creek, near Ione.....	742
Sutter Creek near Sutter Creek.....	743
Dry Creek near Galt.....	744
North Fork Cosumnes River (head of Cosumnes River):	
Camp Creek near Somerset.....	745
North Fork Cosumnes River near El Dorado.....	746
Middle Fork Cosumnes River near Somerset.....	747
South Fork Cosumnes River near River Pines.....	748
Cosumnes River at Michigan Bar.....	749
Deer Creek near Sloughhouse.....	750
Cosumnes River at McConnell.....	751
Beach Lake:	
Morrison Creek near Sacramento.....	752
Contra Costa Canal near Oakley.....	753
Dutch Slough:	
Marsh Creek near Byron.....	754
SACRAMENTO RIVER BASIN	
Sacramento River:	
Lake Siskiyou near Mt Shasta.....	755
Sacramento River near Mt Shasta.....	756
Sacramento River at Delta.....	757
North Fork Pit River (head of Pit River):	
South Fork Pit River near Likely.....	759
Pit River near Alturas.....	760
Pit River near Canby.....	761
Pit River near Lookout.....	762
Ash Creek at Adin.....	763
Pit River near Bieber.....	764
Beaver Creek near Hat Creek.....	765
Fall River:	
Dry Creek near Dana.....	766
Hat Creek near Hat Creek.....	767
Burney Creek near Burney.....	768
Reservoirs in Pit and McCloud river basins.....	769
Pit River below Pit No. 4 Dam.....	770
Pit River at Big Bend.....	771
James B. Black powerplant near Big Bend.....	772
Iron Canyon Creek below Iron Canyon Dam, near Big Bend.....	773
Pit River near Montgomery Creek.....	774
McCloud River near McCloud.....	775
McCloud-Iron Canyon diversion tunnel near McCloud.....	776
McCloud River below McCloud Dam, near McCloud.....	777
McCloud River at Ah-Di-Na, near McCloud.....	778
McCloud River above Shasta Lake.....	779
Shasta Lake near Redding.....	780
Sacramento River at Keswick.....	781
Clear Creek at French Gulch.....	782
Judge Francis Carr powerplant near French Gulch.....	783



## PACIFIC SLOPE BASINS IN CALIFORNIA--Continued

## SACRAMENTO RIVER BASIN--Continued

## Clear Creek--Continued

Spring Creek powerplant at Keswick.....	784
---	-----

Whiskeytown Lake near Igo.....	785
--------------------------------	-----

Clear Creek near Igo.....	786
---------------------------	-----

Churn Creek below Newtown Creek, near Redding.....	787
--	-----

## Cow Creek:

South Cow Creek near Millville.....	788
-------------------------------------	-----

Cow Creek near Millville.....	789
-------------------------------	-----

## Bear Creek:

Middle Fork Cottonwood Creek near Ono.....	790
--	-----

North Fork Cottonwood Creek near Igo.....	791
---	-----

South Fork Cottonwood Creek near Cottonwood.....	792
--	-----

Cottonwood Creek near Cottonwood.....	793
---------------------------------------	-----

Battle Creek below Coleman Fish Hatchery, near Cottonwood.....	794
--	-----

Sacramento River above Bend Bridge, near Red Bluff.....	795
---	-----

Red Bank Creek near Red Bluff.....	796
------------------------------------	-----

Antelope Creek near Red Bluff.....	797
------------------------------------	-----

Elder Creek near Paskenta.....	798
--------------------------------	-----

Mill Creek near Los Molinos.....	799
----------------------------------	-----

## Thomes Creek:

Thomes Creek tributary near Paskenta.....	800
---	-----

Thomes Creek at Paskenta.....	801
-------------------------------	-----

Deer Creek below Slate Creek, near Deer Creek Meadows.....	802
--	-----

Deer Creek near Vina.....	803
---------------------------	-----

Big Chico Creek near Chico.....	804
---------------------------------	-----

Mud Creek near Chico.....	805
---------------------------	-----

## Stony Creek:

Little Stony Creek above East Park Reservoir, near Lodoga.....	806
--	-----

Reservoirs in Stony Creek basin.....	807
--------------------------------------	-----

Grindstone Creek near Elk Creek.....	808
--------------------------------------	-----

Stony Creek near Fruto.....	809
-----------------------------	-----

North Fork Stony Creek near Newville.....	810
---	-----

South Diversion Canal near Orland.....	811
--	-----

Black Butte Reservoir near Orland.....	812
--	-----

Stony Creek below Black Butte Dam, near Orland.....	813
---	-----

Stony Creek near Hamilton City.....	814
-------------------------------------	-----

Sacramento River at Butte City.....	815
-------------------------------------	-----

Sacramento River at Colusa.....	816
---------------------------------	-----

Butte Creek at Butte Meadows.....	817
-----------------------------------	-----

Little Butte Creek near Maglia.....	818
-------------------------------------	-----

Butte Creek near Chico.....	819
-----------------------------	-----

Sacramento River below Wilkings Slough, near Grimes.....	820
--	-----

## Colusa Drain:

South Fork Willow Creek (head of Willow Creek) near Fruto.....	821
--	-----

Walker Creek at Artois.....	822
-----------------------------	-----

Stone Corral Creek near Sites.....	823
------------------------------------	-----

Sacramento River at Knights Landing.....	824
--	-----

Reservoirs in Feather River basin.....	825
--	-----

## Middle Fork Feather River (head of Feather River):

Little Last Chance Creek near Chilcoot.....	826
---	-----

Big Grizzly Creek near Portola.....	827
-------------------------------------	-----

Middle Fork Feather River near Portola.....	829
---	-----

Middle Fork Feather River near Clio.....	830
--	-----

Middle Fork Feather River near Merrimac.....	831
--	-----

Fall River near Feather Falls.....	832
------------------------------------	-----

South Fork Feather River above Little Grass Valley Reservoir.....	834
---	-----

Little Grass Valley Reservoir near La Porte.....	835
--	-----

South Fork Feather River below Little Grass Valley Dam.....	836
---	-----

South Fork Feather River below diversion dam, near Strawberry Valley..	837
--	-----

Lost Creek above Sly Creek Reservoir.....	838
---	-----

Sly Creek Reservoir near Strawberry Valley.....	839
---	-----

Oroville-Wyandotte Canal near Clipper Mills.....	840
--	-----

## PACIFIC SLOPE BASINS IN CALIFORNIA--Continued

## SACRAMENTO RIVER BASIN--Continued

## Middle Fork Feather River--Continued

## South Fork Feather River--Continued

Lost Creek near Clipper Mills.....	841
South Fork Feather River below Forbestown Dam.....	842
Miners Ranch Canal below Ponderosa Dam, near Forbestown.....	843
Bangor Canal below Miners Ranch Reservoir, near Oroville.....	844
South Fork Feather River at Ponderosa Dam.....	845
Sucker Run near Forbestown.....	846
North Fork Feather River:	
Lake Almanor at Prattville.....	848
North Fork Feather River near Prattville.....	849
Butte Creek below Almanor-Butt Creek tunnel, near Prattville.....	850
North Fork Feather River below Belden Dam.....	851
Indian Creek (head of East Branch of North Fork Feather River):	
Indian Creek near Boulder Creek Guard Station, near Taylorsville....	852
Little Grizzly Creek near Genesee.....	853
Indian Creek near Taylorsville.....	854
Indian Creek near Crescent Mills.....	855
Spanish Creek:	
Mill Creek near Quincy.....	856
Spanish Creek above Blackhawk Creek, at Keddie.....	857
East Branch of North Fork Feather River near Rich Bar.....	858
Bucks Creek:	
Bucks Lake near Bucks Lodge.....	859
North Fork Feather River at Pulga.....	860
West Branch Feather River near Paradise.....	861
Lake Oroville near Oroville.....	863
Palermo Canal near Oroville.....	864
Thermolito Afterbay near Oroville.....	865
Western Canal at intake, near Oroville.....	866
Richvale Canal at intake, near Oroville.....	867
Pacific Gas and Electric Co. lateral at intake, near Oroville.....	868
Sutter-Butte Canal at intake, near Oroville.....	869
Thermolito Afterbay release to Feather River near Oroville.....	870
Feather River at Oroville.....	871
Feather River near Gridley.....	872
Honcut Creek:	
North Honcut Creek near Bangor.....	873
South Honcut Creek near Bangor.....	874
Feather River at Yuba City.....	875
Middle Yuba River (head of Yuba River):	
Jackson Meadows Reservoir near Sierra City.....	877
Middle Yuba River below Jackson Meadows Dam, near Sierra City.....	879
Milton-Bowman tunnel outlet near Graniteville.....	880
Middle Yuba River near Camptonville.....	881
Middle Yuba River below Our House Dam.....	882
Oregon Creek at Camptonville.....	883
Oregon Creek below Log Cabin Dam, near Camptonville.....	884
North Yuba River below Goodyears Bar.....	885
North Yuba River above Slate Creek, near Strawberry Valley.....	886
Slate Creek:	
Slate Creek tunnel near Strawberry Valley.....	887
Slate Creek below diversion dam, near Strawberry Valley.....	888
Colgate powerplant near French Corral.....	889
New Bullards Bar Reservoir near North San Juan.....	890
North Yuba River below New Bullards Bar Dam, near North San Juan....	891
South Yuba River:	
Sweetland Creek near North San Juan.....	892
South Yuba River near Cisco.....	893
Fordyce Creek below Fordyce Dam, near Cisco.....	894
Lake Spaulding near Emigrant Gap.....	895
Drum Canal at intake, near Emigrant Gap.....	896

## PACIFIC SLOPE BASINS IN CALIFORNIA--Continued

## SACRAMENTO RIVER BASIN--Continued

## Feather River--Continued

## Middle Yuba River--Continued

## South Yuba River--Continued

Drum Canal above Drum Forebay, near Blue Canyon.....	897
South Yuba Canal near Emigrant Gap.....	898
South Yuba River at Langs Crossing, near Emigrant Gap.....	899
Canyon Creek:	
Bowman Lake near Graniteville.....	900
Bowman-Spaulding Canal at intake, near Sierra City.....	901
Bowman-Spaulding Canal at Jordan Creek siphon venturi, near Emigrant Gap.....	902
Canyon Creek below Bowman Lake.....	903
South Yuba River near Washington.....	904
Poorman Creek near Washington.....	905
South Yuba River at Jones Bar, near Grass Valley.....	906
Yuba River below Englebright Dam, near Smartville.....	907
Deer Creek near Smartville.....	908
Dry Creek near Browns Valley.....	909
Yuba River near Marysville.....	910
Feather River below Shanghai Bend, near Olivehurst.....	912
Bear River:	
Boardman Canal near Emigrant Gap.....	913
Dutch Flat No. 1 powerplant near Dutch Flat.....	914
Dutch Flat No. 2 flume near Blue Canyon.....	915
Bear River below Drum Afterbay, near Blue Canyon.....	916
Chicago Park flume near Dutch Flat.....	917
Bear River below Dutch Flat Afterbay, near Dutch Flat.....	918
Rollins Reservoir near Colfax.....	919
Bear River Canal intake near Colfax.....	920
Bear River below Rollins Dam, near Colfax.....	921
New Camp Far West Reservoir near Wheatland.....	922
Bear River near Wheatland.....	923
Best Slough:	
Reeds Creek:	
Hutchinson Creek:	
Wellman Creek near Smartville.....	924
Feather River at Nicolaus.....	925
Sacramento River at Verona.....	926
Sacramento Weir spill to Yolo Bypass near Sacramento.....	927
North Fork American River:	
Onion Creek near Soda Springs.....	928
North Fork of North Fork American River:	
Lake Valley Canal near Emigrant Gap.....	929
Shirrtail Creek:	
North Shirrtail Creek:	
Forbes Creek:	
North Fork Forbes Creek near Dutch Flat.....	930
North Shirrtail Creek near Dutch Flat.....	931
North Fork American River at North Fork Dam.....	932
Middle Fork American River:	
French Meadows Reservoir near Foresthill.....	934
Middle Fork American River at French Meadows.....	935
Duncan Creek near French Meadows.....	936
Duncan Creek below diversion dam, near French Meadows.....	937
Middle Fork American River above Middle Fork powerhouse, near Foresthill.....	938
Middle Fork American River below interbay dam, near Foresthill.....	939
Rubicon River:	
Rubicon-Rockbound tunnel near Meeks Bay.....	940
Rubicon River at Rubicon Springs, near Meeks Bay.....	941
Little Rubicon River:	
Buck Island Lake:	
Buck-Loon tunnel near Meeks Bay.....	942

	Page
PACIFIC SLOPE BASINS IN CALIFORNIA--Continued	
SACRAMENTO RIVER BASIN--Continued	
North Fork American River--Continued	
Middle Fork American River--Continued	
Hell Hole Reservoir near Meeks Bay.....	943
Rubicon River below Hell Hole Dam, near Meeks Bay.....	944
South Fork Rubicon River:	
Robbs Peak Reservoir:	
Robbs Peak powerplant near Kyburz.....	945
Gerle Creek:	
Loon Lake near Meeks Bay.....	946
Gerle Creek below Loon Lake Dam, near Meeks Bay.....	947
South Fork Rubicon River below Gerle Creek, near Georgetown.....	948
Pilot Creek above Stumpy Meadows Reservoir.....	949
Pilot Creek below Mutton Canyon, near Georgetown.....	950
Long Canyon Creek:	
South Fork Long Canyon Creek diversion tunnel, near Volcanoville	951
North Fork Long Canyon Creek diversion tunnel, near Volcanoville	952
Long Canyon Creek near French Meadows.....	953
Rubicon River near Foresthill.....	954
North Fork of Middle Fork American River near Foresthill.....	955
Middle Fork American River near Foresthill.....	956
Canyon Creek near Georgetown.....	957
Middle Fork American River near Auburn.....	958
South Fork American River:	
Echo Lake conduit near Phillips.....	960
Pyramid Creek near Phillips.....	961
Silver Lake Outlet (head of Silver Fork of South Fork American River) near Kirkwood.....	962
Caples Lake Outlet near Kirkwood.....	963
South Fork American River near Kyburz.....	964
Alder Creek near White Hall.....	966
Silver Creek:	
Union Valley Reservoir near Riverton.....	967
South Fork Silver Creek:	
Ice House Reservoir near Kyburz.....	968
South Fork Silver Creek near Ice House.....	970
Silver Creek below Camino diversion dam.....	971
South Fork American River below Silver Creek, near Pollock Pines.....	972
South Fork American River near Camino.....	973
South Fork American River near Placerville.....	974
South Fork American River near Lotus.....	975
American River:	
Folsom Lake near Folsom.....	976
American River at Fair Oaks.....	977
Natomas East Main Drainage Canal:	
Arcade Creek near Del Paso Heights.....	978
Sacramento River at Sacramento.....	979
Yolo Bypass:	
Clear Lake (head of Cache Creek):	
Adobe Creek near Kelseyville.....	980
Highland Creek above Highland Creek Dam.....	981
Highland Creek below Highland Creek Dam.....	982
Middle Creek:	
Scotts Creek near Lakeport.....	983
Seigler Creek at Lower Lake.....	984
Kelsey Creek near Kelseyville.....	985
Clear Lake at Lakeport.....	986
Cache Creek near Lower Lake.....	987
North Fork Cache Creek near Lower Lake.....	988
Bear Creek near Rumsey.....	989
Cache Creek above Rumsey.....	990
Cache Creek near Capay.....	991
Cache Creek at Yolo.....	992

## PACIFIC SLOPE BASINS IN CALIFORNIA--Continued

Page

## SACRAMENTO RIVER BASIN--Continued

Yolo Bypass near Woodland.....	993
Putah Creek:	
Dry Creek near Middletown.....	994
Putah Creek near Guenoc.....	995
Hunting Creek near Knoxville.....	996
Adams Creek near Knoxville.....	998
Nevada Creek near Knoxville.....	999
Pope Creek near Pope Valley.....	1000
Lake Berryessa near Winters.....	1001
Putah Creek near Winters.....	1002



## WATER RESOURCES DATA FOR CALIFORNIA, 1970

### PART 1. SURFACE-WATER RECORDS

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#### INTRODUCTION

Surface water records for the 1970 water year for California, including records of streamflow or reservoir storage at gaging stations, partial-record stations, and miscellaneous sites, are given in this report. Records for a few pertinent gaging stations in bordering States also are included. The records were collected and computed by the Water Resources Division of the U.S. Geological Survey under the direction of R. Stanley Lord, district chief. These data represent that portion of the National Water Data System collected by the Geological Survey and cooperating State and Federal agencies in California.

Through September 30, 1960, the records of discharge and stage of streams and canals and contents and stage of lakes or reservoirs were published in an annual series of Geological Survey water-supply papers entitled "Surface Water Supply of the United States."

Beginning with the 1961 water year, surface-water records have been released by the Geological Survey in annual reports on a State-boundary basis. Distribution of these reports is limited; they are designed primarily for rapid release of data shortly after the end of the water year to meet local needs. The discharge and reservoir storage records for 1961-65 also has been published in a Geological Survey water-supply-paper series entitled "Surface Water Supply of the United States 1961-65." A similar series will be published for water years 1966-70.

## COOPERATION

The U.S. Geological Survey and organizations of the State of California have had cooperative agreements for the systematic collection of surface-water records since 1903. Organizations that supplied data are acknowledged in station descriptions. Organizations that assisted in collecting data through cooperative agreement with the Survey are:

California Department of Water Resources, William R. Gianelli, director.  
Berrenda Mesa Water District, W. G. Catlin, manager-secretary.  
Alameda County Flood Control and Water Conservation District,  
Paul E. Lanferman, engineer-manager.  
Alameda County Water District, M. P. Whitfield, general manager-  
chief engineer.  
Antelope Valley-East Kern Water Agency, W. G. Spinarski, manager.  
Coachella Valley County Water District, Lowell O. Weeks, general manager-  
chief engineer.  
Contra Costa County Flood Control and Water Conservation District,  
C. C. Rich, deputy chief engineer.  
East Bay Municipal Utility District, D. G. Larkin, chief engineer-  
assistant general manager.  
Georgetown Divide Public Utility District, C. F. Gierau, general manager.  
Imperial Irrigation District, R. F. Carter, general manager.  
Kings River Conservation District, Vivian D. Kester, secretary.  
Lake County Flood Control and Water Conservation District,  
Willard D. Hansen, manager.  
Madera Irrigation District, F. G. Bandy, secretary-manager.  
Marin County, J. F. McInnis; chairman, board of supervisors.  
Montecito County Water District, E. A. Elevatorski, general manager.  
Monterey County Flood Control and Water Conservation District,  
Loran Bunte, Jr., district engineer.  
Orange County Flood Control District, H. G. Osborne, chief engineer.  
Paradise Irrigation District, C. Phillip Kelly, manager.  
Riverside County Flood Control and Water Conservation District,  
John W. Bryant, chief engineer.  
Sacramento County Department of Public Works, Water Resources Division,  
B. H. Richter, chief.  
San Benito County Water Conservation and Flood Control District,  
Ralph E. Towle, secretary.  
San Bernardino Valley Municipal Water District, Jack A. Beaver, manager.  
San Bernardino Valley Water Conservation District, E. F. Dibble, engineer-  
secretary.  
San Diego (county), Department of Sanitation and Flood Control,  
C. J. Houson, director.  
San Diego (city), Water Utilities, Roy E. Dodson, director.  
San Luis Obispo County Flood, George Protopapas, county engineer.  
San Mateo County, Don S. Wilson, county engineer and road commissioner.  
Santa Barbara City Water Department, Neil Mendenall, superintendent.  
Santa Barbara County Flood Control District, James Stubchaer, flood control  
engineer.  
Santa Barbara County Water Agency, Francis H. Beattie, chairman.  
Santa Clara County Flood Control and Water District, Donald K. Currlin,  
manager-counsel.  
Santa Cruz County Flood Control and Water Conservation District,  
D. A. Porath, district engineer.  
Santa Maria Valley Water Conservation District, Maurice F. Twitchell,  
secretary.  
Santa Ynez River, Andrew T. Petersen, president.  
Siskiyou County, A. R. Cansino, district engineer.  
Tehachapi-Cummings County Water District, Robert J. Jasper, secretary-  
general manager.  
Terra Bella Irrigation District, John E. Boudreau, manager.



Turlock Irrigation District, R. S. Tillner, secretary-general manager.  
University of California (Berkeley), A. Starker Leopold, professor of  
zoology.

Ventura (county), Department of Public Works, A. P. Stokes, director.  
Ventura River Municipal Water District, Robert McKinney, general manager-  
chief engineer.

Woodbridge Irrigation District, Kenneth S. Welsh, superintendent.

Assistance in the form of funds or services was given by the Corps of  
Engineers, U.S. Army; U.S. Navy; Bureau of Reclamation and National Park  
Service, U.S. Department of the Interior; Forest Service and Soil  
Conservation Service, U.S. Department of Agriculture; and the city and  
county of San Francisco.

The following organizations and individuals aided in collecting  
records: Pacific Power and Light Co., Bear Valley Mutual Water Co.,  
Metropolitan Water District of California, Fontana Union Water Co.,  
Irvine Ranch, Los Angeles City Department of Water and Power, Los Angeles  
County Flood Control District, Rancho California, Pacific Gas and Electric  
Co., Placer County Water Agency, Sacramento Municipal Utility District,  
Southern California Edison Co., Kern County Land and Water Co., United  
Water Conservation District, Ventura County Flood Control District, Helix,  
Merced, Modesto, Nevada, Serrano and Carpenter, Oroville-Wyandotte,  
Oakdale-South San Joaquin, and Vista Irrigation Districts, Solano County  
Water Agency, and Yuba County Water Agency.

#### DEFINITION OF TERMS

Definition of terms related to streamflow and other hydrologic data,  
as used in this report, are defined as follows:

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover  
1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or  
325,851 gallons.

Cfs-day is the volume of water represented by a flow of 1 cubic foot  
per second for 24 hours. It is equivalent to 86,400 cubic feet,  
1.9835 acre-feet, or 646,317 gallons, and represents a runoff of  
0.0372 inch from 1 square mile.

Contents is the volume of water in a reservoir or lake. Unless  
otherwise indicated, volume is computed on the basis of a level pool and  
does not include bank storage.

Control designates a feature downstream from the gage that determines  
the stage-discharge relation at the gage. This feature may be a natural  
constriction of the channel, an artificial structure, or a uniform cross  
section over a long reach of the channel.

Cubic foot per second (cfs) is the rate of discharge representing a  
volume of 1 cubic foot passing a given point during 1 second, and is  
equivalent to 7.48 gallons per second or 448.8 gallons per minute.

Discharge is the volume of water (or more broadly, total fluids), that  
passes a given point within a given period of time.

Drainage area of a stream at a specified location is that area,  
measured in a horizontal plane, enclosed by a topographic divide from which  
direct surface runoff from precipitation normally drains by gravity into  
the stream above the specified point. Figures of drainage area given  
herein include all closed basins, or noncontributing areas, within the area  
unless otherwise noted.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of gage height or discharge are obtained. When used in connection with a discharge record, the term is applied only to those gaging stations where a continuous record of discharge is obtained.

Partial-record station is a particular site where limited streamflow data are collected systematically over a period of years for use in hydrologic analyses.

Stage-discharge relation is the relation between gage height and the amount of water flowing in a channel, expressed as volume per unit of time.

WRD is used as an abbreviation for "Water-Resources Data" in the summary REVISIONS paragraph to refer to previously published State annual basic-data reports.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

#### SPECIAL NETWORKS AND PROGRAMS

Hydrologic bench-mark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from manmade changes in other basins which have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin.

International Hydrological Decade (IHD) River Stations provide a general index of runoff and materials in the water balance (discharge of water, and dissolved and transported solids) of the world. In the United States, IHD Stations provide indices of runoff and of the general distribution of water in the principal river basins of the conterminous United States and Alaska.

#### DOWNSTREAM ORDER AND STATION NUMBERS

Records are listed in a downstream direction along the main stream, and stations on tributaries are listed between stations on the main stream in the order in which those tributaries enter the main stream. Stations on tributaries entering above all mainstream stations are listed before the first mainstream station. Stations on tributaries to tributaries are listed in a similar manner. In the list of gaging stations in the front of this report the rank of tributaries is indicated by indentation, each indentation representing one rank.

As an added means of identification, each gaging station and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and continuous-record gaging stations; therefore, the station number for a partial-record station indicates downstream order position in a list made up of both types of stations. Gaps are left in the numbers to allow for new stations that may be established; hence the numbers are not consecutive. The complete 8-digit station number for each station, such as 11120800 includes the part number "11", the first two digits, followed by a 6-digit station number. In this report the complete number appears just to the left of the station name.

In this report, the records are listed in downstream order by parts. All records for a drainage basin encompassing more than one State could be arranged in downstream order by assembling pages from the various State reports by station number to include all records in the basin.

## EXPLANATION OF SURFACE-WATER DATA

### Collection and Computation of Data

The base data collected at gaging stations consists of records of stage and measurements of discharge of streams or canals, and stage, surface area, and contents of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from a water-stage recorder that gives a continuous graph of the fluctuations (for digital recorders, a tape punched at 15-, 30-, or 60-minute intervals) or from direct readings on a nonrecording gage. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey on the basis of experience in stream gaging since 1888. These methods are described in standard textbooks on the measurement of stream discharge. (See also SELECTED REFERENCES.) Surface areas of lakes or reservoirs are determined from instrument surveys using standard methods. The configuration of the reservoir bottom is determined by sounding at many points.

For a stream-gaging station rating tables giving the discharge for any stage are prepared from stage-discharge relation curves defined by discharge measurements. If extensions to the rating curves are necessary to define the extremes of discharge, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), velocity-area studies, and logarithmic plotting. The application of the daily mean gage heights to the rating table gives the daily mean discharge from which the monthly and the yearly mean discharge are computed. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

At some stream-gaging stations the stage-discharge relation is affected by backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in determining discharge. Information required for determining the slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in determining discharge.

At some stream-gaging stations the stage-discharge relation is affected by ice in the winter, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of the gage-height record and occasional winter discharge measurements, consideration being given to the available information on temperature and precipitation, notes by gage observers and hydrologists, and comparable records of discharge for other stations in the same or nearby basins.

For a lake or reservoir station, capacity tables giving the contents for any stage are prepared from stage-area relation curves defined by surveys. Discharge over spillways is computed from a stage-discharge relation curve defined by discharge measurements. The application of the stage to the capacity table gives the contents, from which the daily, monthly, or yearly change in contents is computed.

If the stage-capacity curve is subject to changes because of deposition of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys the computed contents may be increasingly in error due to the gradual accumulation of sediment.

For some gaging stations there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the basis of recorded range in stage, adjoining good record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise daily contents may be estimated on the basis of operator's log, adjoining good record, inflow-outflow studies, and other information.

The data in this report generally comprise a description of the station and tabulations of basic data. For gaging stations on streams or canals a table showing the daily discharge and monthly and yearly discharge is given. For gaging stations on lakes and reservoirs a monthly summary table of stage and contents or a table showing the daily contents is given. Tables of daily mean gage heights are included for some streamflow stations and for some reservoir stations. Records are published for the water year, which begins on October 1 and ends on September 30. A calendar for the 1969 water year is shown on the reverse side of the front cover to facilitate finding the day of the week for any date.

The description of the gaging station gives the location, drainage area, period of record, type and history of gages, average discharge, extremes of discharge or contents, and general remarks. The location of the gaging station and the drainage area are obtained from the most accurate maps available. River mileage, given under "LOCATION" for some stations, is that determined and used by the Corps of Engineers or other agencies. Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD." The type of gage currently in use, the datum of the present gage above mean sea level, and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." In references to datum of gage, the phrase "mean sea level" denotes "Sea Level Datum of 1929" as used by the Topographic Division of the Geological Survey, unless otherwise qualified. The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE"; it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. In addition, the median of yearly mean discharges is given for stream-gaging stations having 10 or more complete years of record if the median differs from the average by more than 10 percent. The maximum discharge (or contents) and the maximum gage height, the minimum discharge

if there is little or no regulation (or the minimum contents), and the minimum gage height if it is significant are given under "EXTREMES." The minimum daily discharge is given if there is extensive regulation (also the minimum discharge and gage height if they are abnormally low). In the first paragraph headed "Current year:" the data given are for the complete current water year unless otherwise specified. In the second paragraph under "EXTREMES" headed "Period of record:" the data given are for the period of record given in the PERIOD OF RECORD paragraph. Reliable information concerning major floods that occurred outside the period of record is given in the third or last paragraph under "EXTREMES." Unless otherwise qualified, the maximum discharge (or contents) corresponds to the crest stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur at the same time as the maximum discharge or contents, it is given separately. Information pertaining to the accuracy of the discharge records, to conditions that affect the natural flow at the gaging station, and availability of Water Quality records, is given under "REMARKS"; for reservoir stations information on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir, is also given under "REMARKS."

Previously published records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISIONS (WATER YEARS)" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1933 stands for the water year October 1, 1932, to September 30, 1933. If no daily, monthly, or annual figures of discharge were revised, that fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

Skeleton rating tables are published for stream-gaging stations where they serve a useful purpose and the dates of applicability can be easily identified.

Skeleton capacity tables are published for all reservoirs for which records of contents are published on a daily basis.

The daily tables for stream-gaging stations give the discharge corresponding to the daily mean gage height unless there are large or rapid changes in the discharge during a day. For days having large or rapid changes, discharge for the day is computed by averaging the mean discharge for several parts of a day. For digital recorders, the daily mean discharge is always the average of the discharges at each punched reading. For stations equipped with nonrecording gages, the daily discharge corresponds to once-daily readings of the gage or to the mean of twice-daily readings; but for periods of rapidly changing stage the discharge is determined from a gage-height graph based on gage readings.

The daily tables for reservoir stations give the contents corresponding to the water-surface elevation at a given time, usually at 2400 each day. For some reservoirs the elevation at a given time is given in the daily table.

The monthly summary is given below the daily table. For stream-gaging stations the line headed "TOTAL" gives the sum of the daily figures; it is the total cubic feet per second per day for the month. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also is expressed in acre-feet (line headed "AC-FT").

For reservoir stations the monthly summary gives the elevation (or gage height) at the end of the month and the change in contents during the month. If elevation or gage height is given in the daily table, the monthly summary gives the contents at the end of the month, rather than the elevation or gage height. For some reservoirs a tabulation of monthly evaporation from the water surface also is included.

In the yearly summary below the monthly summary, the figures of maximum are the maximum daily discharges for the calendar and water years; likewise, the minimums in this summary are the minimum daily discharges.

For reservoir stations the yearly summary gives the change in contents for the calendar year and for the water year. For some reservoirs the yearly evaporation also is included.

Peak discharges and their times of occurrence and corresponding gage heights for many stations are listed below the yearly summary. All independent peaks above the selected base are given. The base discharge, which is given in parentheses, is selected so that an average of about three peaks a year can be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030 and 1:30 p.m. is 1330.

In a general footnote, introduced by the word "NOTE" certain periods are indicated for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage-discharge relation, or of any other unusual condition at the gage are indicated only if they are a month or more in length and the accuracy of the records is affected. Days on which the stage-discharge relation is affected by ice are not indicated. The methods used in computing discharge for various unusual conditions have been explained in preceding paragraphs. Footnotes to reservoir tables may be used to explain the use of new capacity tables or for other special conditions.

#### Accuracy of Data

The accuracy of discharge data depends primarily on (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretation of records.

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges is within 5 percent; "good" within 10 percent; and "fair" within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 cfs; to tenths between 1.0 and 10 cfs; to whole numbers between 10 and 1,000 cfs; and to 3 significant figures above 1,000 cfs. The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for partial-record stations and miscellaneous sites.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumptive use, regulation, evaporation, or other factors. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or unadjusted losses (consumptive use, evaporation, seepage, etc.) are large in comparison with the observed discharge.

#### Publications

Each volume of the 1960 series of U.S. Geological Survey water-supply papers entitled "Surface Water Supply of the United States" contains a listing of the numbers of all water-supply papers in which records of surface-water data were published for the area covered by the individual volumes. Each volume also contains a list of water-supply papers that give detailed information on major floods for the area. A new series of water-supply papers containing surface-water records for the 5-year period October 1, 1960, to September 30, 1965, also includes lists of annual and special reports published as water-supply papers.

Records through September 1950 for the area covered by this report have been compiled and published in Water-Supply Papers 1313(9), 1314(10), and 1315 A and B(11); records for October 1950 to September 1960 have been compiled and published in Water-Supply Papers 1733(9), 1734(10), and 1735(11). These reports contain summaries of monthly and annual discharge and monthend storage for all previously published records, as well as some records not contained in the annual series of water-supply papers. All records were reexamined and revised where warranted. Estimates of discharge were made to fill short gaps whenever practical. The yearly summary table for each gaging station lists the numbers of the water-supply papers in which daily records were published for that station.

Special reports on major floods or droughts or of other hydrologic studies for the area have been issued in publications other than water-supply papers. Information relative to these reports may be obtained from the district office.

#### Other Data Available

Data collected at partial-record stations and at miscellaneous sites are given in three tables at the end of the surface-water records in this report. The first is a table of discharge measurements at low-flow partial-record stations, the second is a table of annual maximum stage and discharge at crest-stage stations, and the third is a table of discharge measurements at miscellaneous sites. Occasionally, discharge

measurements are made within a short time period to investigate the seepage gains or losses along a reach of a stream or to determine the low-flow characteristics of an area. Such measurements are also at the end of this report. Data for most crest-stage partial-record stations in California are not included in this report. They are published separately in an annual report, "Floods from Small Drainage Areas," copies of which may be obtained from the district office.

More detailed information than that published for most of the gaging stations, such as discharge measurements, gage-height records, and rating tables, is on file in the district office. Many gaging-station records in California through 1958 have been analyzed to give several statistical summaries: (1) the number of days in each year that the daily discharge was between selected limits (duration tables); (2) the lowest mean discharge for selected numbers of consecutive days in each year; and (3) the highest mean discharge for selected numbers of consecutive days in each year.

At or near some gaging stations, water-quality records also are collected. Data are obtained on the chemical quality of the stream water, on water temperature, on suspended-sediment concentration, and on the particle-size distribution of suspended sediment and bed material. These data are given in Part 2 of this report. Under the "REMARKS" paragraph of the gaging-station description, reference is made to water-quality records collected on a regular basis.

#### HYDROLOGIC CONDITIONS

During the current year the runoff over the State averaged considerably above normal due primarily to holdover conditions from the preceding year of near-record runoff which produced extreme flooding in southern California and also because of heavy storms in northern and central California occurring December and January. These storms were accompanied by relatively high temperatures causing high runoff from premature snowmelt. For the remainder of the year precipitation was below normal and the temperatures were above normal. Runoff reduced gradually, becoming deficient in southern California near the end of the water year.

The effects of the previous year's heavy precipitation were clearly evident in the runoff patterns observed in October and November. Flows in October were well-above normal at all points reducing gradually to near-normal values by the end of November. This downward trend continued through December in southern California, but excessive runoff occurred in northern California in response to the December storms.

A series of warm heavy storms in January melted much of the snowpack from the December storms producing high sustained runoff in areas in northern and central California extending north along the coast from Santa Cruz and as far south as the Kings River drainage in the Sierra Nevada. Peaks in these areas ranged from 50 to 110 percent of previously recorded maximums, and runoff volumes were extremely high. Inflow into many major reservoirs was exceeded only by that which occurred in 1964. Maximum allowable releases were required at several reservoirs to maintain flood-control reserves. Minor flooding occurred in some communities on the Pit and North Fork Feather Rivers and in the bypass channels of the Sacramento River.



In contrast to the previous two months, the runoff in February was near or below normal over most of the State. Precipitation was below normal but temperatures were generally above normal, and since there was little snow left to melt at intermediate elevations the runoff from mountainous areas was less than normal.

Runoff for the remainder of the year was generally near or somewhat below normal over most of the State except in southern California where it became deficient. During the summer months hot dry weather and hot winds in southern California increased the usual fire hazard resulting in many destructive fires. In excess of one-third million acres of brush and timber land were burned in the mountainous areas. More than 300 homes were destroyed by fires and eight lives were lost.

The early high runoff filled most reservoirs in northern California and at the end of the year the contents of major reservoirs in that area, although about 90 percent of that a year ago, were still about 120 percent of average. Contents of reservoirs in southern California were generally low at the end of the year.

Figure 1 shows the runoff for index stations in California for the 1970 water year expressed in percentage of the 1930-60 median.

#### SELECTED REFERENCES

- Carter, R. W., and Davidian, Jacob, 1968, General procedure for gaging streams: U.S. Geol. Survey Techniques Water-Resources Inv., book 3, chap. A6, 13 p.
- Corbett, D. M., and others, 1943, Stream-gaging procedure, a manual describing methods and practices of the Geological Survey: U.S. Geol. Survey Water-Supply Paper 888, 245 p.
- Langbein, W. B., and Iseri, K. T., 1960, General introduction and hydrologic definitions: U.S. Geol. Survey Water-Supply Paper 1541-A, 29 p.

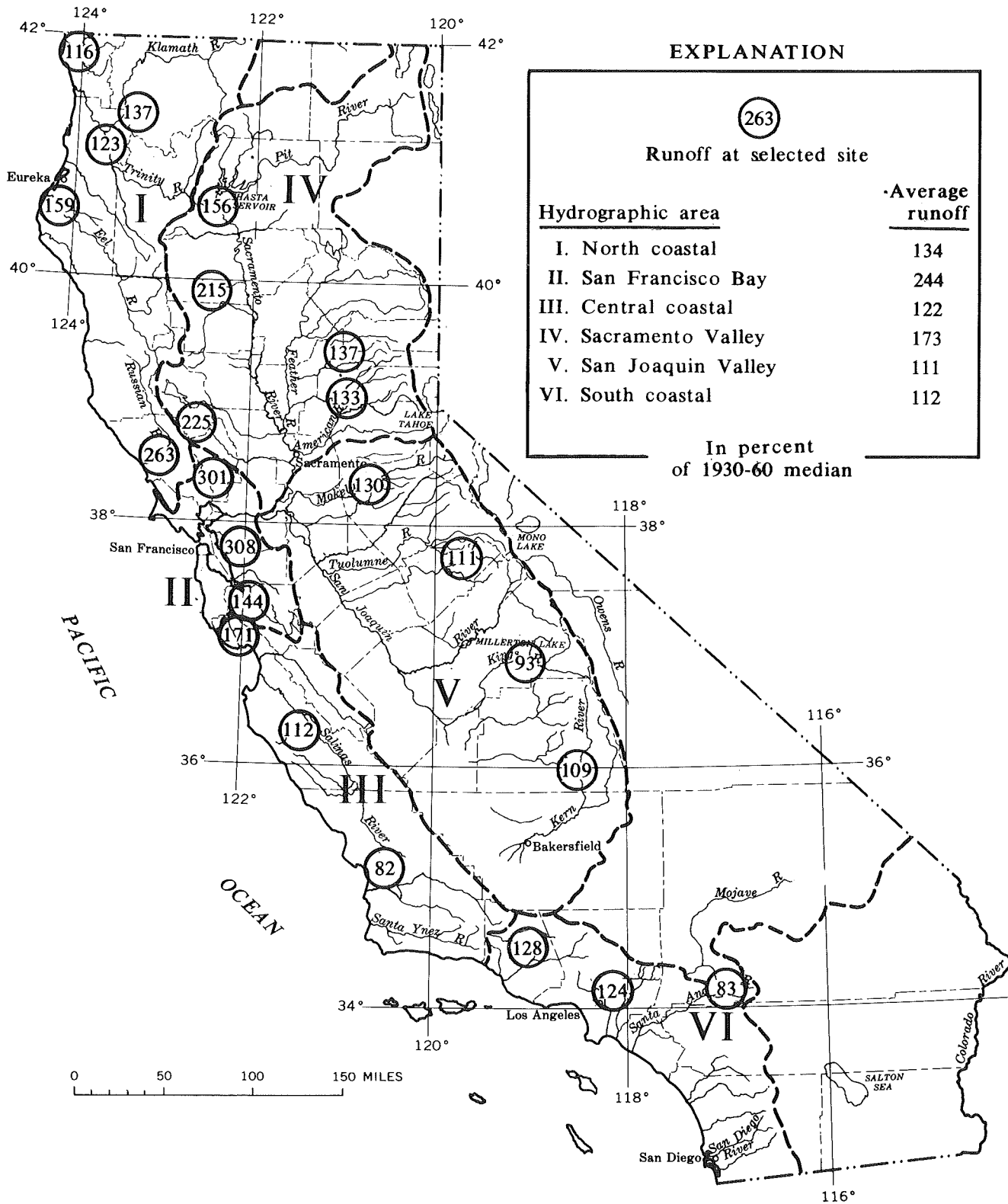


FIGURE 1.--Runoff for the 1970 water year.

## 10289000 VIRGINIA CREEK NEAR BRIDGEPORT, CALIF.

LOCATION.--Lat 38°11'30", long 119°12'30", near center of W $\frac{1}{2}$  sec.22, T.4 N., R.25 E., Mono County, on right bank 1.2 miles downstream from Clearwater Creek, 3 miles upstream from mouth, and 4.2 miles southeast of Bridgeport.

DRAINAGE AREA.--63.6 sq mi.

PERIOD OF RECORD.--October 1953 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 6,700 ft (from topographic map).

AVERAGE DISCHARGE.--17 years, 16.6 cfs (12,030 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 128 cfs Jan. 16 (gage height, 4.08 ft); minimum, 4.5 cfs Feb. 19.  
Period of record: Maximum discharge, 1,300 cfs Dec. 23, 1955 (gage height, 8.40 ft), from rating curve extended above 170 cfs on basis of slope-area measurement of peak flow; minimum, 1.0 cfs Aug. 18, 1960, July 28, 1961.

REMARKS.--Records good. Flow partly regulated by Virginia Lakes and other lakes near headwaters. Diversions for irrigation of 3,000 acres above station.

REVISIONS.--WSP 1927: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	16	14	12	14	15	17	15	26	17	8.4	8.4
2	15	16	14	11	14	15	21	15	25	15	8.1	8.1
3	15	16	13	10	15	14	20	17	28	16	7.8	8.1
4	15	16	13	12	15	13	21	19	31	15	7.5	7.8
5	15	15	13	12	15	14	23	20	30	16	7.2	8.4
6	16	16	14	11	15	13	24	21	29	18	7.2	8.8
7	16	17	14	13	16	14	22	18	28	20	6.8	8.1
8	15	16	13	14	16	15	22	19	29	21	6.5	7.2
9	15	16	13	14	15	14	22	20	30	22	6.2	7.2
10	15	17	13	15	15	14	23	20	25	27	6.2	7.2
11	16	16	15	16	22	13	21	17	22	21	5.9	7.2
12	16	16	16	15	18	14	19	14	24	19	6.2	6.8
13	16	16	17	15	15	17	17	14	30	18	6.2	6.5
14	16	16	15	16	15	20	17	15	24	17	6.2	7.2
15	18	16	15	16	15	21	17	16	21	16	6.2	7.8
16	34	16	15	63	15	21	18	18	18	15	6.2	7.8
17	27	12	14	40	15	21	19	22	16	14	6.2	7.8
18	23	13	16	32	14	17	20	27	17	12	6.5	7.5
19	23	15	25	29	13	15	19	28	20	11	6.2	7.5
20	22	15	38	22	14	16	16	26	23	10	6.2	7.5
21	21	15	31	26	14	18	15	24	28	10	6.2	7.8
22	18	14	23	33	14	22	15	25	29	9.8	6.5	7.8
23	18	14	21	24	14	25	15	27	29	9.8	5.9	8.1
24	18	14	21	20	14	29	15	29	29	9.4	5.9	8.1
25	17	14	22	19	14	28	15	28	29	8.8	8.8	8.1
26	17	14	14	17	16	25	15	27	29	9.1	8.8	8.1
27	17	14	13	17	16	21	14	27	38	9.8	9.1	8.1
28	16	14	12	15	16	23	14	26	32	8.8	9.4	8.1
29	16	14	11	13	-----	21	16	21	27	8.4	10	8.1
30	16	14	12	14	-----	17	16	22	20	8.4	9.4	8.1
31	16	-----	12	14	-----	15	-----	24	-----	8.8	8.4	-----
TOTAL	553	453	512	600	424	560	548	661	786	441.1	222.3	233.3
MEAN	17.8	15.1	16.5	19.4	15.1	18.1	18.3	21.3	26.2	14.2	7.17	7.78
MAX	34	17	38	63	22	29	24	29	38	27	10	8.8
MIN	15	12	11	10	13	13	14	14	16	8.4	5.9	6.5
AC-FT	1,100	899	1,020	1,190	841	1,110	1,090	1,310	1,560	875	441	463

CAL YR 1969 TOTAL 16,250.0 MEAN 44.5 MAX 237 MIN 6.0 AC-FT 32,230

WAT YR 1970 TOTAL 5,993.7 MEAN 16.4 MAX 63 MIN 5.9 AC-FT 11,890

PEAK DISCHARGE (BASE, 50 CFS).--Dec. 20 (1045) 60 cfs (3.39 ft); Jan. 16 (1500) 128 cfs (4.08 ft).

## WALKER LAKE BASIN

## 10289500 GREEN CREEK NEAR BRIDGEPORT, CALIF.

LOCATION.--Lat 38°10'25", long 119°14'00", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.29, T.4 N., R.25 E., Mono County, on right bank 130 ft downstream from county road bridge, 0.1 mile upstream from diversion to Summers Creek, and 5.5 miles south of Bridgeport.

DRAINAGE AREA.--19.5 sq mi.

PERIOD OF RECORD.--October 1953 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 6,850 ft (from topographic map).

AVERAGE DISCHARGE.--17 years, 29.1 cfs (21,080 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 164 cfs June 27 (gage height, 2.75 ft); minimum, 5.8 cfs Mar. 9.  
Period of record: Maximum discharge, 351 cfs July 4, 1967 (gage height, 3.26 ft); maximum gage height, 4.09 ft Feb. 25, 1962 (backwater from ice); minimum discharge, 1.4 cfs Apr. 4, 1964.

REMARKS.--Records good. Flow regulated by West, Green, East, Summit, and other lakes.

REVISIONS.--WSP 1927: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB.	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	14	10	11	17	11	15	18	101	66	33	26
2	18	14	10	10	14	9.0	16	19	101	68	31	24
3	18	14	9.5	9.0	15	10	16	23	116	72	29	23
4	18	14	9.0	9.8	15	10	16	29	124	74	29	22
5	18	14	9.5	9.0	15	11	17	34	124	76	28	20
6	18	14	11	9.0	14	12	19	40	111	90	28	20
7	17	14	10	11	13	11	20	33	111	92	27	19
8	16	14	9.4	12	13	11	21	33	116	82	26	18
9	15	13	10	12	13	11	21	34	121	82	25	17
10	15	13	10	12	13	11	24	37	99	80	25	16
11	15	13	12	12	14	10	26	33	78	74	24	15
12	15	13	11	13	14	10	25	29	72	69	23	15
13	14	13	10	13	12	11	24	30	69	69	24	13
14	14	13	10	13	11	12	21	33	61	71	23	13
15	16	13	9.7	13	13	13	22	40	55	69	23	13
16	25	13	9.4	21	12	13	22	48	54	69	22	12
17	22	10	9.0	29	12	13	21	58	58	68	21	12
18	20	10	10	29	11	12	20	66	66	63	21	12
19	19	11	12	26	10	12	20	66	82	64	22	11
20	18	12	20	25	11	12	19	60	101	66	34	10
21	18	12	21	24	12	12	18	57	118	66	34	10
22	18	11	19	37	12	13	17	61	133	66	32	10
23	17	9.5	17	32	11	14	16	74	133	58	31	10
24	17	10	16	21	11	15	16	86	127	52	30	9.8
25	16	10	18	22	10	17	16	88	130	48	29	9.7
26	16	9.5	16	22	10	17	18	90	130	45	28	9.7
27	15	9.5	13	20	10	16	16	99	151	43	28	9.6
28	15	9.2	11	18	10	16	17	94	135	41	28	9.4
29	14	9.0	10	15	-----	17	18	88	99	38	28	8.8
30	14	9.5	11	17	-----	16	18	90	78	36	28	8.8
31	14	-----	12	16	-----	15	-----	99	-----	35	27	-----
TOTAL	524	358.2	375.5	542.8	348	393.0	575	1,689	3,054	1,992	841	426.8
MEAN	16.9	11.9	12.1	17.5	12.4	12.7	19.2	54.5	102	64.3	27.1	14.2
MAX	25	14	21	37	17	17	26	99	151	92	34	26
MIN	14	9.0	9.0	9.0	10	9.0	15	18	54	35	21	8.8
AC-FT	1,040	710	745	1,080	690	780	1,140	3,350	6,060	3,950	1,670	847
CAL YR 1969	TOTAL	20,342.6	MEAN	55.7	MAX	275	MIN	6.0	AC-FT	40,350		
WAT YR 1970	TOTAL	11,119.3	MEAN	30.5	MAX	151	MIN	8.8	AC-FT	22,060		

## 10290300 Upper Twin Lake near Bridgeport, Calif.

LOCATION.--Lat 38°09'15", long 119°20'58", in NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.5, T.3 N., R.24 E., Mono County, at outlet of upper lake dam on Robinson Creek and 10 miles southwest of Bridgeport.

DRAINAGE AREA.--29.5 sq mi.

PERIOD OF RECORD.--December 1961 to February 1964, September 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (project datum of U. S. Indian Irrigation Service).

EXTREMES.--Current year: Maximum contents, 2,670 acre-ft June 27 (elevation, 7,208.88 ft); minimum, about 500 acre-ft about Sept. 30. Period of record: Maximum contents observed, 2,900 acre-ft June 22, July 5, 6, 1967 (elevation, 7,209.58 ft); minimum observed, 62 acre-ft Oct. 31, Nov. 1, 1964 (elevation, 7,200.22 ft). No contents Oct. 17, 1961.

REMARKS.--Contents regulated by dam at outlet. Figures given herein represent usable contents. Usable contents, 2,070 acre-ft between elevations 7,200 (natural rim) and 7,207 ft (spillway crest).

## ELEVATIONS AND CONTENTS, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Oct. 31. . . . .	7,207.40	2,200	-10
Nov. 20. . . . .	7,207.37	2,190	-10
Dec. 22. . . . .	7,207.37	2,190	0
Dec. 31. . . . .	-	g 2,200	+10
Calendar year 1969 . . . . .	-	-	+600
Jan. 28. . . . .	7,207.48	2,220	+20
Mar. 4. . . . .	7,207.35	2,180	-40
Apr. 11. . . . .	7,207.46	2,220	+40
May 31. . . . .	7,208.42	2,520	+300
June 30. . . . .	7,208.25	2,470	-50
July 31. . . . .	7,207.84	2,340	-130
Aug. 31. . . . .	7,203.62	1,020	-1,320
Sept. 15. . . . .	7,202.14	599	-421
Sept. 30. . . . .	-	g 500	-99
Water year 1969-70 . . . . .	-	-	-1,710

g Contents interpolated.

## 10290400 Lower Twin Lake near Bridgeport, Calif.

LOCATION.--Lat 38°10'05", long 119°19'33", in NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.33, T.4 N., R.24 E., Mono County, at outlet of lower lake dam on Robinson Creek and 8 miles southwest of Bridgeport.

DRAINAGE AREA.--38.9 sq mi.

PERIOD OF RECORD.--December 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (project datum of U. S. Indian Irrigation Service).

EXTREMES.--Current year: Maximum contents, 5,100 acre-ft June 27, 28 (elevation, 7,202.55 ft); minimum interpolated from mid-month readings, 1,390 acre-ft Sept. 30. Period of record: Maximum contents, 5,490 acre-ft June 6, 1969 (elevation, 7,203.51 ft); no contents Nov. 17, 1966.

REMARKS.--Contents regulated by dam at outlet and by Upper Twin Lake. Figures given herein represent usable contents. Usable contents, 4,010 acre-ft between elevations 7,190 (natural rim) and 7,200 ft (spillway crest). One transarea diversion out of Tamarack Creek into Summers Creek.

## ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Oct. 31. . . . .	7,197.96	3,180	-260
Nov. 20. . . . .	7,198.38	3,360	+180
Dec. 22. . . . .	7,200.85	4,370	+1,010
Dec. 31. . . . .	-	g 4,380	+10
Calendar year 1969 . . . . .	-	-	+3,080
Jan. 28. . . . .	7,200.97	4,420	+40
Mar. 3. . . . .	7,200.61	4,270	-150
Apr. 11. . . . .	7,200.70	4,300	+30
Apr. 30. . . . .	-	g 4,140	-160
May 31. . . . .	7,201.92	4,830	+690
June 30. . . . .	7,202.07	4,890	+60
July 31. . . . .	7,201.27	4,550	-340
Aug. 31. . . . .	-	g 2,410	-2,140
Sept. 30. . . . .	-	g 1,390	-1,020
Water year 1969-70 . . . . .	-	-	-2,050

g Contents interpolated.

## WALKER LAKE BASIN

10290500 ROBINSON CREEK AT TWIN LAKES OUTLET, NEAR BRIDGEPORT, CALIF.

LOCATION.--Lat 38°10'20", long 119°19'25", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.28, T.4 N., R.24 E., Mono County, on left bank 0.2 mile downstream from Twin Lakes and 8 miles southwest of Bridgeport.

DRAINAGE AREA.--39.1 sq mi.

PERIOD OF RECORD.--October 1953 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 7,050 ft (from topographic map).

AVERAGE DISCHARGE (unadjusted).--17 years, 59.5 cfs (43,110 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 268 cfs June 28 (gage height, 3.70 ft); minimum daily, 0.07 cfs Dec. 5-7.

Period of record: Maximum discharge, 492 cfs June 20, 1963; maximum gage height, 4.62 ft June 6, 1969; no flow for many days in some years.

Maximum discharge known, 660 cfs June 21, 1911 (gage height, 5.2 ft), at site 2.5 miles downstream.

REMARKS.--Records good. Flow regulated by Twin Lakes.

REVISIONS.--WSP 1927: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57	26	.12	28	34	27	28	81	167	178	89	102
2	56	26	.09	27	32	28	28	92	173	164	84	99
3	55	26	.12	26	31	27	28	85	182	159	80	96
4	55	25	.09	24	30	27	29	83	197	160	106	92
5	54	23	.07	22	29	27	29	82	212	163	134	89
6	54	23	.07	22	28	27	30	81	216	173	114	82
7	54	23	.07	21	28	26	30	80	216	181	103	69
8	53	23	.11	21	27	27	30	80	215	183	97	60
9	51	23	.16	25	26	25	32	79	218	181	93	46
10	43	23	1.4	30	26	25	34	78	209	180	91	45
11	36	23	3.3	28	27	25	34	77	191	174	90	45
12	35	24	4.0	27	28	25	36	75	174	168	89	44
13	35	24	4.8	26	29	25	38	75	162	163	89	42
14	35	24	7.1	31	29	25	40	74	145	162	88	42
15	35	24	8.1	35	28	24	39	74	130	163	87	41
16	35	24	11	46	28	24	40	74	120	161	87	41
17	35	23	11	56	30	24	41	75	115	159	86	41
18	35	23	12	54	28	23	40	64	118	154	86	40
19	35	23	16	51	28	23	40	58	129	149	86	40
20	32	24	25	46	27	23	36	59	151	149	85	39
21	26	23	33	46	26	23	35	64	177	151	85	30
22	26	24	41	53	26	24	34	50	198	149	123	22
23	26	24	47	58	26	24	33	58	215	144	158	22
24	26	15	43	67	25	24	32	90	225	136	177	22
25	26	.30	44	59	25	25	33	116	234	127	171	22
26	26	.30	42	56	25	26	35	135	238	117	166	22
27	26	.29	39	54	25	26	33	153	251	111	159	22
28	25	.20	36	49	25	27	31	160	256	105	153	22
29	25	.20	33	43	-----	28	31	160	233	98	147	22
30	25	.13	31	40	-----	28	30	159	202	95	139	22
31	25	-----	29	37	-----	28	-----	161	-----	92	119	-----
TOTAL	1,162	564.42	522.60	1,208	776	790	1,009	2,832	5,669	4,649	3,461	1,423
MEAN	37.5	18.8	16.9	39.0	27.7	25.5	33.6	91.4	189	150	112	47.4
MAX	57	26	47	67	34	28	41	161	256	183	177	102
MIN	25	.13	.07	21	25	23	28	50	115	92	80	22
AC-FT	2,300	1,120	1,040	2,400	1,540	1,570	2,000	5,620	11,240	9,220	6,860	2,820
CAL YR 1969	TOTAL	37,800.58	MEAN	104	MAX	460	MIN	0	AC-FT	74,980		
WAT YR 1970	TOTAL	24,066.02	MEAN	65.9	MAX	256	MIN	.07	AC-FT	47,730		

## 10291500 BUCKEYE CREEK NEAR BRIDGEPORT, CALIF.

LOCATION.--Lat 38°14'20", long 119°19'30", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.4, T.4 N., R.24 E., Mono County, on right bank at Buckeye Hot Springs, 0.6 mile downstream from Eagle Creek, and 5.5 miles southwest of Bridgeport.

DRAINAGE AREA.--44.1 sq mi.

PERIOD OF RECORD.--November 1910 to September 1914 (fragmentary), October 1953 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 6,900 ft (from topographic map). November 1910 to September 1914, nonrecording gage at site 0.5 mile downstream at different datum.

AVERAGE DISCHARGE.--18 years (1911-12, 1953-70), 59.9 cfs (43,400 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 308 cfs June 3, 4 (gage height, 3.22 ft); minimum, 16 cfs Dec. 9, Mar. 3, 6.

1953 to current year: Maximum discharge, 947 cfs Feb. 1, 1963 (gage height, 4.41 ft), from rating curve extended above 360 cfs on basis of slope-area measurement at gage height 4.00 ft and logarithmic plotting; minimum, 3.3 cfs Dec. 12, 1959, result of freezeup.

Flood of June 21, 1911, reached an observed stage of 4.8 ft (discharge not determined), site and datum then in use.

REMARKS.--Records good except those for winter months, which are fair. No regulation or diversion above station.

REVISIONS.--WSP 1927: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	33	23	25	23	27	39	42	225	129	53	28
2	37	32	23	22	22	20	42	45	232	136	51	27
3	38	32	23	27	25	23	43	53	252	144	50	27
4	38	32	23	25	29	23	44	65	260	136	50	26
5	37	32	23	23	29	26	47	77	248	155	50	26
6	37	33	23	23	29	25	52	85	241	160	48	26
7	37	32	24	30	29	26	54	70	238	146	47	25
8	36	31	24	31	29	26	55	69	240	138	47	24
9	36	30	23	30	29	26	57	69	213	133	45	24
10	36	31	22	28	29	26	64	71	168	120	43	23
11	36	31	23	26	29	26	63	67	145	117	43	23
12	35	31	24	25	29	26	60	61	140	108	43	22
13	36	31	24	25	29	28	55	64	127	112	43	21
14	35	31	23	27	28	30	55	78	108	110	42	22
15	42	31	24	26	28	30	51	100	101	112	40	22
16	54	29	24	134	27	31	49	136	118	105	40	22
17	44	24	24	48	27	33	46	174	143	94	39	21
18	40	22	24	40	22	31	45	194	166	88	39	21
19	38	25	32	34	23	30	45	182	195	94	39	20
20	37	28	53	33	24	30	43	154	214	92	37	21
21	37	28	52	52	25	32	42	150	223	93	37	21
22	37	26	44	72	26	34	40	129	236	87	36	21
23	37	26	36	49	25	37	39	113	225	78	35	20
24	37	27	34	43	25	42	40	152	227	75	33	20
25	36	26	38	42	25	45	41	188	215	71	33	20
26	36	25	34	37	26	46	42	206	219	68	32	20
27	35	25	25	36	26	44	40	210	244	65	31	19
28	34	25	20	20	27	44	39	171	190	62	32	19
29	33	23	22	20	-----	44	40	184	152	61	32	19
30	33	23	26	22	-----	42	40	201	130	60	31	19
31	33	-----	30	21	-----	40	-----	210	-----	56	29	-----
TOTAL	1,155	855	867	1,096	744	993	1,412	3,770	5,835	3,205	1,250	669
MEAN	37.3	28.5	28.0	35.4	26.6	32.0	47.1	122	195	103	40.3	22.3
MAX	54	33	53	134	29	46	64	210	260	160	53	28
MIN	33	22	20	20	22	20	39	42	101	56	29	19
AC-FT	2,290	1,700	1,720	2,170	1,480	1,970	2,800	7,480	11,570	6,360	2,480	1,330
CAL YR 1969	TOTAL 42,736	MEAN 117	MAX 556	MIN 11	AC-FT 84,770							
WAT YR 1970	TOTAL 21,851	MEAN 59.9	MAX 260	MIN 19	AC-FT 43,340							

PEAK DISCHARGE (BASE, 100 CFS)							
DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-16	0900	2.96	223	6-3	2300	3.22	308
5-18	0100	3.02	238	6-21	2400	3.22	304

## WALKER LAKE BASIN

## 10292000 SWAGER CREEK NEAR BRIDGEPORT, CALIF.

LOCATION.--Lat 38°17'00", long 119°17'50", in SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.23, T.5 N., R.24 E., Mono County, on right bank 0.8 mile downstream from Yane Canyon and 4 miles northwest of Bridgeport.

DRAINAGE AREA.--52.8 sq mi.

PERIOD OF RECORD.--June 1911 to September 1915 (fragmentary), October 1953 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 6,620 ft (from topographic map). June 1911 to September 1915 nonrecording gages at approximately same site at different datums.

AVERAGE DISCHARGE.--18 years (1911-12, 1953-70), 12.6 cfs (9,130 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 47 cfs Jan. 16 (gage height, 2.39 ft); minimum, 2.1 cfs Aug. 13, 14, 26.

Period of record: Maximum discharge, 585 cfs Dec. 23, 1955 (gage height, 6.24 ft), from rating curve extended above 175 cfs on basis of slope-area measurement of peak flow; minimum observed, 0.50 cfs Apr. 20, 1912, Feb. 28, 1969.

REMARKS.--Records good. Diversions for irrigation of about 1,000 acres above station.

REVISIONS.--WSP 1927: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	13	9.0	10	14	19	17	19	13	7.2	3.3	2.6
2	12	12	9.0	9.0	14	17	19	20	13	6.0	3.6	2.6
3	13	12	9.0	9.0	15	17	20	22	13	5.7	3.0	2.8
4	14	12	9.0	10	16	16	21	23	17	6.1	2.8	2.8
5	14	13	10	11	16	17	25	23	17	6.8	3.3	3.3
6	14	15	10	10	17	17	29	19	15	5.6	2.8	3.3
7	14	14	10	10	18	18	28	11	15	4.6	2.6	3.6
8	13	14	10	10	18	17	27	11	16	4.8	2.7	3.9
9	13	14	11	10	17	16	28	12	15	4.8	2.8	4.3
10	13	14	11	11	17	15	32	12	14	7.7	3.0	4.7
11	13	14	12	13	24	15	30	11	14	6.4	2.8	4.6
12	13	14	12	13	19	16	26	11	15	6.7	2.4	4.5
13	13	14	11	13	17	19	24	12	18	6.5	2.2	4.2
14	14	14	10	13	16	20	20	13	15	4.4	2.2	4.6
15	15	14	10	14	17	20	20	14	13	3.7	2.2	4.6
16	18	14	10	34	18	20	24	15	12	3.6	2.6	4.9
17	16	11	11	24	16	19	22	16	12	3.7	2.8	7.0
18	15	11	13	19	15	17	21	16	12	3.6	3.1	7.0
19	15	12	16	19	14	17	20	16	11	3.9	2.8	6.8
20	15	13	22	20	14	18	18	16	7.7	3.6	2.6	6.7
21	15	12	20	28	15	18	18	15	6.8	3.6	2.3	7.1
22	14	12	16	32	16	20	17	14	6.6	3.9	2.6	7.4
23	14	11	17	23	17	21	17	15	6.1	3.3	2.6	7.4
24	14	12	17	22	17	23	17	15	6.2	3.3	2.6	7.3
25	14	12	18	17	18	25	19	14	6.1	3.0	2.8	7.3
26	14	13	12	19	19	24	19	13	6.4	3.3	2.4	7.2
27	14	13	12	20	19	22	16	15	8.4	4.2	2.4	7.4
28	14	12	11	14	19	23	16	14	8.3	3.6	2.8	7.3
29	13	11	10	13	-----	22	18	14	7.5	3.0	2.8	7.2
30	13	9.0	10	14	-----	20	18	14	7.3	3.6	2.8	7.2
31	13	-----	11	14	-----	19	-----	13	-----	3.9	3.0	-----
TOTAL	431	381.0	379.0	498.0	472	587	646	468	347.4	144.1	84.7	161.6
MEAN	13.9	12.7	12.2	16.1	16.9	18.9	21.5	15.1	11.6	4.65	2.73	5.39
MAX	18	15	22	34	24	25	32	23	18	7.7	3.6	7.4
MIN	12	9.0	9.0	9.0	14	15	16	11	6.1	3.0	2.2	2.6
AC-FT	855	756	752	988	936	1,160	1,280	928	689	286	168	321

CAL YR 1969 TOTAL 14,952.6 MEAN 41.0 MAX 290 MIN 3.7 AC-FT 29,660  
WAT YR 1970 TOTAL 4,599.8 MEAN 12.6 MAX 34 MIN 2.2 AC-FT 9,120

## PEAK DISCHARGE (BASE, 25 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1545	2.25	38	3-19	1400	2.13	28
1-16	1245	2.39	47	4-10	2100	2.39	46
1-21	1900	2.36	45	5-3	2200	2.13	26
2-11	1515	2.31	41				



## 10292300 BRIDGEPORT RESERVOIR TRIBUTARY NEAR BRIDGEPORT, CALIF.

LOCATION.--Lat 38°17'15", long 119°12'50", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.16, T.5 N., R.25 E., Mono County, on left bank on upstream side of State Highway 22, 0.5 mile upstream from Rock Springs Canyon, and 2.4 miles north of Bridgeport.

DRAINAGE AREA.--0.79 sq mi.

PERIOD OF RECORD.--Water year 1963 (annual maximum), October 1963 to current year.

GAGE.--Water-stage recorder with rain-gage attachment and crest-stage gage. Altitude of gage is 6,500 ft (from topographic map). Oct. 1, 1962, to Sept. 30, 1963, crest-stage gage at same site and datum.

AVERAGE DISCHARGE.--7 years, 0.094 cfs (68 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 12 cfs Jan. 14 (gage height, 4.60 ft); no flow most of year. Period of record: Maximum discharge, 98 cfs Mar. 16, 1967 (gage height, 10.91 ft); no flow most of time.

REMARKS.--Records of flow poor. No diversion above station. Mean daily flows of 0.05 cfs or less occur at times and are considered to be below reportable stage and are given as no flow.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				0	0	.10						
2				0	0	0						
3				0	0	0						
4				0	0	0						
5				0	0	0						
6				0	0	0						
7				0	0	0						
8				0	0	.10						
9				0	0	0						
10				0	.10	0						
11				0	.20	0						
12				0	.10	0						
13				0	.10	0						
14				5.0	.10	0						
15				2.0	0	.10						
16				3.0	0	.10						
17				2.0	0	0						
18				1.0	0	0						
19				.80	0	0						
20				.60	0	0						
21				.80	0	0						
22				1.0	0	0						
23				.80	0	.10						
24				.80	0	.20						
25				.50	0	.20						
26				.40	0	.10						
27				.80	0	.10						
28				.50	0	0						
29				.30	-----	0						
30				.20	-----	0						
31		-----		.10	-----	0	-----		-----			-----
TOTAL	0	0	0	20.60	.60	1.10	0	0	0	0	0	0
MEAN	0	0	0	.66	.021	.036	0	0	0	0	0	0
MAX	0	0	0	5.0	.20	.20	0	0	0	0	0	0
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	41	1.2	2.2	0	0	0	0	0	0
CAL YR 1969	TOTAL 162.80	MEAN .45	MAX 12	MIN 0	AC-FT 323							
WAT YR 1970	TOTAL 22.30	MEAN .061	MAX 5.0	MIN 0	AC-FT 44							

NOTE.--No gage-height record Dec. 21 to Jan. 27, Feb. 14 to May 19.

## WALKER LAKE BASIN

10292500 Bridgeport Reservoir near Bridgeport, Calif.

LOCATION.--Lat 38°19'30", long 119°12'50", in SE 1/4 sec. 34, T.6 N., R.25 E., Mono County, at Bridgeport Dam on East Walker River, 4.5 miles north of Bridgeport.

DRAINAGE AREA.--358 sq mi.

PERIOD OF RECORD.--March 1926 to current year. Month-end contents only for some periods, published in WSP 1314.

GAGE.--Float gage read once daily. Datum of gage is at mean sea level.

EXTREMES.--Current year: Maximum contents, 43,820 acre-ft July 10-12 (elevation, 6,460.46 ft); minimum, 15,100 acre-ft Sept. 29, 30 (elevation, 6,447.73 ft).

Period of record: Maximum contents, 44,580 acre-ft June 12, 1938, June 25, 26, 1958 (elevation, 6,460.7 ft); no contents during fall of 1929, 1930, 1960.

REMARKS.--Reservoir is formed by earth-fill, rock-faced dam. Storage began Dec. 8, 1923. Dam completed in November 1924. Capacity, 42,460 acre-ft between elevations 6,415 (approximate elevation of bottom of reservoir) and 6,460 ft (crest of spillway). Elevation of sill of outlet gate, 6,412 ft. No dead storage. Figures given herein represent total contents. Water is used for irrigation by Walker River Irrigation District.

COOPERATION.--Elevations and capacity table furnished by Walker River Irrigation District.

REVISIONS (WATER YEARS).--WSP 1180: 1949. WSP 1927: Drainage area.

Capacity Table, (elevation, in feet, and contents, in acre-feet)

6,447	13,990	6,456	31,570
6,450	18,780	6,461	45,490
6,453	24,660		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	g23,900	29,400	35,170	38,840	38,980	42,020	42,460	40,120	36,230	43,520	37,870	21,500
2	-	29,640	35,300	38,840	38,980	41,880	42,460	39,980	36,230	43,520	37,460	21,110
3	-	29,760	35,440	38,710	38,980	41,880	42,460	39,830	36,360	43,370	36,900	20,620
4	-	30,000	35,700	38,710	38,980	41,880	42,460	39,690	36,500	43,370	36,360	20,250
5	-	30,240	35,830	38,710	39,120	42,020	42,460	39,540	36,900	43,220	35,830	19,700
6	-	30,360	35,960	38,840	39,120	42,170	42,460	39,400	37,320	43,220	35,300	19,520
7	-	30,610	36,100	38,840	39,120	42,170	42,460	39,120	37,730	43,220	34,640	19,150
8	-	30,850	36,230	38,980	39,120	42,170	42,460	38,710	38,290	43,370	33,980	18,870
9	-	31,090	36,360	39,120	39,120	42,170	42,460	38,430	38,570	43,370	33,480	18,520
10	-	31,210	36,500	39,400	39,260	41,880	42,310	38,150	38,710	43,020	32,970	18,260
11	-	31,450	36,630	39,690	39,260	42,020	42,170	37,870	39,260	43,820	32,460	18,010
12	-	31,700	36,760	39,690	39,400	42,170	42,170	37,460	39,400	43,820	31,950	17,750
13	-	31,820	36,900	39,690	39,400	42,460	42,460	37,180	39,980	43,670	31,450	17,400
14	-	32,080	37,040	39,690	39,540	42,460	42,020	36,900	40,270	43,670	30,850	17,060
15	24,990	32,330	37,320	39,980	39,690	42,310	41,880	36,760	40,560	43,370	30,660	16,820
16	25,320	32,590	37,460	40,120	39,690	42,460	41,880	36,630	40,710	43,070	29,760	16,580
17	25,760	32,710	37,590	40,850	39,980	42,310	41,880	36,630	40,850	42,760	29,160	16,420
18	25,980	32,970	37,730	39,830	39,830	42,460	42,020	36,630	41,000	42,460	28,580	16,190
19	26,310	33,090	38,010	39,400	39,830	42,460	41,880	36,500	41,150	42,310	27,900	16,110
20	26,530	33,220	38,290	39,540	39,830	42,460	41,730	36,500	41,440	42,020	27,440	15,870
21	26,750	33,480	39,120	39,540	40,120	42,460	41,580	36,500	41,580	41,880	26,860	15,710
22	27,090	33,730	39,120	40,120	40,270	42,460	41,440	36,500	41,880	41,580	26,310	15,550
23	27,320	33,980	39,120	40,270	40,560	42,460	41,440	36,500	42,170	41,290	27,760	15,470
24	27,550	34,110	39,400	40,270	40,850	42,610	41,290	36,500	42,460	41,000	25,210	15,400
25	27,780	34,380	39,540	40,120	41,000	42,460	41,290	36,500	42,610	40,710	24,770	15,320
26	28,120	34,510	39,540	39,830	41,290	42,610	41,150	36,500	42,760	40,270	24,240	15,250
27	28,360	34,640	39,260	39,400	41,440	42,460	40,850	36,500	42,920	39,980	23,720	15,170
28	28,580	34,770	38,840	39,120	41,730	42,460	40,560	36,500	43,370	39,690	23,200	15,170
29	28,820	34,900	38,710	38,980	-----	42,460	40,420	36,500	43,520	39,260	22,790	15,100
30	28,930	35,040	38,840	38,980	-----	42,310	40,270	36,360	43,670	38,840	22,290	15,100
31	29,160	-----	38,980	38,980	-----	42,460	-----	36,360	-----	38,430	21,890	-----
MAX	29,160	35,040	39,540	40,850	41,730	42,610	42,460	40,120	43,670	43,820	37,870	21,500
MIN	g23,900	29,400	35,170	38,710	38,980	41,880	40,270	36,360	36,230	38,430	21,890	15,100
(†)	6,455.00	6,457.36	6,458.79	6,458.80	6,459.75	6,459.98	6,459.25	6,457.87	6,460.39	6,458.60	6,451.65	6,447.73
(‡)	+5,330	+5,880	+3,940	0	+2,750	+730	-2,190	-3,910	+7,310	-5,240	-16,540	-6,790

CAL YR 1969 MAX 42,610 MIN 2,830 +22,400  
WTR YR 1970 MAX 43,820 MIN 15,100 +8,730

† ELEVATION, IN FEET, AT END OF MONTH.

‡ CHANGE IN CONTENTS, IN ACRE-FEET.

g CONTENTS INTERPOLATED.

## 10293000 EAST WALKER RIVER NEAR BRIDGEPORT, CALIF.

LOCATION.--Lat 38°19'40", long 119°12'50", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.34, T.6 N., R.25 E., Mono County, on right bank 1,500 ft downstream from Bridgeport Reservoir, 5 miles north of Bridgeport, and 10 miles upstream from Sweetwater Creek.

DRAINAGE AREA.--359 sq mi.

PERIOD OF RECORD.--July 1911 to September 1914 (gage heights only), October 1921 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 6,400 ft (from topographic map). Prior to Oct. 1, 1921, nonrecording gage at site 0.5 mile upstream at different datum. Oct. 1, 1921, to Feb. 21, 1924, water-stage recorder at site 1 mile downstream at different datum. Feb. 22, 1924, to Sept. 30, 1931, water-stage recorder and Oct. 1, 1931, to May 25, 1939, nonrecording gage at present site at datum 2.34 ft lower.

AVERAGE DISCHARGE (unadjusted).--47 years (1922-24, 1925-70), 138 cfs (99,980 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 860 cfs Jan. 17 (gage height, 3.50 ft); minimum daily, 12 cfs Oct. 23 to Dec. 18.

1921 to current year: Maximum discharge, 1,390 cfs June 19, 1963 (gage height, 4.64 ft); maximum gage height, 4.95 ft Jan. 22, 1943 (top of surge); minimum daily discharge, 0.2 cfs Nov. 2-29, Dec. 1-22, 25-28, 1955, Jan. 17-25, 1956.

REMARKS.--Records excellent. Diversions for irrigation of meadow pasture lands near Bridgeport. Flow regulated by Bridgeport Reservoir. Records of chemical analyses and water temperatures for the water year 1970 are published in Part 2 of this report.

REVISIONS.--WSP 1927: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	153	12	12	144	170	100	81	170	245	368	306	272
2	153	12	12	144	153	100	81	172	245	305	320	272
3	153	12	12	144	138	90	81	186	241	250	320	267
4	153	12	12	129	138	81	81	196	233	242	320	250
5	153	12	12	83	138	81	81	212	234	274	328	241
6	146	12	12	58	138	114	86	212	234	274	340	232
7	104	12	12	58	138	144	93	212	221	268	339	225
8	73	12	12	58	138	144	107	212	209	266	338	206
9	56	12	12	58	138	144	123	214	216	271	335	200
10	43	12	12	58	125	92	123	221	217	305	305	187
11	32	12	12	100	116	32	123	216	213	351	302	187
12	32	12	12	136	116	32	129	204	188	325	298	186
13	32	12	12	136	116	78	125	196	174	337	302	186
14	32	12	12	174	105	144	125	194	174	376	323	184
15	26	12	12	210	111	122	125	184	175	387	322	173
16	22	12	12	485	111	93	125	186	175	380	321	167
17	22	12	12	840	111	93	125	188	186	374	320	152
18	22	12	12	520	111	93	134	196	192	347	318	150
19	22	12	14	323	111	93	146	212	192	288	319	141
20	22	12	14	214	93	93	142	214	192	293	320	135
21	22	12	42	214	47	97	136	214	192	284	319	130
22	20	12	107	263	21	100	134	214	198	278	317	117
23	12	12	142	365	21	100	118	214	261	261	314	108
24	12	12	163	405	21	107	107	218	349	261	314	100
25	12	12	180	405	21	122	120	228	401	266	312	100
26	12	12	250	405	21	116	159	242	448	286	308	100
27	12	12	329	405	21	116	164	242	376	284	305	96
28	12	12	219	293	46	109	174	240	388	284	296	80
29	12	12	100	219	-----	104	172	233	392	284	296	76
30	12	12	60	170	-----	90	170	233	395	282	295	64
31	12	-----	111	170	-----	81	-----	235	-----	287	289	-----
TOTAL	1,601	360	1,947	7,386	2,734	3,105	3,690	6,510	7,556	9,338	9,761	4,984
MEAN	51.6	12.0	62.8	238	97.6	100	123	210	252	301	315	166
MAX	153	12	329	840	170	144	174	242	448	387	340	272
MIN	12	12	12	58	21	32	81	170	174	242	289	64
AC-FT	3,180	714	3,860	14,650	5,420	6,160	7,320	12,910	14,990	18,520	19,360	9,890

CAL YR 1969 TOTAL 127,376.9 MEAN 349 MAX 1,040 MIN 2.7 AC-FT 252,700  
WAT YR 1970 TOTAL 58,972.0 MEAN 162 MAX 840 MIN 12 AC-FT 117,000

## WALKER LAKE BASIN

10293500 EAST WALKER RIVER ABOVE STROSNIDER DITCH, NEAR MASON, NEV.

LOCATION.--Lat 38°48'50", long 119°02'50", in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.14, T.11 N., R.26 E., Lyon County, on right bank 0.8 mile upstream from head of Strosnider ditch, 12 miles southeast of Mason, and 13.5 miles southeast of Yerington.

DRAINAGE AREA.--1,100 sq mi, approximately.

PERIOD OF RECORD.--January 1947 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,574.10 ft above mean sea level. Prior to Oct. 24, 1957, at site 400 ft upstream at datum 0.56 ft higher.

AVERAGE DISCHARGE.--23 years (1947-70), 147 cfs (106,500 acre-ft per year).

EXTREMES.--Current year: Maximum daily discharge, 850 cfs Jan. 18; maximum gage height, 4.72 ft (backwater from ice); minimum daily discharge, 37 cfs Dec. 18.

Period of record: Maximum discharge, 2,380 cfs Feb. 1, 1963 (gage height, 7.60 ft); minimum, 3.1 cfs Mar. 21, 1948; minimum daily, 3.4 cfs Mar. 21-24, 1948, Apr. 5, 1961.

REMARKS.--Records good. Diversions for irrigation above station. Flow regulated by Bridgeport Reservoir.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	166	47	41	134	213	56	91	147	216	371	232	271
2	162	46	45	160	207	100	89	144	227	337	245	263
3	162	46	43	160	191	107	88	151	231	283	258	260
4	176	46	42	160	178	112	86	164	230	238	259	254
5	182	46	41	150	175	104	86	172	226	239	257	241
6	184	47	40	120	173	101	86	195	227	255	266	239
7	178	49	42	80	171	117	87	199	231	240	278	241
8	144	48	42	70	170	156	90	195	222	230	275	223
9	115	47	41	70	173	163	97	192	215	229	269	203
10	98	46	42	70	172	168	110	191	219	294	261	195
11	90	46	38	70	161	143	110	196	217	321	247	180
12	80	46	42	100	149	81	111	194	216	316	242	181
13	75	46	41	130	146	68	111	186	200	296	239	179
14	73	45	40	160	142	70	106	179	188	301	246	180
15	74	45	40	200	134	135	107	172	181	332	260	183
16	70	45	40	250	134	139	109	167	172	339	267	175
17	66	44	41	450	137	108	116	162	164	331	274	167
18	67	42	37	850	136	104	112	164	164	332	273	149
19	67	39	41	550	133	103	113	167	167	300	273	146
20	64	40	42	350	132	102	124	186	169	283	266	140
21	62	42	48	290	127	104	127	189	171	271	261	133
22	61	42	55	250	105	106	122	188	172	257	261	126
23	60	41	91	300	73	107	122	190	172	243	263	117
24	56	39	130	400	65	108	108	186	221	229	260	114
25	52	39	157	450	63	109	95	191	283	228	264	106
26	50	41	181	450	59	122	90	192	336	231	264	103
27	50	39	261	440	57	121	116	203	423	232	263	103
28	49	39	337	380	56	122	129	209	365	226	296	103
29	48	41	230	320	-----	116	146	209	367	225	297	90
30	47	39	136	242	-----	109	148	214	361	228	277	87
31	47	-----	107	216	-----	104	-----	213	-----	226	273	-----
TOTAL	2,875	1,308	2,554	8,022	3,832	3,465	3,232	5,707	6,953	8,463	8,166	5,142
MEAN	92.7	43.6	82.4	259	137	112	108	184	232	273	263	171
MAX	184	49	337	850	213	168	148	214	423	371	297	271
MIN	47	39	37	70	56	56	86	144	164	225	232	87
AC-FT	5,700	2,590	5,070	15,910	7,600	6,870	6,410	11,320	13,790	16,790	16,200	10,200
CAL YR 1969	TOTAL 149,426	MEAN 409	MAX 1,250	MIN 24	AC-FT 296,400							
WAT YR 1970	TOTAL 59,719	MEAN 164	MAX 850	MIN 37	AC-FT 118,500							

NOTE.--No gage-height record Jan. 5-29.

## 10295500 LITTLE WALKER RIVER NEAR BRIDGEPORT, CALIF.

LOCATION.--Lat 38°21'30", long 119°26'30", in NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.22, T.6 N., R.23 E., Mono County, on right bank 0.8 mile north of Sonora Junction, 1.5 miles upstream from mouth, and 14 miles northwest of Bridgeport.

DRAINAGE AREA.--63.0 sq mi.

PERIOD OF RECORD.--April to August 1910, October 1944 to current year. Prior to October 1958, published as East Fork West Walker River near Bridgeport.

GAGE.--Water-stage recorder. Altitude of gage is 6,790 ft (from topographic map). April to August 1910, nonrecording gage at site 1 mile upstream at different datum.

AVERAGE DISCHARGE.--26 years (1944-70), 51.2 cfs (37,090 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 284 cfs June 3 (gage height, 1.96 ft); minimum, 14 cfs Aug. 26. Period of record: Maximum discharge, 1,510 cfs Jan. 31, 1963 (gage height, 3.22 ft), from rating curve extended above 350 cfs on basis of slope-area measurement at gage height 2.80 ft and logarithmic plotting; maximum gage height recorded, 3.63 ft Jan. 3, 1945, (backwater from ice); minimum discharge recorded, 4.9 cfs Nov. 17, 1948, but may have been less during periods of ice effect.

REMARKS.--Records excellent except those for winter months, which are fair. Small diversions above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	25	24	32	28	23	34	37	188	119	38	18
2	31	25	25	33	27	22	34	42	202	116	36	20
3	31	25	23	25	28	24	34	50	219	116	34	20
4	32	25	22	30	29	24	35	53	241	114	34	19
5	32	24	23	27	28	25	40	63	234	124	33	21
6	31	26	23	25	28	26	44	66	234	124	32	21
7	31	26	23	25	28	25	45	56	234	116	30	20
8	29	26	23	27	28	25	46	56	216	109	25	19
9	29	26	21	30	28	24	50	57	185	104	23	19
10	29	26	21	26	28	23	57	54	154	104	24	17
11	28	26	23	23	31	23	56	50	140	94	22	17
12	28	25	21	22	28	25	51	49	126	92	23	17
13	28	25	20	22	27	28	48	53	119	92	20	17
14	27	25	20	29	27	31	46	66	107	84	22	18
15	39	25	21	27	27	30	43	77	100	82	25	19
16	50	26	20	154	25	30	45	96	104	76	27	18
17	37	24	19	62	25	30	43	126	116	69	27	17
18	34	22	21	49	24	28	40	143	132	69	27	16
19	32	23	30	45	24	27	38	132	157	72	26	16
20	31	23	50	41	24	28	35	119	179	68	25	17
21	30	25	46	104	25	28	35	116	205	65	25	17
22	30	25	33	92	25	30	36	126	209	60	25	17
23	29	24	29	57	25	33	32	146	202	54	23	17
24	28	24	30	51	25	37	32	151	202	52	19	16
25	27	25	38	50	24	42	34	154	188	50	16	16
26	27	25	33	42	25	41	36	163	205	46	15	17
27	26	25	32	43	26	38	34	170	216	44	16	17
28	26	25	31	35	26	39	34	151	160	41	18	16
29	25	23	28	30	-----	38	35	154	134	39	18	16
30	25	23	30	28	-----	35	36	163	119	38	18	16
31	25	-----	30	27	-----	33	-----	176	-----	39	17	-----
TOTAL	938	742	833	1,313	743	915	1,208	3,115	5,227	2,472	763	531
MEAN	30.3	24.7	26.9	42.4	26.5	29.5	40.3	100	174	79.7	24.6	17.7
MAX	50	26	50	154	31	42	57	176	241	124	38	21
MIN	25	22	19	22	24	22	32	37	100	38	15	16
AC-FT	1,860	1,470	1,650	2,600	1,470	1,810	2,400	6,180	10,370	4,900	1,510	1,050
CAL YR 1969	TOTAL 38,524	MEAN 106	MAX 484	MIN 14	AC-FT 76,410							
WAT YR 1970	TOTAL 18,800	MEAN 51.5	MAX 241	MIN 15	AC-FT 37,290							

## PEAK DISCHARGE (BASE, 200 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-16	1100	1.96	276	6-3	2300	1.96	284
5-26	2200	1.77	210	6-21	2100	1.91	263

## WALKER LAKE BASIN

10296000 WEST WALKER RIVER BELOW LITTLE WALKER RIVER, NEAR COLEVILLE, CALIF.

LOCATION.--Lat 38°22'47", long 119°26'57", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.9, T.6 N., R.23 E., Mono County, on right bank 150 ft downstream from Little Walker River, 60 ft upstream from bridge on U.S. Highway 395, and 13 miles southeast of Coleville.

DRAINAGE AREA.--180 sq mi.

PERIOD OF RECORD.--April 1938 to current year. Prior to October 1958, published as "below East Fork."

GAGE.--Water-stage recorder. Datum of gage is 6,591.39 ft above mean sea level, supplementary adjustment of 1958, Oct. 1, 1939, to Sept. 30, 1969, at site 100 ft upstream at same datum. Prior to Oct. 1, 1939, at site 25 ft downstream at datum 1.00 ft higher.

AVERAGE DISCHARGE.--32 years, 259 cfs (187,600 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,480 cfs June 4 (gage height, 4.28 ft); minimum, 27 cfs Nov. 28, result of freezeup.

Period of record: Maximum discharge, 6,220 cfs Nov. 20, 1950 (gage height, 8.10 ft), from rating curve extended above 1,900 cfs on basis of slope-area measurement of peak flow; minimum, 4.0 cfs Nov. 18, 1948, result of freezeup.

Maximum discharge observed prior to 1938, 5,800 cfs Dec. 11, 1937, by slope-area measurement.

REMARKS.--Records good. Station is above diversions except for a few small ranch ditches. Flow very slightly regulated by Poor Lake Reservoir (capacity unknown) 7 miles upstream. Records of chemical analyses and water temperatures for the water year 1970 are published in Part 2 of this report.

REVISIONS.--WSP 1927: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	86	76	67	70	126	98	148	167	1,130	524	152	74
2	85	76	68	72	117	98	153	191	1,200	565	141	70
3	85	76	65	76	120	95	156	248	1,280	600	136	68
4	84	76	63	72	117	92	161	322	1,340	600	132	67
5	84	74	63	70	116	101	176	434	1,280	680	129	71
6	82	77	67	70	111	93	204	495	1,220	665	123	72
7	82	77	59	70	110	100	221	383	1,200	585	121	68
8	72	77	62	74	111	98	227	379	1,160	540	119	66
9	68	71	54	93	111	95	239	369	988	508	111	66
10	68	71	62	97	110	95	287	405	758	464	104	64
11	66	74	59	82	112	92	304	354	640	456	103	62
12	64	77	54	81	114	95	284	318	610	424	112	61
13	64	77	54	76	111	102	266	337	520	436	110	59
14	64	76	53	97	106	112	241	452	460	428	109	60
15	82	77	52	92	106	114	221	592	436	428	107	60
16	153	78	54	384	105	118	215	749	500	403	103	59
17	114	56	48	228	98	123	199	973	610	355	101	57
18	100	64	53	182	90	116	185	1,070	720	339	103	55
19	90	74	63	169	94	111	182	974	863	354	102	53
20	86	72	116	157	92	112	171	811	1,010	342	100	54
21	86	71	180	302	98	118	167	759	1,050	333	97	53
22	86	62	144	448	100	123	158	864	1,120	302	94	53
23	87	62	141	323	97	133	152	993	1,050	258	89	51
24	88	62	122	269	97	148	151	993	1,040	234	88	48
25	84	63	136	212	95	171	156	981	972	222	83	46
26	84	58	96	192	95	179	169	1,110	964	207	81	46
27	81	58	90	190	97	175	160	1,130	1,100	194	81	44
28	79	57	82	143	98	177	158	919	776	181	83	44
29	76	64	74	141	-----	179	158	940	590	174	82	44
30	74	64	68	141	-----	173	159	1,030	512	173	79	44
31	74	-----	68	131	-----	162	-----	1,090	-----	164	76	-----
TOTAL	2,578	2,097	2,437	4,804	2,954	3,798	5,828	20,832	27,099	12,138	3,251	1,739
MEAN	83.2	69.9	78.6	155	106	123	194	672	903	392	105	58.0
MAX	153	78	180	448	126	179	304	1,130	1,340	680	152	74
MIN	64	56	48	70	90	92	148	167	436	164	76	44
AC-FT	5,110	4,160	4,830	9,530	5,860	7,530	11,560	41,320	53,750	24,080	6,450	3,450

CAL YR 1969 TOTAL 179,661 MEAN 492 MAX 3,090 MIN 47 AC-FT 356,400  
WAT YR 1970 TOTAL 89,555 MEAN 245 MAX 1,340 MIN 44 AC-FT 177,600

## PEAK DISCHARGE (BASE, 1,120 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
5-18	0200	4.07	1,320	6-21	2400	4.10	1,340
6- 4	2300	4.28	1,480				

## 10296500 WEST WALKER RIVER NEAR COLEVILLE, CALIF.

LOCATION.--Lat 38°30'55", long 119°27'15", in NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.28, T.8 N., R.23 E., Mono County, on left bank 0.2 mile downstream from Rock Creek and 5 miles southeast of Coleville.

DRAINAGE AREA.--271 sq mi.

PERIOD OF RECORD.--October 1902 to July 1908 (published as West Fork of Walker River near Coleville 1903, 1905-8 and as Walker River (West Fork) near Coleville 1904), March 1909 to September 1910, June 1915 to March 1938, May 1957 to current year. Monthly discharge only for some periods, published in WSP 1314.

GAGE.--Water-stage recorder. Altitude of gage is 5,520 ft (from topographic map). Prior to July 31, 1908, nonrecording gage at site 0.5 mile upstream at different datum. Mar. 1, 1909, to Aug. 31, 1910, nonrecording gage, and June 18, 1915, to Aug. 15, 1919, water-stage recorder near present site at different datums. Aug. 16, 1919, to Mar. 31, 1938, water-stage recorder at site 1,000 ft upstream at different datum. May 26, 1957, to Sept. 10, 1963, water-stage recorder at site 10 ft downstream at datum 0.38 ft lower.

AVERAGE DISCHARGE.--41 years (1902-7, 1909-10, 1915-37, 1957-70), 275 cfs (199,200 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,540 cfs June 4, 5 (gage height, 3.00 ft); minimum, 42 cfs Dec. 5.  
1915-38, 1957 to current year: Maximum discharge, 6,500 cfs Dec. 11, 1937, from slope-area measurement of peak flow; minimum, 5 cfs Dec. 3, 1924, Aug. 27, 1931.

REMARKS.--Records fair. Station is above diversions except for a few small ranch ditches. Flow very slightly regulated by Poor Lake Reservoir (capacity unknown) 17 miles upstream.

REVISIONS (WATER YEARS).--WSP 880: 1917 (runoff in acre-feet). WSP 1514: 1918, 1923. WSP 1927: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	110	91	75	76	138	117	171	179	1,110	519	173	81
2	110	93	74	70	131	112	176	195	1,190	554	161	79
3	105	93	72	70	131	115	179	253	1,270	588	155	77
4	102	93	70	70	131	115	179	332	1,380	576	149	77
5	100	91	70	70	129	119	192	450	1,370	658	144	81
6	100	97	75	74	126	112	219	528	1,360	665	137	83
7	100	95	72	80	124	117	243	428	1,310	587	135	79
8	98	95	72	85	124	117	250	421	1,300	528	133	77
9	92	91	65	97	124	112	257	402	1,140	502	125	77
10	86	93	67	112	121	112	305	446	907	443	119	75
11	84	95	74	97	121	110	332	395	739	442	115	74
12	84	95	70	93	129	112	314	345	693	393	124	72
13	85	95	72	91	124	119	292	355	585	401	123	72
14	89	95	69	117	119	129	260	460	498	388	120	74
15	99	97	67	106	119	133	246	595	443	393	118	75
16	168	99	69	341	117	133	239	760	489	379	114	74
17	141	79	65	243	117	141	222	983	588	336	114	72
18	126	79	69	195	106	133	207	1,080	692	311	112	69
19	117	91	75	179	110	129	198	994	875	328	112	67
20	108	91	119	173	106	136	190	860	1,030	321	111	69
21	106	91	179	276	112	138	187	792	1,060	312	108	69
22	108	83	166	456	115	143	173	872	1,150	294	104	69
23	108	81	156	332	110	151	168	997	1,080	255	98	69
24	106	85	141	280	112	163	168	1,010	1,070	237	96	65
25	101	85	156	219	110	184	171	987	1,020	230	93	63
26	101	81	115	201	112	192	182	1,080	986	221	88	62
27	99	77	105	201	115	190	173	1,160	1,110	210	88	60
28	93	75	90	161	117	192	171	955	851	197	91	59
29	91	75	80	151	-----	198	171	961	642	196	89	59
30	91	81	84	148	-----	195	171	1,020	533	196	89	56
31	91	-----	84	141	-----	184	-----	1,080	-----	185	85	-----
TOTAL	3,199	2,662	2,817	5,005	3,350	4,353	6,406	21,375	28,471	11,845	3,623	2,135
MEAN	103	88.7	90.9	161	120	140	214	690	949	382	117	71.2
MAX	168	99	179	456	138	198	332	1,160	1,380	665	173	83
MIN	84	75	65	70	106	110	168	179	443	185	85	56
AC-FT	6,350	5,280	5,590	9,930	6,640	8,630	12,710	42,400	56,470	23,490	7,190	4,230
CAL YR 1969	TOTAL 191,752	MEAN 525	MAX 2,910	MIN 60	AC-FT 380,300							
WAT YR 1970	TOTAL 95,241	MEAN 261	MAX 1,380	MIN 56	AC-FT 188,900							

## PEAK DISCHARGE (BASE, 1,120 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
5-27	0300	2.82	1,360	6-22	0200	2.77	1,310
6-4	2400	3.00	1,540				

## 10297000 Topaz Lake near Topaz, Calif.

LOCATION.--Lat 38°41'35", long 119°31'10", in NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.33, T.10 N., R.22 E., Douglas County, at outlet works of Topaz Reservoir on West Walker River, 5.5 miles north of Topaz.

PERIOD OF RECORD.--December 1921 to September 1931 (monthly contents only published in WSP 1734), October 1931 to current year.

GAGE.--Float and staff gages read once daily. Datum of gage is at mean sea level (levels by Walker River Irrigation District).

EXTREMES.--Current year: Maximum contents, 59,990 acre-ft July 6 (elevation 5,005.24 ft); minimum, 18,820 acre-ft Sept. 30 (elevation, 4,984.06 ft).

Period of record: Maximum contents, 60,240 acre-ft June 30, 1941 (elevation 5,005.35 ft); no contents Oct. 31, 1924, Sept. 22, 24-30, Oct. 1-15, 1960.

REMARKS.--Topaz Lake, formerly known as Alkali Lake and Topaz Reservoir, was formed by the diversion of water from West Walker River through a feeder canal and the construction of an outlet tunnel through a low saddle in rim of lake. Storage began about December 1921. Usable capacity, 59,440 acre-ft between elevations 4,972.3 (lowest practical elevation for diversion through tunnel, bottom of outlet tunnel at elevation 4,970 ft) and 5,005 ft (3 ft below top of levee). Capacity of reservoir increased from about 45,000 to 59,440 acre-ft in October 1937 by an earth-fill, rock-faced levee at south end. Figures given herein represent usable contents. Water is used for irrigation in Walker River Irrigation District.

COOPERATION.--Elevations furnished by Walker River Irrigation District.

Capacity table (elevation, in feet, and contents, in acre-feet)

4,980	12,130	4,995	38,100
4,985	20,390	5,000	48,350
4,990	28,970	5,006	61,750

## CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30,620	34,160	40,460	47,940	54,780	58,270	59,830	56,820	59,210	59,600	48,390	25,950
2	30,410	34,360	40,610	48,130	54,780	58,340	59,780	56,570	59,140	59,670	47,770	25,540
3	30,270	34,560	40,790	48,240	54,750	58,430	59,760	56,300	59,070	59,720	47,070	25,160
4	30,200	34,800	40,930	48,410	54,910	58,500	59,720	56,010	59,070	59,760	46,370	24,760
5	30,150	35,000	41,090	48,560	55,080	58,620	59,650	55,630	59,070	59,830	45,590	24,380
6	30,090	35,260	41,230	48,730	55,220	58,770	59,600	55,330	59,070	59,990	44,840	24,080
7	30,110	35,500	41,390	48,860	55,380	58,870	59,580	55,090	58,980	59,970	44,050	23,820
8	30,150	35,750	41,550	49,050	55,510	58,910	59,580	54,690	58,940	59,850	43,310	23,560
9	30,150	36,030	41,740	49,270	55,650	58,980	59,600	54,240	58,890	59,810	42,570	23,310
10	30,150	36,220	41,880	49,640	55,760	59,030	59,600	53,750	58,890	59,650	41,860	23,050
11	30,150	36,460	42,020	49,920	55,870	59,100	59,530	53,310	58,770	59,600	41,130	22,710
12	30,150	36,790	42,140	50,150	56,080	59,160	59,480	52,780	58,710	59,600	40,400	22,360
13	30,200	37,010	42,310	50,390	56,210	59,260	59,440	52,270	58,710	59,580	39,570	21,960
14	30,250	37,240	42,470	50,720	56,370	59,390	59,320	51,790	58,710	59,440	38,720	21,660
15	30,310	37,510	42,650	51,440	56,500	59,440	59,210	51,480	58,550	59,320	37,840	21,360
16	30,500	37,730	42,780	52,070	56,680	59,510	59,050	51,420	58,550	59,120	36,860	21,100
17	30,770	37,920	42,940	53,260	56,870	59,580	58,890	51,630	58,620	58,840	35,930	20,920
18	31,030	38,110	43,080	54,040	57,000	59,620	58,770	52,270	58,770	58,390	34,970	20,730
19	31,280	38,330	43,270	54,550	57,110	59,670	58,520	53,090	59,030	57,700	34,070	20,530
20	31,470	38,540	43,520	55,040	57,250	59,720	58,250	53,770	59,210	57,070	33,240	20,310
21	31,710	38,780	43,930	55,080	57,360	59,760	58,020	54,370	59,210	56,410	32,510	20,110
22	31,890	38,980	44,680	55,420	57,480	59,810	58,000	54,950	59,230	55,600	31,850	19,920
23	32,100	39,150	45,240	55,630	57,610	59,810	58,000	55,670	59,320	54,860	31,190	19,750
24	32,330	39,330	45,530	55,720	57,700	59,830	57,950	56,570	59,350	54,170	30,590	19,590
25	32,570	39,510	46,010	55,580	57,820	59,850	57,860	57,430	59,350	53,570	29,990	19,440
26	32,800	39,690	46,480	55,290	57,930	59,880	57,750	58,200	59,440	52,890	29,360	19,300
27	33,040	39,850	46,770	55,080	58,020	59,900	57,590	58,570	59,650	52,120	28,730	19,180
28	33,270	40,010	47,050	54,710	58,140	59,900	57,360	58,750	59,760	51,310	28,100	19,050
29	33,510	40,180	47,300	54,640	-----	59,900	57,200	58,870	59,670	50,480	27,510	18,930
30	33,720	40,320	47,510	54,710	-----	59,900	57,050	59,030	59,620	49,740	26,970	18,820
31	33,940	-----	47,710	54,730	-----	59,900	-----	59,140	-----	49,080	26,410	-----
MAX	33,940	40,320	47,710	55,720	58,140	59,900	59,830	59,140	59,760	59,990	48,390	25,950
MIN	30,090	34,160	40,460	47,940	54,750	58,270	57,050	51,420	58,550	49,080	26,410	18,820
(†)	4,992.79	4,996.13	4,999.70	5,002.92	5,004.43	5,005.20	5,003.95	5,004.87	5,005.08	5,000.34	4,988.53	4,984.06
(‡)	+3,100	+6,380	+7,390	+7,020	+3,410	+1,760	-2,850	+2,090	+480	-10,540	-22,670	-7,590
CAL YR 1969	MAX 59,620	MIN 13,950	+29,440									
WAT YR 1970	MAX 59,990	MIN 18,820	+12,020									

† ELEVATION, IN FEET, AT END OF MONTH.

‡ CHANGE IN CONTENTS, IN ACRE-FEET.



LOCATION.--Lat 38°43'40", long 119°25'40", in NE¼SE¼ sec.17, T.10 N., R.23 E., Douglas County, on left bank 20 ft upstream from Hoyer Bridge, 2 miles upstream from head of Saroni Canal, and 4 miles southwest of Wellington.

PERIOD OF RECORD.--April to August 1910 (published as West Walker River near Wellington), July 1920 to September 1923, March 1924 to September 1932, October 1957 to current year. Monthly discharge only for some periods published in WSP 1314.

GAGE.--Water-stage recorder. Altitude of gage is 4,980 ft (from topographic map). April to August 1910, nonrecording gage at same site at different datum. July 1, 1920, to Sept. 30, 1923, water-stage recorder at site 3 miles downstream (1 mile downstream from Saroni Canal) at different datum and supplemental non-recording gage on Saroni Canal 1 mile downstream from head. Mar. 1, 1924, to Sept. 30, 1932, water-stage recorder at same site at different datum.

EXTREMES.--Current year: Maximum discharge, 1,290 cfs June 5 (gage height, 6.79 ft); minimum, 28 cfs Jan. 3.  
Period of record: Maximum discharge, 2,180 cfs June 6, 1922; minimum observed, 4.8 cfs Jan. 5, 1961.

REMARKS.--Records excellent. Flow regulated by off-channel storage in Topaz Reservoir since Jan. 30, 1922. Diversions for irrigation of 10,500 acres above station. Records include releases from Topaz Lake and all return flow from Antelope Valley.

REVISIONS.--WRD Calif. 1967: Drainage area.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	172	39	39	38	219	107	203	224	1,010	460	385	253
2	153	38	39	39	206	108	185	236	1,120	445	381	234
3	134	38	39	37	178	108	183	273	1,150	470	375	221
4	112	38	40	39	138	108	178	335	1,190	485	367	210
5	110	38	40	37	136	110	180	460	1,240	518	405	193
6	108	38	40	38	134	113	178	493	1,230	593	403	189
7	83	38	40	40	133	129	170	500	1,170	593	388	175
8	92	38	41	41	133	127	169	508	1,130	543	375	159
9	93	38	41	41	133	129	175	525	1,030	513	371	158
10	103	38	41	42	131	122	215	528	883	535	369	181
11	101	38	40	43	129	108	265	530	727	473	367	198
12	101	38	39	43	115	104	259	515	661	423	367	196
13	101	38	40	43	113	104	253	505	625	420	410	189
14	101	38	41	54	113	106	243	505	580	430	423	180
15	94	38	42	75	112	129	243	530	525	428	428	177
16	90	38	42	100	111	129	247	560	475	428	473	159
17	71	38	40	166	112	130	261	600	450	450	470	133
18	69	38	40	84	112	131	271	616	498	513	463	130
19	68	38	41	74	112	131	267	578	622	570	420	129
20	68	38	43	170	111	136	259	545	796	570	403	127
21	67	38	46	255	110	144	228	505	908	570	361	127
22	65	38	60	351	110	155	200	490	1,010	558	345	126
23	51	38	49	448	110	162	178	490	1,010	533	329	120
24	50	38	46	483	110	170	186	528	957	533	319	119
25	49	38	46	478	110	181	185	560	887	530	327	111
26	49	39	46	465	110	200	185	667	852	518	315	110
27	48	38	46	465	110	206	193	929	901	508	331	108
28	40	38	45	377	110	206	203	862	911	495	339	108
29	38	38	40	253	-----	205	205	814	688	475	331	108
30	38	38	38	228	-----	212	221	848	540	425	311	108
31	38	-----	36	226	-----	217	-----	932	-----	377	277	-----
TOTAL	2,557	1,142	1,306	5,273	3,561	4,427	6,388	17,191	25,776	15,382	11,628	4,736
MEAN	82.5	38.1	42.1	170	127	143	213	555	859	496	375	158
MAX	172	39	60	483	219	217	271	932	1,240	593	473	253
MIN	38	38	36	37	110	104	169	224	450	377	277	108
AC-FT	5,070	2,270	2,590	10,460	7,060	8,780	12,670	34,100	51,130	30,510	23,060	9,390
CAL YR 1969	TOTAL	170,637	MEAN	467	MAX	1,870	MIN	22	AC-FT	338,500		
WAT YR 1970	TOTAL	99,367	MEAN	272	MAX	1,240	MIN	36	AC-FT	197,100</		

## CARSON RIVER BASIN

10308200 EAST FORK CARSON RIVER BELOW MARKLEEVILLE CREEK, NEAR MARKLEEVILLE, CALIF.

LOCATION.--Lat 38°42'50", long 119°45'50", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.15, T.10 N., R.20 E., Alpine County, on right bank 0.5 mile downstream from Markleeville Creek and 1.5 miles north-northeast of Markleeville.

DRAINAGE AREA.--276 sq mi.

PERIOD OF RECORD.--August 1960 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 5,400 ft (from topographic map). Prior to Oct. 1, 1967, at present site at datum 2.00 ft higher.

AVERAGE DISCHARGE.--10 years, 371 cfs (268,800 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 3,170 cfs Jan. 21 (gage height, 5.98 ft); minimum daily, 56 cfs Dec. 5.

Period of record: Maximum discharge, 15,100 cfs Jan. 31, 1963 (gage height, 10.21 ft, present datum); minimum, 16 cfs Nov. 17, 1961.

REMARKS.--Records good. A few small diversions for irrigation above station. Flow slightly regulated by several small reservoirs (total capacity, 5,000 acre-ft).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	115	120	66	167	385	265	323	355	1,350	549	156	126
2	115	115	62	148	350	256	332	425	1,370	542	154	120
3	116	113	64	110	350	236	341	400	1,470	552	155	123
4	117	112	60	135	346	236	350	714	1,500	541	155	116
5	116	113	56	120	332	248	390	914	1,390	573	148	127
6	117	125	58	108	319	236	445	962	1,370	534	142	132
7	115	122	60	160	314	248	467	756	1,320	486	133	122
8	109	121	64	185	314	248	467	770	1,320	460	141	113
9	106	116	68	243	310	232	483	826	1,460	441	143	117
10	105	116	72	276	301	240	572	882	1,080	427	137	112
11	104	121	90	193	296	224	578	637	909	392	130	108
12	101	121	99	176	314	228	553	483	860	367	129	105
13	105	121	99	172	301	248	380	630	754	355	126	102
14	105	119	95	442	287	287	461	914	676	333	119	97
15	142	120	91	274	283	296	435	1,020	639	346	115	88
16	340	123	95	1,760	278	292	425	1,280	662	309	120	86
17	212	110	91	742	278	310	395	1,630	702	277	128	81
18	173	100	94	495	252	287	375	1,760	760	259	157	76
19	154	95	122	426	252	269	370	1,460	834	258	162	74
20	147	90	352	444	240	274	346	1,310	900	247	159	74
21	146	90	591	1,650	244	283	341	1,310	909	237	155	69
22	150	90	371	2,190	252	296	323	1,400	930	224	140	68
23	148	83	272	1,210	244	328	314	1,580	895	202	133	67
24	144	82	277	1,090	248	360	310	1,390	869	188	130	65
25	136	84	394	735	244	400	332	1,460	812	180	127	63
26	130	80	251	637	252	400	375	1,650	789	191	124	66
27	128	76	208	714	256	385	341	1,710	1,080	187	136	64
28	124	72	190	511	260	375	328	1,420	795	185	136	62
29	122	66	175	456	-----	390	319	1,370	658	178	140	61
30	120	70	155	440	-----	380	328	1,380	579	164	134	60
31	120	-----	150	405	-----	350	-----	1,420	-----	151	128	-----
TOTAL	4,182	3,086	4,892	16,814	8,102	9,107	11,799	34,218	29,642	10,335	4,292	2,744
MEAN	135	103	158	542	289	294	393	1,104	988	333	138	91.5
MAX	340	125	591	2,190	385	400	578	1,760	1,500	573	162	132
MIN	101	66	56	108	240	224	310	355	579	151	115	60
AC-FT	8,300	6,120	9,700	33,350	16,070	18,060	23,400	67,870	58,790	20,500	8,510	5,440
CAL YR 1969	TOTAL 231,170		MEAN 633	MAX 3,340	MIN 56	AC-FT 458,500						
WAT YR 1970	TOTAL 139,213		MEAN 381	MAX 2,190	MIN 56	AC-FT 276,100						

## PEAK DISCHARGE (BASE, 1,300 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-16	0915	5.87	2,890	5-17	2400	5.26	2,240
1-21	2245	5.98	3,170				

## 10309000 EAST FORK CARSON RIVER NEAR GARDNERVILLE, NEV.

LOCATION.--Lat 38°50'40", long 119°42'10", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.2, T.11 N., R.20 E., Douglas County, on left bank 0.1 mile downstream from Horseshoe Bend, 2 miles east of Mud Lake Reservoir, 4.5 miles downstream from Bryant Creek, and 7 miles southeast of Gardnerville.

DRAINAGE AREA.--341 sq mi.

PERIOD OF RECORD.--January 1890 to December 1893, October 1900 to December 1906 (gage heights only August to December 1904 and July to December 1905), January 1908 to December 1910, June to October 1917, December 1924 to September 1928, June to September 1929, October 1935 to December 1937, May 1939 to current year. Monthly discharge only for some periods published in WSP 1314.

GAGE.--Water-stage recorder and since July 1, 1955, thermograph attachment. Datum of gage is 4,985.11 ft above mean sea level (levels by Bureau of Reclamation). Prior to May 19, 1939, nonrecording gages at several sites within 2 miles of present site at various datums.

AVERAGE DISCHARGE.--44 years (1890-93, 1900-1903, 1908-10, 1925-28, 1935-37, 1939-70), 393 cfs (284,700 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 3,060 cfs Jan. 16 (gage height, 4.85 ft); minimum daily, 66 cfs Dec. 5, Sept. 30.

Period of record: Maximum discharge, 17,600 cfs Dec. 23, 1955 (gage height, 11.88 ft), from rating curve extended above 6,000 cfs on basis of slope-area measurements at gage heights 9.66 and 11.88 ft; minimum observed, 8 cfs Dec. 4-10, 19-23, 1904.

REMARKS.--Records excellent. Station is above all diversions in Carson Valley. Diversions for irrigation above station. Flow slightly regulated by several small reservoirs (total capacity, 5,000 acre-ft). Records of chemical analyses and water temperatures for the water year 1970 are published in Part 2 of this report.

REVISIONS (WATER YEARS).--WSP 1214: 1938(M), 1942-43(M), 1945(M). WSP 1514: 1909-10. WSP 1927: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	103	122	69	177	400	280	328	360	1,440	604	162	130
2	105	122	70	162	364	264	340	415	1,450	580	165	128
3	105	122	73	122	356	252	348	550	1,530	574	162	128
4	108	120	68	150	352	252	348	742	1,590	580	159	122
5	108	117	66	130	340	260	384	930	1,480	580	153	125
6	108	133	68	120	328	244	450	1,070	1,420	574	147	139
7	105	133	72	130	324	264	485	818	1,370	520	139	130
8	98	130	76	200	320	260	490	860	1,380	500	142	122
9	96	128	86	256	316	244	485	832	1,530	450	144	122
10	96	125	94	376	308	248	586	993	1,210	445	142	120
11	96	128	103	222	300	240	622	825	1,020	415	133	115
12	94	128	105	195	316	237	586	748	979	380	130	112
13	94	128	108	189	312	252	550	778	867	372	133	108
14	94	128	100	622	292	292	480	972	766	348	128	108
15	105	128	96	360	288	312	455	1,140	718	348	120	96
16	396	133	100	1,900	288	300	450	1,370	742	328	120	94
17	256	112	98	1,020	296	320	410	1,720	784	292	128	90
18	192	98	103	634	272	296	384	1,880	846	268	153	81
19	168	98	110	490	264	276	380	1,720	923	264	162	79
20	159	95	360	535	252	284	356	1,540	993	256	159	81
21	156	94	718	1,510	256	292	352	1,460	993	244	153	77
22	159	92	520	2,240	260	304	332	1,570	1,030	231	144	73
23	159	90	336	1,290	252	328	324	1,710	986	213	133	72
24	153	87	328	1,190	256	356	320	1,640	965	201	130	72
25	147	87	495	804	252	405	328	1,620	909	189	130	70
26	142	85	316	682	260	405	380	1,700	860	198	125	72
27	139	80	248	790	268	396	348	1,720	1,170	195	136	72
28	133	76	216	562	272	380	340	1,500	895	192	139	70
29	130	73	186	485	-----	392	332	1,450	742	186	142	68
30	128	70	171	465	-----	384	332	1,460	652	177	139	66
31	122	-----	165	415	-----	364	-----	1,480	-----	162	133	-----
TOTAL	4,254	3,262	5,724	18,423	8,364	9,383	12,305	37,573	32,240	10,866	4,385	2,942
MEAN	137	109	185	594	299	303	410	1,212	1,075	351	141	98.1
MAX	396	133	718	2,240	400	405	622	1,880	1,590	604	165	139
MIN	94	70	66	120	252	237	320	360	652	162	120	66
AC-FT	8,440	6,470	11,350	36,540	16,590	18,610	24,410	74,530	63,950	21,550	8,700	5,840
CAL YR 1969	TOTAL 251,183	MEAN 688	MAX 3,300	MIN 66	AC-FT 498,200							
WAT YR 1970	TOTAL 149,721	MEAN 410	MAX 2,240	MIN 66	AC-FT 297,000							

## PEAK DISCHARGE (BASE, 1,300 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1800	3.41	1,480	1-21	2315	4.77	2,950
1-16	1045	4.85	3,060	5-18	0300	4.07	2,270

## CARSON RIVER BASIN

10310000 WEST FORK CARSON RIVER AT WOODFORDS, CALIF.

LOCATION.--Lat 38°46'10", long 119°49'55", in NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.34, T.11 N., R.19 E., Alpine County, on left bank 0.3 mile downstream from bridge on State Highway 88-89, 0.6 mile southwest of Woodfords, and 3.8 miles downstream from Willow Creek.

DRAINAGE AREA.--65.6 sq mi.

PERIOD OF RECORD.--October 1900 to May 1907, 1910-11 (fragmentary), October 1938 to current year. January 1890 to March 1892, June 1907 to September 1920 (except portions of 1910-11) at site 0.7 mile downstream; records not equivalent owing to diversions for irrigation. Monthly discharge only for some periods, published in WSP 1314.

GAGE.--Water-stage recorder. Altitude of gage is 5,760 ft (from river-profile map). Prior to Oct. 1, 1938, nonrecording gage at same site at different datum. Oct. 1, 1938, to Nov. 11, 1958, water-stage recorder at same site at datum 1.02 ft lower. Nov. 13, 1958, to Jan. 30, 1963, water-stage recorder at site 150 ft downstream at datum 3.06 ft lower.

AVERAGE DISCHARGE.--39 years (1900-1907, 1938-70), 115 cfs (83,320 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 860 cfs Jan. 22 (gage height, 3.88 ft); minimum, 16 cfs Dec. 17.

Period of record: Maximum discharge, 4,890 cfs Feb. 1, 1963 (gage height, 9.0 ft), on basis of slope-area measurement of peak flow; minimum, about 5 cfs Dec. 23, 1961.

Flood of Dec. 11, 1937, reached a stage of 8.0 ft (present datum), from floodmarks (discharge, 3,500 cfs by slope-area measurement).

REMARKS.--Records good except those for winter months, which are poor. One small diversion above station for irrigation. Flow slightly regulated by several small reservoirs (total capacity, about 1,500 acre-ft). Records of chemical analyses and water temperatures for the water year 1970 are published in Part 2 of this report.

REVISIONS.--WSP 1927: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	33	30	48	129	69	124	185	351	160	86	26
2	31	33	31	44	120	68	148	224	364	152	41	26
3	33	31	32	40	118	78	162	288	357	152	38	26
4	29	30	35	44	115	68	170	330	367	150	37	25
5	30	31	28	38	113	78	199	374	348	150	46	25
6	30	35	29	35	110	73	226	381	336	145	46	26
7	31	33	31	38	107	74	239	345	327	130	44	35
8	31	33	29	43	104	74	237	351	321	124	43	43
9	29	33	32	47	102	70	245	357	374	120	43	42
10	29	33	25	50	101	75	285	354	336	136	65	40
11	29	34	24	45	101	76	276	312	270	122	112	37
12	29	37	24	43	102	80	259	294	229	112	109	33
13	29	36	25	46	99	94	237	297	221	107	104	25
14	30	35	25	52	96	113	206	342	209	104	102	24
15	40	35	24	44	91	120	192	378	199	107	98	25
16	118	36	24	156	88	117	194	412	197	98	38	26
17	62	30	23	188	86	117	177	477	194	84	28	26
18	34	30	24	185	82	113	162	485	190	71	29	26
19	41	36	46	174	84	108	172	451	197	60	30	26
20	39	41	138	174	81	108	158	406	219	56	32	26
21	38	34	230	336	74	109	154	392	199	55	33	26
22	38	33	148	634	80	120	141	398	216	52	32	30
23	38	33	86	374	74	129	137	406	209	49	30	30
24	38	36	49	267	78	146	139	402	211	48	52	29
25	38	32	96	219	76	170	166	392	194	48	83	27
26	37	33	87	204	84	168	190	409	219	48	76	26
27	36	33	69	183	74	160	158	409	378	87	70	25
28	33	30	60	156	76	154	145	378	248	109	64	25
29	33	29	54	148	-----	172	137	367	199	112	57	25
30	33	29	45	145	-----	164	143	364	172	110	30	25
31	33	-----	45	132	-----	145	-----	357	-----	104	26	-----
TOTAL	1,148	997	1,648	4,332	2,645	3,410	5,578	11,317	7,851	3,162	1,724	856
MEAN	37.0	33.2	53.2	140	94.5	110	186	365	262	102	55.6	28.5
MAX	118	41	230	634	129	172	285	485	378	160	112	43
MIN	29	29	23	35	74	68	124	185	172	48	26	24
AC-FT	2,280	1,980	3,270	8,590	5,250	6,760	11,060	22,450	15,570	6,270	3,420	1,700

CAL YR 1969 TOTAL 63,580 MEAN 174 MAX 1,040 MIN 23 AC-FT 126,100  
WAT YR 1970 TOTAL 44,668 MEAN 122 MAX 634 MIN 23 AC-FT 88,600

PEAK DISCHARGE (BASE, 500 CFS).--Jan. 22 (0130) 860 cfs (3.88 ft); May 17 (2330) 626 cfs (3.33 ft).

## PYRAMID AND WINNEMUCCA LAKES BASIN

525

10336600 UPPER TRUCKEE RIVER NEAR MEYERS, CALIF.

LOCATION.--Lat 38°50'35", long 120°01'25", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.31, T.12 N., R.18 E., El Dorado County, 0.4 mile upstream from mouth of Echo Lake outlet, 1.1 miles southwest of Meyers, and 2.5 miles upstream from Angora Creek.

DRAINAGE AREA.--33.1 sq mi.

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 6,325 ft (from topographic map).

AVERAGE DISCHARGE.--10 years, 67.5 cfs (48,900 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,280 cfs Jan. 21 (gage height, 10.17 ft); minimum, 5.6 cfs Sept. 30.  
Period of record: Maximum discharge, 2,550 cfs Feb. 1, 1963 (gage height, 12.41 ft); minimum, 2.0 cfs Jan. 13, 1961.

REMARKS.--Records good. No regulation. Some small diversions above station for domestic use.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.7	14	11	48	76	50	63	81	299	98	19	7.8
2	9.7	14	11	44	72	48	65	97	319	92	19	7.5
3	9.6	14	11	43	70	45	68	129	312	88	18	7.5
4	9.6	13	12	45	69	45	70	164	309	83	17	7.4
5	9.6	14	12	42	66	44	78	193	282	79	16	7.7
6	9.5	16	12	42	65	43	90	185	282	70	16	8.0
7	9.4	15	12	43	64	45	94	157	271	63	15	7.5
8	9.2	15	12	42	63	45	95	161	277	58	14	7.2
9	9.7	15	12	48	63	43	102	176	359	54	14	7.0
10	9.7	15	12	54	62	44	120	175	237	51	14	6.7
11	9.6	16	12	45	62	42	115	140	193	48	13	6.6
12	9.7	16	12	44	63	44	105	129	176	45	13	6.6
13	9.6	17	12	44	62	47	97	153	159	43	13	6.3
14	9.9	17	12	68	59	55	85	204	148	42	12	6.5
15	19	18	12	68	57	56	81	251	133	42	12	6.7
16	50	19	12	450	56	55	77	307	136	37	11	6.9
17	26	16	12	227	56	57	73	342	144	34	11	6.8
18	21	16	12	130	55	54	71	358	162	32	11	6.5
19	19	15	17	105	53	52	73	348	173	31	11	6.4
20	19	15	121	132	52	52	68	297	174	30	11	6.6
21	19	16	214	684	52	53	66	288	173	29	11	6.7
22	21	15	107	517	50	56	64	313	165	28	10	6.5
23	21	14	65	248	49	61	63	333	159	27	9.9	6.4
24	20	14	75	187	49	68	64	330	149	26	9.5	6.3
25	18	14	84	138	48	75	68	339	134	25	9.3	6.2
26	17	14	56	119	49	74	74	357	201	24	8.8	6.2
27	16	14	51	133	49	71	69	336	391	23	8.4	6.2
28	16	13	46	102	50	71	66	295	184	23	8.5	6.1
29	15	12	44	94	-----	73	66	288	134	22	8.5	6.0
30	14	11	44	85	-----	70	71	292	109	21	8.1	5.7
31	14	-----	45	81	-----	66	-----	292	-----	20	7.9	-----
TOTAL	479.5	447	1,182	4,152	1,641	1,704	2,361	7,510	6,344	1,388	379.9	202.5
MEAN	15.5	14.9	38.1	134	58.6	55.0	78.7	242	211	44.8	12.3	6.75
MAX	50	19	214	684	76	75	120	358	391	98	19	8.0
MIN	9.2	11	11	42	48	42	63	81	109	20	7.9	5.7
AC-FT	951	887	2,340	8,240	3,250	3,380	4,680	14,900	12,580	2,750	754	402

CAL YR 1969 TOTAL 38,991.8 MEAN 107 MAX 633 MIN 9.2 AC-FT 77,340  
WAT YR 1970 TOTAL 27,790.9 MEAN 76.1 MAX 684 MIN 5.7 AC-FT 55,120

## PEAK DISCHARGE (BASE, 200 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1530	7.83	486	5-18	2200	7.63	462
1-16	1445	8.33	568	6-8	2400	7.74	488
1-21	2000	10.17	1,280	6-27	0200	8.56	652
5-5	2200	6.47	262				

## PYRAMID AND WINNEMUCCA LAKES BASIN

10336625 Fallen Leaf Lake near Tahoe Valley, Calif.

LOCATION,--Lat 38°54'00", long 120°04'10", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.11, T.12 N., R.17 E., El Dorado County, on west bank 1.5 miles from outlet and 3.8 miles west-southwest of Tahoe Valley.

DRAINAGE AREA,--16.7 sq mi.

PERIOD OF RECORD,--October 1968 to current year.

GAGE,--Water-stage recorder. Datum of gage is 6,372.30 ft above mean sea level, datum of 1929, supplementary adjustment of 1959.

EXTREMES,--Current year: Maximum gage height, 5.51 ft Jan. 22; minimum, 2.45 ft Oct. 14, 15.

Period of record: Maximum gage height, 5.51 ft Jan. 22, 1970; minimum, 2.42 ft Mar. 24-26, 1969.

REMARKS,--Lake levels regulated by a concrete dam at the outlet constructed in 1934. Regulation is for maintenance of lake level and enhancement of fishery.

## GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.73	2.85	2.82	3.28	3.53	2.72	2.66	2.76	4.54	4.31	4.08	3.38
2	2.72	2.84	2.81	3.19	3.43	2.66	2.65	2.78	4.57	4.28	4.07	3.36
3	2.68	2.83	2.80	3.10	3.35	2.64	2.66	2.85	4.59	4.30	4.05	3.32
4	2.67	2.82	2.80	3.02	3.28	2.64	2.67	2.96	4.63	4.32	4.02	3.28
5	2.67	2.86	2.79	2.95	3.20	2.64	2.67	3.10	4.63	4.33	3.99	3.26
6	2.66	2.88	2.78	2.89	3.15	2.63	2.70	3.25	4.60	4.34	3.96	3.24
7	2.64	2.87	2.77	2.84	3.10	2.60	2.74	3.32	4.57	4.37	3.92	3.22
8	2.61	2.87	2.76	2.81	3.06	2.60	2.77	3.38	4.68	4.40	3.90	3.20
9	2.57	2.87	2.76	2.92	3.01	2.60	2.78	3.46	4.70	4.42	3.88	3.18
10	2.56	2.87	2.78	2.90	2.98	2.59	2.82	3.52	4.60	4.44	3.87	3.17
11	2.53	2.87	2.78	2.87	2.95	2.59	2.85	3.50	4.47	4.46	3.86	3.16
12	2.51	2.87	2.77	2.86	2.95	2.57	2.86	3.47	4.38	4.47	3.83	3.11
13	2.47	2.87	2.75	2.87	2.97	2.57	2.88	3.46	4.27	4.47	3.82	3.07
14	2.45	2.87	2.73	3.12	2.94	2.58	2.88	3.48	4.17	4.52	3.81	3.06
15	2.63	2.87	2.72	3.15	2.92	2.59	2.89	3.58	4.08	4.50	3.78	3.04
16	2.83	2.88	2.68	4.13	2.95	2.60	2.86	3.74	4.02	4.48	3.77	3.03
17	2.85	2.88	2.65	4.28	2.90	2.59	2.84	3.95	4.02	4.46	3.76	3.02
18	2.88	2.88	2.63	4.16	2.87	2.58	2.82	4.15	4.08	4.44	3.74	2.99
19	2.88	2.88	2.82	4.11	2.83	2.57	2.82	4.33	4.18	4.42	3.72	2.95
20	2.87	2.88	3.63	4.15	2.79	2.57	2.80	4.41	4.33	4.41	3.70	2.92
21	2.87	2.88	4.40	5.34	2.76	2.57	2.81	4.47	4.47	4.37	3.68	2.90
22	2.88	2.88	4.36	5.35	2.74	2.58	2.80	4.54	4.61	4.35	3.67	2.89
23	2.88	2.87	4.34	5.07	2.73	2.60	2.78	4.61	4.64	4.34	3.64	2.88
24	2.88	2.87	4.30	4.77	2.72	2.61	2.74	4.65	4.62	4.32	3.62	2.87
25	2.88	2.87	4.29	4.52	2.71	2.63	2.71	4.68	4.59	4.30	3.59	2.85
26	2.88	2.86	4.10	4.35	2.70	2.65	2.77	4.72	4.73	4.27	3.55	2.84
27	2.87	2.85	3.91	4.27	2.68	2.67	2.76	4.68	4.77	4.25	3.52	2.83
28	2.87	2.85	3.74	4.08	2.67	2.68	2.78	4.62	4.67	4.20	3.51	2.82
29	2.86	2.84	3.61	3.92	-----	2.69	2.76	4.58	4.55	4.17	3.48	2.82
30	2.86	2.83	3.48	3.77	-----	2.68	2.76	4.56	4.41	4.12	3.45	2.81
31	2.85	-----	3.38	3.64	-----	2.67	-----	4.55	-----	4.10	3.42	-----
MEAN	2.74	2.86	3.22	3.70	2.96	2.62	2.78	3.87	4.47	4.35	3.76	3.05
MAX	2.88	2.88	4.40	5.35	3.53	2.72	2.89	4.72	4.77	4.52	4.08	3.38
MIN	2.45	2.82	2.63	2.81	2.67	2.57	2.65	2.76	4.02	4.10	3.42	2.81
CAL YR 1969	MEAN 3.26		MAX 4.79	MIN 2.42								
WAT YR 1970	MEAN 3.37		MAX 5.35	MIN 2.45								

LOCATION.--Lat 38°55'20", long 120°03'35", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.2, T.12 N., R.17 E., El Dorado County, on left bank 0.1 mile downstream from Fallen Leaf Lake outlet and 3.0 miles west of Tahoe Valley.

GAGE.--Water-stage recorder. Datum of gage is 6,361.08 ft above mean sea level.

EXTREMES.--Current year: Maximum discharge, 1,070 cfs Jan. 22 (gage height, 5.63 ft); minimum daily, 0.20 cfs Oct. 4-7.

Period of record: Maximum discharge, 1,070 cfs Jan. 22, 1970 (gage height, 5.63 ft); minimum daily, 0.20 cfs Oct. 4-7, 1969.

REMARKS.--Records good. Flow regulated by Fallen Leaf Lake Dam.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.31	9.0	10	82	104	37	34	36	169	123	13	7.2
2	.31	9.0	10	75	95	36	33	37	171	68	12	7.0
3	.30	9.0	10	69	87	35	33	40	177	46	12	7.0
4	.20	9.0	10	64	79	34	33	47	188	46	12	6.8
5	.20	9.2	10	62	74	34	34	51	198	47	11	6.6
6	.20	9.2	10	57	68	33	36	54	188	37	11	6.6
7	.20	9.2	10	52	65	32	38	62	181	18	9.7	6.6
8	3.6	9.2	10	48	64	33	40	68	183	15	8.4	6.4
9	5.2	9.2	10	52	63	31	42	74	230	17	8.4	4.5
10	4.7	9.5	10	56	60	31	45	82	213	18	6.4	2.4
11	4.0	9.5	10	53	57	30	47	83	185	18	5.0	2.4
12	4.0	10	13	51	56	29	45	77	167	20	15	2.3
13	4.0	9.7	15	52	58	28	49	74	155	23	3.0	2.2
14	4.0	10	15	62	58	29	50	75	141	24	3.0	2.1
15	4.1	11	16	66	54	29	48	80	127	35	2.8	2.1
16	4.1	11	20	121	53	29	47	91	116	33	3.5	1.9
17	4.3	11	25	195	54	29	46	116	86	28	4.3	1.9
18	4.1	11	29	190	50	29	44	120	64	26	4.3	1.9
19	3.8	11	35	175	46	29	44	87	54	25	4.1	4.7
20	3.5	11	61	175	43	28	41	107	46	25	3.5	5.4
21	4.5	11	145	355	40	28	40	120	40	23	3.1	3.3
22	5.0	11	213	964	38	28	40	133	41	21	3.0	3.3
23	5.4	11	210	616	36	29	39	147	89	20	2.3	3.3
24	6.8	11	213	445	35	29	38	159	118	19	2.1	3.2
25	7.4	11	208	289	33	31	38	190	111	18	5.8	2.8
26	7.4	11	185	228	33	33	38	218	137	17	7.2	2.8
27	7.4	11	159	218	32	33	38	230	188	16	7.2	2.4
28	7.4	11	135	188	32	34	38	205	171	15	6.8	2.3
29	8.2	10	114	159	-----	35	38	185	157	15	7.4	1.8
30	9.0	10	101	137	-----	35	37	175	153	25	7.2	1.9
31	9.0	-----	91	120	-----	35	-----	171	-----	14	7.2	-----
TOTAL	132.62	304.7	2,113	5,476	1,567	975	1,213	3,394	4,244	895	211.7	115.1
MEAN	4.28	10.2	68.2	177	56.0	31.5	40.4	109	141	28.9	6.83	3.84
MAX	9.0	11	213	964	104	37	50	230	230	123	15	7.2
MIN	.20	9.0	10	48	32	28	33	36	40	14	2.1	1.8
AC-FT	263	604	4,190	10,860	3,110	1,930	2,410	6,730	8,420	1,780	420	228
CAL YR 1969	TOTAL	24,923.83	MEAN	68.3	MAX	330	MIN	.20	AC-FT	49,440		
WAT YR 1970	TOTAL	20,641.12	MEAN	56.6	MAX	964	MIN	.20	AC-FT	40,940		

## PYRAMID AND WINNEMUCCA LAKES BASIN

10336660 BLACKWOOD CREEK NEAR TAHOE CITY, CALIF.

LOCATION.--Lat 39°06'26", long 120°09'40", in NE $\frac{1}{4}$  sec. 36, T.15 N., R.16 E., Placer County, on right bank about 300 ft upstream from bridge on State Highway 89, 1,000 ft upstream from Lake Tahoe, and 4.6 miles south of Tahoe City. Prior to Aug. 27, 1970, at site 400 ft downstream.

DRAINAGE AREA.--11.2 sq mi.

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 6,240 ft (from topographic map). Oct. 1, 1964, to Aug. 27, 1970, at site 400 ft downstream at datum 12 ft lower. Prior to Oct. 1, 1964, at site 400 ft downstream at datum 10.25 ft lower.

AVERAGE DISCHARGE.--10 years, 38.4 cfs (27,820 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,910 cfs Jan. 21 (gage height, 8.48 ft); minimum, 1.9 cfs Sept. 14. Period of record: Maximum discharge, 2,100 cfs Dec. 22 or 24, 1964, from indirect measurement of peak flow; maximum gage height, 9.90 ft Dec. 22, 1964; minimum discharge, 0.30 cfs Sept. 19, 1968.

REMARKS.--Records fair. No known diversion or regulation.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	3.4	2.5	29	51	50	35	39	148	43	5.1	2.3
2	2.5	3.4	2.5	23	44	25	41	52	167	40	5.1	2.3
3	4.7	3.4	2.5	21	41	18	46	90	167	42	4.9	2.3
4	2.7	3.1	2.5	20	41	17	48	139	160	40	4.6	2.3
5	2.9	4.1	2.7	17	38	17	64	181	151	34	4.5	2.6
6	2.9	4.9	2.5	14	36	17	81	185	142	29	4.3	2.5
7	2.9	4.4	2.7	16	34	17	83	151	130	26	4.2	2.3
8	2.3	4.1	2.9	16	33	17	78	135	134	24	4.0	2.3
9	2.9	4.4	3.1	44	32	16	86	150	162	22	3.9	2.3
10	3.4	4.1	3.6	47	31	15	101	137	102	20	3.8	2.2
11	4.4	4.1	3.9	28	31	14	98	79	84	20	3.6	2.2
12	3.4	4.4	3.9	26	34	15	94	62	91	18	3.5	2.1
13	3.9	4.7	4.4	21	34	17	80	72	82	17	3.4	2.0
14	3.6	4.7	4.9	56	31	23	60	100	74	17	3.3	2.1
15	26	4.9	4.7	34	29	23	50	123	64	17	3.2	2.3
16	39	6.3	4.7	611	30	24	47	169	63	16	3.1	2.3
17	9.0	5.4	4.9	319	35	26	40	214	66	15	3.0	2.2
18	5.4	4.7	5.2	168	32	24	38	207	75	14	3.0	2.2
19	4.4	4.4	65	165	28	20	41	178	87	14	2.9	2.2
20	4.9	3.9	398	271	26	18	33	153	103	13	2.9	2.2
21	4.1	3.9	587	1,020	20	20	31	148	100	12	2.9	2.2
22	4.1	3.6	251	699	20	24	30	158	86	12	2.9	2.2
23	3.9	3.4	108	355	20	31	28	172	76	11	2.8	2.3
24	3.6	3.1	179	295	20	43	28	173	67	11	2.8	2.2
25	3.6	3.1	221	204	20	51	35	181	58	10	2.8	2.1
26	3.6	3.1	105	153	19	52	39	196	84	9.0	2.8	2.1
27	3.6	2.9	69	162	19	47	35	180	82	8.3	2.8	2.1
28	3.9	2.9	54	108	19	47	27	150	60	5.9	2.5	2.1
29	3.6	2.7	44	85	-----	51	28	140	48	5.9	2.5	2.1
30	3.6	2.5	37	73	-----	47	32	147	44	5.7	2.5	2.1
31	3.4	-----	35	59	-----	38	-----	150	-----	5.4	2.4	-----
TOTAL	174.3	118.0	2,217.1	5,159	848	864	1,557	4,411	2,957	577.2	106.0	66.7
MEAN	5.62	3.93	71.5	166	30.3	27.9	51.9	142	98.6	18.6	3.42	2.22
MAX	39	6.3	587	1,020	51	52	101	214	167	43	5.1	2.6
MIN	2.1	2.5	2.5	14	19	14	27	39	44	5.4	2.4	2.0
AC-FT	346	234	4,400	10,230	1,680	1,710	3,090	8,750	5,870	1,140	210	132
CAL YR 1969	TOTAL	25,468.4	MEAN	69.8	MAX	587	MIN	2.1	AC-FT	50,520		
WAT YR 1970	TOTAL	19,055.3	MEAN	52.2	MAX	1,020	MIN	2.0	AC-FT	37,800		

## PEAK DISCHARGE (BASE, 200 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1300	7.05	1,280	5-5	2200	6.02	271
1-16	1100	7.32	1,240	5-17	2200	6.39	287
1-21	2000	8.48	1,910				



## 10336780 TROUT CREEK NEAR TAHOE VALLEY, CALIF.

LOCATION.--Lat 38°55'12", long 119°58'17", in SE $\frac{1}{4}$  sec.3, T.12 N., R.18 E., El Dorado County, on left bank 15 ft upstream from Martin Ave. bridge, 500 ft upstream from Heavenly Valley Creek, and 1.8 miles east of Tahoe Valley.

DRAINAGE AREA.--36.7 sq mi.

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 6,250 ft (from topographic map).

AVERAGE DISCHARGE.--10 years, 37.3 cfs (27,020 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 250 cfs Jan. 21 (gage height, 9.49 ft); minimum, 13 cfs Nov. 28, but may have been less during periods of ice effect.

Period of record: Maximum discharge, 535 cfs Feb. 1, 1963 (gage height, 11.14 ft), from rating curve extended above 110 cfs on basis of computation of peak flow (weir formula) and logarithmic projection. No flow for part of Sept. 11, 1966.

REMARKS.--Records good. Minor diversion for local water supply.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	26	19	29	50	36	37	43	110	71	32	19
2	25	27	19	28	49	35	38	46	112	68	32	18
3	24	27	20	27	47	33	39	52	115	66	31	18
4	24	27	20	28	46	33	40	59	120	65	30	19
5	24	28	20	27	45	33	42	63	118	62	29	23
6	24	30	20	25	44	33	45	65	116	60	28	22
7	24	28	21	25	43	33	46	61	114	58	26	20
8	23	28	21	26	42	33	46	61	120	56	26	19
9	24	27	22	30	42	32	46	63	128	56	26	18
10	24	26	24	33	42	32	50	64	110	55	25	18
11	24	26	23	28	43	31	50	59	101	52	24	18
12	24	26	23	27	43	33	48	58	102	51	24	17
13	24	26	23	27	42	36	47	62	101	49	23	17
14	25	26	22	44	41	42	45	69	95	50	23	18
15	38	27	21	40	40	40	44	75	90	52	22	19
16	56	28	21	152	38	39	44	83	87	47	23	18
17	38	22	21	92	40	39	43	92	84	45	22	18
18	32	21	22	65	40	36	41	97	82	43	23	18
19	31	24	35	59	38	38	42	97	83	43	22	18
20	30	25	68	67	37	36	40	93	84	44	22	22
21	31	24	65	166	38	37	40	89	90	43	21	29
22	31	23	44	170	36	38	41	93	100	42	21	29
23	30	22	36	97	35	40	41	96	98	41	20	30
24	29	23	52	98	36	41	41	99	90	40	19	31
25	29	23	57	74	35	43	41	103	88	39	19	29
26	28	22	40	67	36	41	42	108	96	39	20	21
27	28	22	32	84	36	39	40	111	119	37	19	19
28	29	21	30	62	37	40	39	107	93	36	20	18
29	27	20	28	60	-----	40	39	106	83	35	20	18
30	27	19	27	57	-----	40	41	107	76	35	19	18
31	27	-----	27	54	-----	38	-----	108	-----	33	18	-----
TOTAL	883	744	923	1,868	1,141	1,140	1,278	2,489	3,005	1,513	729	619
MEAN	28.5	24.8	29.8	60.3	40.8	36.8	42.6	80.3	100	48.8	23.5	20.6
MAX	56	30	68	170	50	43	50	111	128	71	32	31
MIN	23	19	19	25	35	31	37	43	76	33	18	17
AC-FT	1,750	1,480	1,830	3,710	2,260	2,260	2,530	4,940	5,960	3,000	1,450	1,230

CAL YR 1969 TOTAL 23,816 MEAN 65.2 MAX 264 MIN 12 AC-FT 47,240  
WAT YR 1970 TOTAL 16,332 MEAN 44.7 MAX 170 MIN 17 AC-FT 32,390

## PEAK DISCHARGE (BASE, 100 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-20	1500	7.54	100	6-9	0200	8.18	145
1-16	1400	9.26	232	6-27	0300	8.19	146
1-21	2400	9.49	250				

## PYRAMID AND WINNEMUCCA LAKES BASIN

10337000 Lake Tahoe at Tahoe City, Calif.

LOCATION.--Lat 39°10'50", long 120°06'55", in NE 1/4 SE 1/4 NE 1/4 sec.5, T.15 N., R.17 E., Placer County, on U.S. Coast Guard pier at Lake Forest and 1.8 miles northeast of Lake Tahoe outlet dam on Truckee River at Tahoe City.

DRAINAGE AREA.--505 sq mi at lake outlet.

PERIOD OF RECORD.--April 1900 to current year. Month-end elevations only for October 1943 to September 1957, published in WSP 1734. Prior to October 1961, published as "at Tahoe."

GAGE.--Water-stage recorder. Datum of gage is 6,220.00 ft above mean sea level, datum of Bureau of Reclamation (6,218.86 ft, datum of 1929, supplementary adjustment of 1959). Prior to Oct. 1, 1957, nonrecording gages at several sites near outlet of lake at same datum. Oct. 1, 1957, to May 8, 1958, water-stage recorder on left wingwall of dam at outlet of lake at same datum. May 9, 1958, to Sept. 30, 1968, water-stage recorder on pier, 1,000 ft east of dam at lake outlet.

EXTREMES.--Current year: Maximum elevation, 6,229.05 ft June 28; minimum, 6,226.93 ft Dec. 16, 18.  
Period of record: Maximum elevation, 6,231.26 ft July 14, 15, 17, 18, 1907; minimum, 6,221.74 ft Dec. 26, 1934.

REMARKS.--Lake levels regulated by a 17-gate concrete dam at outlet of lake; storage began about 1874. Figures given herein represent usable contents. Usable capacity, 744,600 acre-ft between elevations 6,223 (natural rim of lake) and 6,229.1 ft (maximum permissible elevation by Federal Court decree). Water is used for domestic and recreational purposes in Lake Tahoe area and for irrigation and power in downstream areas. Lake elevations are referred to Bureau of Reclamation datum because that datum is used as the official reference point by all local, State, and Federal agencies. One intermittent transmountain diversion from Echo Lake to South Fork American River for power and irrigation. Since October 1968, some sewage has been transported out of the basin into Carson River basin.

REVISIONS.--WRD 1967: Drainage area.

## ELEVATION, IN FEET, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.70	7.32	7.10	7.55	8.65	8.33	7.99	8.11	8.60	8.98	8.55	8.02
2	7.67	7.32	7.09	7.54	8.64	8.32	7.98	8.12	8.62	8.98	8.54	7.99
3	7.63	7.30	7.09	7.53	8.61	8.30	7.98	8.12	8.65	8.97	8.53	7.95
4	7.62	7.27	7.07	7.52	8.60	8.30	7.98	8.13	8.66	8.95	8.50	7.96
5	7.59	7.34	7.05	7.51	8.57	8.30	7.99	8.15	8.69	8.93	8.50	7.88
6	7.58	7.31	7.04	7.51	8.55	8.28	7.98	8.16	8.70	8.91	8.48	7.89
7	7.55	7.28	7.02	7.50	8.54	8.28	8.00	8.17	8.70	8.90	8.45	7.86
8	7.55	7.30	7.03	7.50	8.51	8.25	8.00	8.19	8.75	8.88	8.44	7.85
9	7.48	7.27	7.02	7.62	8.50	8.23	8.00	8.21	8.76	8.87	8.43	7.85
10	7.50	7.25	7.00	7.62	8.45	8.20	8.00	8.20	8.78	8.85	8.42	7.83
11	7.43	7.25	7.02	7.62	8.46	8.17	8.00	8.20	8.79	8.84	8.42	7.82
12	7.42	7.24	6.98	7.63	8.53	8.16	8.00	8.19	8.82	8.83	8.40	7.74
13	7.38	7.23	6.98	7.65	8.52	8.15	8.00	8.20	8.80	8.83	8.39	7.74
14	7.38	7.23	6.96	7.83	8.50	8.14	8.01	8.22	8.83	8.83	8.38	7.67
15	7.42	7.23	6.96	7.88	8.53	8.13	8.02	8.24	8.84	8.83	8.37	7.70
16	7.49	7.22	6.93	8.08	8.57	8.12	8.02	8.26	8.83	8.79	8.34	7.67
17	7.47	7.21	6.95	8.16	8.54	8.10	8.02	8.29	8.84	8.80	8.33	7.66
18	7.45	7.20	6.93	8.19	8.55	8.08	8.02	8.31	8.85	8.78	8.30	7.62
19	7.45	7.20	6.99	8.23	8.52	8.05	8.02	8.32	8.85	8.78	8.30	7.62
20	7.42	7.20	7.10	8.31	8.43	8.04	8.02	8.35	8.87	8.75	8.27	7.55
21	7.40	7.19	7.28	8.53	8.40	8.03	8.07	8.37	8.89	8.73	8.26	7.56
22	7.40	7.18	7.27	8.58	8.38	8.02	8.08	8.39	8.90	8.73	8.24	7.51
23	7.40	7.18	7.40	8.70	8.36	8.01	8.08	8.41	8.90	8.72	8.22	7.52
24	7.39	7.17	7.51	8.70	8.35	8.01	8.07	8.44	8.91	8.71	8.20	7.49
25	7.38	7.16	7.58	8.70	8.33	8.00	8.11	8.46	8.92	8.68	8.17	7.45
26	7.35	7.15	7.59	8.73	8.32	8.00	8.10	8.49	9.00	8.67	8.14	7.45
27	7.35	7.15	7.58	8.76	8.31	8.00	8.11	8.50	9.04	8.64	8.12	7.43
28	7.34	7.13	7.56	8.75	8.32	8.00	8.10	8.53	8.99	8.62	8.11	7.43
29	7.34	7.12	7.55	8.72	-----	8.00	8.10	8.55	9.00	8.60	8.11	7.40
30	7.33	7.11	7.54	8.70	-----	8.00	8.10	8.59	9.01	8.57	8.08	7.40
31	7.32	-----	7.55	8.68	-----	7.99	-----	8.59	-----	8.57	8.03	-----
MEAN	7.46	7.22	7.18	8.08	8.48	8.13	8.03	8.31	8.83	8.79	8.32	7.68
MAX	7.70	7.34	7.59	8.76	8.65	8.33	8.11	8.59	9.04	8.98	8.55	8.02
MIN	7.32	7.11	6.93	7.50	8.31	7.99	7.98	8.11	8.60	8.57	8.03	7.40
(+)	526,000	500,200	554,200	692,900	648,700	608,100	621,600	681,900	733,500	679,400	613,000	535,800
(+)	-50,300	-25,800	+54,000	+138,700	-44,200	-40,600	+13,500	+60,300	+51,600	-54,100	-66,400	-77,200

CAL YR 1969 MEAN 7.89 MAX 9.03 MIN 6.92 +63,700  
WTR YR 1970 MEAN 8.04 MAX 9.04 MIN 6.93 +40,500

+ CONTENTS, IN ACRE-FEET, AT END OF MONTH.

# CHANGE IN CONTENTS, IN ACRE-FEET.

NOTE.--Add 6,220 ft to obtain elevation above mean sea level, Bureau of Reclamation datum, at 2400 hours.

LOCATION.--Lat 39°10'00", long 120°08'40", in NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.7, T.15 N., R.17 E., Placer County, on left bank 510 ft downstream from dam at outlet of Lake Tahoe at Tahoe City.

PERIOD OF RECORD.--July 1895 to February 1896, March 1900 to current year. Monthly discharge only for some periods, published in WSP 1314 and 1734. Prior to October 1961, published as "at Tahoe."

GAGE.--Water-stage recorder. Datum of gage is 6,216.75 ft above mean sea level, datum of 1929. Prior to Nov. 12, 1912, nonrecording gage at site 370 ft upstream at different datum. Nov. 12, 1912, to Sept. 30, 1937, nonrecording gage, Oct. 1, 1937, to Aug. 21, 1957, water-stage recorder at datum 2.26 ft higher and Aug. 22, 1957, to July 10, 1960, at datum 2.42 ft higher; all at site 270 ft upstream.

EXTREMES.--Current year: Maximum discharge, 1,800 cfs Jan. 28 (gage height, 7.90 ft); minimum daily, 40 cfs Jan. 17.  
 . Period of record: Maximum discharge, 2,630 cfs June 19, 1969 (gage height, 9.32 ft); no flow for parts of many years.

REVISIONS.--WRD Calif. 1967: Drainage area.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	154	272	126	1,780	1,170	78	81	68	1,200	412	342
2	62	154	264	127	1,760	1,170	77	84	68	1,200	411	322
3	52	174	284	126	1,760	1,170	77	85	68	1,190	411	310
4	51	188	314	126	1,740	1,170	77	84	77	1,190	409	309
5	51	190	325	156	1,740	1,170	78	83	72	1,190	409	308
6	51	190	325	177	1,730	1,170	91	84	70	1,190	397	307
7	51	188	323	175	1,720	1,160	203	77	70	1,190	390	306
8	51	188	323	177	1,720	1,160	296	74	134	1,190	389	306
9	51	188	323	162	1,720	1,160	90	74	231	890	388	306
10	50	201	323	134	1,540	1,160	84	74	298	591	388	323
11	49	210	323	92	561	1,140	84	74	303	590	388	362
12	50	210	325	55	670	1,130	83	73	302	589	388	361
13	50	210	325	55	1,320	1,130	85	72	300	476	387	361
14	66	210	325	59	1,460	1,130	85	71	299	413	387	392
15	97	210	309	58	1,280	1,130	85	69	299	399	386	412
16	136	210	284	53	1,170	1,130	85	70	299	370	386	410
17	154	234	276	40	1,360	1,130	84	71	298	344	353	409
18	150	256	278	58	1,610	1,130	84	71	298	329	331	409
19	150	256	280	52	1,720	1,130	84	71	298	329	330	407
20	149	256	149	48	1,750	966	84	71	298	329	329	405
21	149	256	68	112	1,740	832	83	70	298	329	329	404
22	149	254	58	469	1,720	840	83	70	377	330	329	402
23	148	254	84	989	1,420	676	83	70	414	329	328	402
24	182	268	117	1,440	1,150	397	83	70	413	329	369	401
25	204	278	114	1,690	1,150	173	83	70	341	328	405	400
26	204	278	108	1,680	1,150	84	84	70	310	327	424	399
27	234	278	106	1,700	1,160	75	84	70	454	379	431	398
28	278	278	105	1,760	1,160	75	84	70	972	410	430	397
29	292	278	140	1,790	-----	74	172	69	1,330	444	429	373
30	221	278	144	1,780	-----	76	128	69	1,200	465	429	328
31	164	-----	126	1,780	-----	79	-----	68	-----	434	386	-----
TOTAL	3,822	6,777	7,120	17,246	40,761	26,187	2,961	2,279	10,259	19,293	11,958	10,971
MEAN	123	226	230	556	1,456	845	98.7	73.5	342	622	386	366
MAX	292	278	325	1,790	1,780	1,170	296	85	1,330	1,200	431	412
MIN	49	154	58	40	561	74	77	68	68	327	328	306
AC-FT	7,580	13,440	14,120	34,210	80,850	51,940	5,870	4,520	20,350	38,270	23,720	21,760
CAL YR 1969	TOTAL	228,004	MEAN	625	MAX	2,620	MIN	38	AC-FT			



## PYRAMID AND WINNEMUCCA LAKES BASIN

533

## 10339400 MARTIS CREEK NEAR TRUCKEE, CALIF.

LOCATION.--Lat 39°20'20", long 120°07'00", in SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.8, T.17 N., R.17 E., Nevada County, on left bank 0.8 mile upstream from mouth, and 3.5 miles northeast of Truckee.

DRAINAGE AREA.--41.0 sq mi.

PERIOD OF RECORD.--October 1958 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 5,700 ft (from topographic map).

AVERAGE DISCHARGE.--12 years, 23.6 cfs (17,100 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 795 cfs Jan. 24 (gage height, 4.64 ft); minimum, 2.7 cfs Aug. 3, 5.  
Period of record: Maximum discharge, 1,880 cfs Feb. 1, 1963 (gage height, 6.16 ft); minimum, 1.1 cfs July 19, 20, 1961.

REMARKS.--Records excellent.

REVISIONS.--WRD Calif. 1967: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.4	13	11	20	59	31	35	27	17	12	6.4	5.9
2	9.7	13	11	17	57	25	36	28	18	11	5.7	6.1
3	10	13	11	15	54	25	35	30	17	11	4.9	6.2
4	10	13	11	16	54	26	35	34	17	10	4.8	5.5
5	11	18	11	17	48	29	38	37	17	9.4	5.1	6.4
6	11	21	12	13	46	29	41	39	16	8.6	5.3	6.9
7	11	16	16	14	43	36	42	38	13	8.4	5.1	6.7
8	12	15	12	20	41	37	41	39	18	8.4	5.8	6.1
9	12	14	13	88	39	31	42	44	25	8.6	5.3	5.1
10	12	14	12	59	38	33	45	45	20	8.6	4.8	5.1
11	12	14	13	36	40	30	46	39	18	7.9	5.1	5.1
12	13	14	16	35	49	41	42	37	20	7.2	5.2	6.0
13	13	14	15	39	40	41	40	37	23	7.1	5.6	5.7
14	13	14	13	167	40	48	39	37	20	5.8	6.2	5.4
15	20	15	12	76	39	43	35	38	18	4.3	4.8	5.7
16	28	16	12	384	34	41	35	39	18	6.2	4.0	6.1
17	29	13	12	225	42	40	34	43	15	6.1	4.2	6.1
18	19	13	13	121	43	36	29	46	14	6.1	4.6	6.0
19	16	14	34	113	38	36	28	46	13	5.9	4.6	6.7
20	15	14	64	102	36	35	25	43	13	5.8	4.8	7.0
21	15	14	109	363	36	36	27	39	12	5.3	4.7	7.2
22	14	14	37	290	32	38	29	37	11	5.4	5.3	7.8
23	13	14	65	206	32	40	26	35	11	4.9	5.5	7.5
24	13	14	137	290	32	43	24	32	10	5.2	5.0	7.7
25	13	14	88	158	34	45	24	30	9.9	6.0	4.1	7.4
26	13	15	41	127	34	44	28	28	25	6.1	5.0	7.7
27	13	15	29	243	35	41	28	26	45	5.5	4.3	7.7
28	13	14	20	108	36	41	29	24	17	5.5	5.5	7.7
29	13	13	18	91	-----	42	33	22	15	4.9	6.2	7.6
30	13	12	18	75	-----	40	29	20	13	5.0	6.3	7.3
31	13	-----	18	70	-----	37	-----	18	-----	5.6	5.3	-----
TOTAL	432.1	430	904	3,598	1,151	1,140	1,020	1,077	518.9	217.8	159.5	195.4
MEAN	13.9	14.3	29.2	116	41.1	36.8	34.0	34.7	17.3	7.03	5.15	6.51
MAX	29	21	137	384	59	48	46	46	45	12	6.4	7.8
MIN	9.4	12	11	13	32	25	24	18	9.9	4.3	4.0	5.1
AC-FT	857	853	1,790	7,140	2,280	2,260	2,020	2,140	1,030	432	316	388

CAL YR 1969 TOTAL 18,082.5 MEAN 49.5 MAX 519 MIN 7.4 AC-FT 35,870  
WAT YR 1970 TOTAL 10,843.7 MEAN 29.7 MAX 384 MIN 4.0 AC-FT 21,510

## PEAK DISCHARGE (BASE, 170 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1445	3.16	263	1-21	2045	4.01	527
12-24	0445	3.06	239	1-24	0130	4.64	795
1- 9	2215	3.02	229	1-27	0515	3.88	482
1-16	0815	4.54	745				

## PYRAMID AND WINNEMUCCA LAKES BASIN

10340300 Prosser Creek Reservoir near Boca, Calif.

LOCATION.--Lat 39°22'45", long 120°08'25", in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.30, T.18 N., R.17 E., Nevada County, in control house at Prosser Creek Dam on Prosser Creek, 1.5 miles upstream from mouth, and 3 miles west of Boca.

DRAINAGE AREA.--50.5 sq mi.

PERIOD OF RECORD.--January 1963 to current year.

GAGE.--Water-stage recorder with surface follower and telemark. Datum of gage is at mean sea level (levels by Bureau of Reclamation).

EXTREMES.--Current year: Maximum contents, 29,470 acre-ft July 6 (elevation, 5,742.29 ft); minimum, 7,260 acre-ft Oct. 29 (elevation 5,699.41 ft).

Period of record: Maximum contents, 30,760 acre-ft May 22, 1963 (elevation, 5,743.95 ft); minimum, 1,350 acre-ft Apr. 9, 1969 (elevation, 5,672.30 ft).

REMARKS.--Reservoir is formed by rolled-earth and rockfill dam. Storage began Jan. 30, 1963. Usable capacity, 28,640 acre-ft between elevations, 5,660.6 (top of inactive storage) and 5,741.2 ft (spillway crest). Inactive storage, 1,200 acre-ft (includes 83 acre-ft dead storage) below elevation 5,660.6 ft. Elevation of streambed at dam axis, 5,622 ft. Figures given herein represent usable contents. Reservoir is used for flood control, enhancement of fishery, and recreation.

COOPERATION.--Records furnished by Bureau of Reclamation.

## MONTHEND ELEVATIONS AND CONTENTS AT 0800 HOURS, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Oct. 31 . . . . .	5,699.64	7,330	-10,680
Nov. 30 . . . . .	5,701.38	7,870	+540
Dec. 31 . . . . .	5,700.24	7,510	-360
Calendar year 1969 . . . . .	-	-	-890
Jan. 31 . . . . .	5,702.86	8,350	+840
Feb. 28 . . . . .	5,700.88	7,710	-640
Mar. 31 . . . . .	5,702.92	8,370	+660
Apr. 30 . . . . .	5,715.63	13,350	+4,980
May 31 . . . . .	5,732.82	22,800	+9,450
June 30 . . . . .	5,741.98	29,230	+6,430
July 31 . . . . .	5,741.51	28,880	-350
Aug. 31 . . . . .	5,732.01	22,280	-6,600
Sept.30 . . . . .	5,719.53	15,210	-7,070
Water year 1969-70. . . . .			-2,800

## 10340500 PROSSER CREEK NEAR BOCA, CALIF.

LOCATION.--Lat 39°22'10", long 120°07'10", in SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.32, T.18 N., R.17 E., Nevada County, on left bank 0.2 mile upstream from mouth, 1.0 mile downstream from Prosser Creek Dam, and 2 miles southwest of Boca.

DRAINAGE AREA.--53.6 sq mi.

PERIOD OF RECORD.--October 1902 to June 1903 (gage heights only), October 1942 to December 1950, June 1951 to current year. Records for April 1889 to November 1890, published in the 11th and 12th Annual Reports, Part 2, have been found to be unreliable and should not be used. Monthly discharge only for October 1942 to December 1950, published in WSP 1734.

GAGE.--Water-stage recorder. Datum of gage is 5,572.62 ft above mean sea level (levels by Bureau of Reclamation). April 1889 to November 1890 and October 1902 to June 1903, nonrecording gages at same site at different datums. October 1942 to December 1950, water-stage recorder at approximately same site at different datum. June 1951 to September 1956, water-stage recorder at present site at datum 2.00 ft higher.

AVERAGE DISCHARGE (adjusted for storage).--27 years (1942-50, 1951-70), 86.0 cfs (62,310 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,290 cfs Jan. 23 (gage height, 5.74 ft); minimum daily, 1.6 cfs Nov. 2.

1942 to current year: Maximum discharge, 4,560 cfs Dec. 23, 1955 (gage height, 10.13 ft, present datum), from rating curve extended above 910 cfs on basis of slope-area measurement of peak flow; maximum gage height, 11.0 ft, from floodmarks, (present datum) Nov. 20, 1950 (discharge, 4,320 cfs by slope-area measurement); minimum discharge, 0.4 cfs July 18, 1961, result of work on dam upstream.

REMARKS.--Records good. Flow regulated by Prosser Creek Dam since Jan. 31, 1963.

REVISIONS.--WRD Calif. 1967: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	290	2.2	27	8.8	280	92	149	23	13	60	15	180
2	268	1.6	27	25	223	92	152	29	13	64	15	180
3	250	7.7	27	41	190	92	153	29	13	67	14	178
4	243	9.6	27	41	165	92	153	102	13	71	13	180
5	241	10	17	42	149	92	153	140	13	74	13	176
6	239	10	10	42	139	92	140	108	13	75	12	176
7	239	10	10	42	131	92	133	91	13	74	15	174
8	252	10	10	43	131	92	58	136	14	72	17	174
9	259	9.6	10	49	118	73	12	158	14	71	15	174
10	243	9.6	10	44	110	63	13	159	13	69	112	176
11	234	9.6	10	44	110	63	13	177	13	67	165	144
12	232	9.6	10	68	110	64	13	185	14	64	165	127
13	230	9.6	10	87	110	84	13	168	14	62	163	124
14	228	9.6	10	120	110	95	13	161	13	59	180	78
15	213	9.6	18	133	110	94	13	148	13	56	190	49
16	202	10	25	208	110	131	13	141	13	54	190	78
17	186	19	25	421	110	152	13	144	47	50	188	94
18	178	27	25	588	109	139	13	61	109	47	188	93
19	176	27	25	580	109	131	13	13	116	44	188	93
20	159	27	28	392	95	118	13	13	108	41	186	94
21	151	27	368	426	87	110	13	13	115	39	186	95
22	138	27	588	186	89	110	13	13	125	36	186	96
23	131	27	370	1,000	89	110	13	13	128	31	186	94
24	130	27	243	1,020	90	110	13	13	145	28	170	94
25	130	27	241	1,060	90	123	13	13	151	24	161	94
26	130	27	194	1,130	90	130	14	13	116	22	127	95
27	64	27	169	460	91	142	13	13	110	21	107	94
28	25	27	169	373	92	148	13	13	113	19	106	94
29	15	27	128	588	-----	148	13	13	72	18	105	94
30	4.8	27	107	402	-----	149	13	13	55	17	105	109
31	2.2	-----	46	283	-----	149	-----	13	-----	16	153	-----
TOTAL	5,483.0	508.3	2,984	9,946.8	3,437	3,372	1,377	2,329	1,722	1,512	3,636	3,701
MEAN	177	16.9	96.3	321	123	109	45.9	75.1	57.4	48.8	117	123
MAX	290	27	588	1,130	280	152	153	185	151	75	190	180
MIN	2.2	1.6	10	8.8	87	63	12	13	13	16	12	49
AC-FT	10,880	1,010	5,920	19,730	6,820	6,690	2,730	4,620	3,420	3,000	7,210	7,340
MEAN a	3.25	26.0	90.4	335	111	120	130	229	166	43.2	9.92	4.54
AC-FT a	200	1,550	5,560	20,570	6,180	7,350	7,710	14,070	9,850	2,650	610	270
CAL YR 1969	TOTAL 53,421.9	MEAN 146	MAX 702	MIN 1.6	AC-FT 106,000	MEAN a 145	AC-FT a 105,100					
WAT YR 1970	TOTAL 40,008.1	MEAN 110	MAX 1,130	MIN 1.6	AC-FT 79,360	MEAN a 106	AC-FT a 76,560					

a Adjusted for change in storage in Prosser Creek Reservoir.

## PYRAMID AND WINNEMUCCA LAKES BASIN

10342000 LITTLE TRUCKEE RIVER NEAR HOBART MILLS, CALIF.

LOCATION.--Lat 39°30'05", long 120°16'35", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.14, T.19 N., R.15 E., Sierra County, on left bank 0.5 mile upstream from Independence Creek and 7.5 miles northwest of Hobart Mills.

DRAINAGE AREA.--36.5 sq mi.

PERIOD OF RECORD.--December 1946 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 6,290 ft (from topographic map). Prior to Nov. 9, 1962, at site 100 ft downstream at datum 0.63 ft lower. Nov. 9, 1962, to Dec. 22, 1964, at site 100 ft downstream at datum 0.78 ft lower. Dec. 23, 1964, to Aug. 5, 1965, twice monthly observations referred to bridge 75 ft upstream at present datum.

AVERAGE DISCHARGE.--23 years (1947-70), 89.8 cfs (65,060 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 2,890 cfs Jan. 22 (gage height, 5.66 ft); minimum, 1.6 cfs Sept. 18, 19.

Period of record: Maximum discharge, 7,910 cfs Feb. 1, 1963 (gage height, 7.76 ft), from rating curve extended above 1,100 cfs on basis of slope-area measurements at gage heights 6.97 and 7.68 ft (adjusted to datum used in 1963); minimum, 0.40 cfs Oct. 19, 1966.

REMARKS.--Records good. One transmountain diversion to Sierra Valley above station.

REVISIONS.--WRD Calif. 1967: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	8.0	7.6	70	141	70	92	103	312	38	5.1	2.6
2	2.8	7.9	7.4	62	134	54	98	121	345	34	5.1	2.6
3	3.0	7.8	7.4	50	126	56	103	161	345	31	4.8	2.4
4	3.0	7.7	7.2	52	121	56	109	215	345	28	4.8	2.6
5	3.0	9.6	7.2	54	114	56	121	271	323	26	4.8	3.1
6	3.0	10	7.2	56	112	56	139	307	285	20	4.4	3.1
7	3.0	10	7.4	56	109	65	147	262	271	10	4.4	2.8
8	3.1	11	7.5	58	107	65	150	248	239	9.5	4.4	2.6
9	3.1	11	7.6	101	103	63	150	243	215	9.0	4.4	2.4
10	3.0	11	8.0	140	101	61	164	276	190	8.0	4.1	2.2
11	3.0	12	8.8	89	101	57	177	200	161	8.0	4.1	2.2
12	3.0	13	12	72	101	58	150	170	150	8.0	3.9	2.2
13	3.0	13	16	70	98	68	139	167	134	7.5	3.9	2.2
14	4.7	13	14	97	94	88	124	215	124	6.8	3.7	2.4
15	14	13	13	96	90	92	109	285	114	6.5	3.7	2.6
16	44	16	13	470	81	90	105	397	105	6.1	3.5	2.6
17	21	12	13	476	96	90	96	494	109	5.8	3.5	2.6
18	14	12	13	384	85	83	94	536	121	5.5	3.5	2.2
19	11	12	53	318	79	79	98	470	139	5.1	3.5	1.8
20	11	11	224	381	60	77	88	378	147	5.1	3.3	1.8
21	12	11	667	1,260	64	79	88	334	150	5.1	3.3	1.9
22	12	11	327	2,080	66	83	85	365	147	6.1	3.1	1.9
23	11	10	172	792	73	90	81	397	136	6.1	3.1	1.8
24	10	10	250	425	73	103	81	397	121	5.8	2.8	1.8
25	9.6	10	245	307	68	114	90	418	105	5.8	2.8	1.8
26	9.2	9.5	179	276	68	114	101	448	119	5.5	2.8	1.8
27	8.9	9.2	136	252	68	107	94	433	126	5.5	2.8	1.9
28	8.6	8.6	113	190	72	107	86	358	105	5.5	2.6	1.9
29	8.2	8.2	97	185	-----	109	83	323	63	5.5	2.8	1.9
30	8.1	7.8	87	170	-----	105	90	318	46	5.5	3.1	1.9
31	8.0	-----	78	158	-----	96	-----	318	-----	5.1	2.8	-----
TOTAL	264.1	316.3	2,805.3	9,247	2,605	2,491	3,332	9,628	5,292	339.4	114.9	67.6
MEAN	8.52	10.5	90.5	298	93.0	80.4	111	311	176	10.9	3.71	2.25
MAX	44	16	667	2,080	141	114	177	536	345	38	5.1	3.1
MIN	2.8	7.7	7.2	50	60	54	81	103	46	5.1	2.6	1.8
AC-FT	524	627	5,560	18,340	5,170	4,940	6,610	19,100	10,500	673	228	134
CAL YR 1969	TOTAL	54,754.2	MEAN	150	MAX	1,030	MIN	2.5	AC-FT	108,600		
WAT YR 1970	TOTAL	36,502.6	MEAN	100	MAX	2,080	MIN	1.8	AC-FT	72,400		

## PEAK DISCHARGE (BASE, 500 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1400	4.31	1,100	5-17	2400	3.96	630
1-22	0400	5.66	2,890				



## 10343000 INDEPENDENCE CREEK NEAR TRUCKEE, CALIF.

LOCATION.--Lat 39°27'20", long 120°17'15", in NW¼SW¼ sec.35, T.19 N., R.15 E., Sierra County, on left bank 0.3 mile downstream from Independence Lake outlet, 6.5 miles northwest of Hobart Mills, and 10 miles north-northwest of Truckee.

DRAINAGE AREA.--7.63 sq mi (revised).

PERIOD OF RECORD.--November 1902 to September 1907, November 1909 to June 1910, August 1968 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 6,940 ft (from topographic map). July 1, 1904, to June 30, 1910, water-stage recorder 75 ft downstream from Independence Lake outlet; prior to July 1, 1904, water-stage recorder 600 ft downstream at approximately same datum.

AVERAGE DISCHARGE (unadjusted).--7 years (1902-7), 1968-70), 36.0 cfs (26,080 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 104 cfs Nov. 20 (gage height, 4.07 ft); minimum daily, 2.4 cfs Dec. 31.

Period of record: Maximum discharge observed, 286 cfs June 23, 1907 (gage height, 3.9 ft, site and datum then in use); no flow Sept. 28 to Nov. 10, 1905, June 1, 1906.

REMARKS.--Records excellent. Flow regulated by Independence Lake (usable capacity, 17,300 acre-ft in 1950).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.9	3.4	92	2.6	4.6	22	36	37	31	39	9.0	5.9
2	4.9	3.4	43	2.8	4.6	52	36	38	32	37	8.7	5.4
3	4.4	3.4	7.3	2.9	4.4	72	36	38	33	36	8.7	4.9
4	4.4	3.4	7.3	3.1	4.6	66	36	38	34	31	8.7	4.6
5	4.4	3.1	7.0	3.1	4.9	65	37	39	34	29	7.8	4.4
6	4.4	41	7.0	3.1	5.1	64	37	39	35	29	7.6	4.6
7	4.4	84	6.7	3.2	6.2	64	37	39	34	28	7.0	4.4
8	4.2	84	6.2	3.4	9.5	63	37	39	32	28	7.3	4.2
9	4.4	83	6.2	3.4	14	63	37	39	32	28	7.6	4.6
10	4.4	82	5.9	3.4	22	63	38	38	32	28	7.6	4.9
11	4.4	81	5.9	3.4	24	63	37	38	32	28	7.6	4.9
12	4.4	81	5.6	3.4	28	63	37	38	32	32	7.6	4.9
13	4.2	80	5.4	3.4	31	63	36	38	32	28	7.6	4.9
14	4.0	80	5.1	3.1	32	63	36	38	32	28	7.8	4.9
15	4.0	79	4.9	3.1	30	62	36	33	32	28	7.6	4.6
16	4.0	79	4.9	4.9	24	61	36	31	32	26	7.8	4.4
17	4.0	78	4.9	5.1	26	61	36	31	32	24	7.0	4.4
18	4.0	77	4.9	4.6	34	61	36	31	32	22	7.3	4.0
19	4.0	76	5.1	4.2	31	61	36	31	32	20	7.0	4.2
20	4.4	92	6.7	4.9	28	61	36	30	32	18	7.0	4.0
21	4.2	102	7.0	11	25	61	36	30	32	17	7.0	3.8
22	4.0	101	4.2	13	23	60	36	30	32	17	7.0	3.8
23	4.0	100	3.1	8.4	22	60	36	30	32	17	6.4	3.6
24	3.8	100	3.6	7.8	20	60	36	30	32	17	6.4	3.4
25	3.8	99	3.4	6.2	19	60	36	30	32	17	6.4	3.8
26	3.8	97	2.8	5.4	18	60	36	30	32	16	6.2	3.8
27	3.8	96	2.6	5.1	17	59	36	30	32	16	6.2	3.8
28	3.8	96	2.8	5.1	17	59	36	30	32	16	5.9	3.6
29	3.8	94	2.6	4.9	-----	59	36	31	37	16	5.9	4.0
30	3.8	93	2.5	5.1	-----	59	36	31	39	16	6.2	3.6
31	3.8	-----	2.4	4.9	-----	49	-----	31	-----	11	5.9	-----
TOTAL	128.8	2,171.7	279.0	148.0	528.9	1,859	1,089	1,056	981	743	223.8	130.3
MEAN	4.15	72.4	9.00	4.77	18.9	60.0	36.3	34.1	32.7	24.0	7.22	4.34
MAX	4.9	102	92	13	34	72	38	39	39	39	9.0	5.9
MIN	3.8	3.1	2.4	2.6	4.4	22	36	30	31	11	5.9	3.4
AC-FT	255	4,310	553	294	1,050	3,690	2,160	2,090	1,950	1,470	444	258

CAL YR 1969 TOTAL 11,697.9 MEAN 32.0 MAX 151 MIN 1.8 AC-FT 23,200  
WAT YR 1970 TOTAL 9,338.5 MEAN 25.6 MAX 102 MIN 2.4 AC-FT 18,520

## PYRAMID AND WINNEMUCCA LAKES BASIN

10343500 SAGEHEN CREEK NEAR TRUCKEE, CALIF.

LOCATION.--Lat 39°25'54", long 120°14'07", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.7, T.18 N., R.16 E., Nevada County, on left bank 2.2 miles upstream from bridge on State Highway 89, and 7.5 miles north of Truckee.

DRAINAGE AREA.--10.8 sq mi.

PERIOD OF RECORD.--October 1953 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 6,320 ft (from topographic map). Prior to Dec. 2, 1953, nonrecording gage at site 100 ft upstream at different datum.

AVERAGE DISCHARGE.--17 years, 12.2 cfs (8,840 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 303 cfs Jan. 21 (gage height, 3.87 ft); minimum daily, 2.9 cfs Sept. 30.

Period of record: Maximum discharge, 765 cfs Feb. 1, 1963 (gage height, 4.64 ft, from floodmarks), from rating curve extended above 70 cfs on basis of slope-area measurement at gage height 4.28 ft; minimum, 0.6 cfs Aug. 8, 1960, Aug. 7, 1961, result of temporary regulation.

REMARKS.--Records good. No storage or diversion above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	4.0	3.5	7.0	23	10	18	24	34	11	3.5	3.2
2	3.4	4.0	3.5	6.3	21	11	20	29	33	9.8	3.6	3.2
3	3.5	4.0	3.5	6.1	20	10	20	35	33	9.2	3.6	3.2
4	3.6	4.0	3.4	6.0	20	9.9	21	42	32	8.7	3.6	3.3
5	3.7	5.2	3.3	5.7	18	9.6	24	47	34	8.2	3.6	3.6
6	3.7	5.4	3.6	5.4	17	9.8	27	48	32	7.6	3.5	3.5
7	3.7	5.0	3.6	5.5	17	9.9	28	47	29	7.3	3.6	3.4
8	3.9	4.8	3.6	6.3	16	9.8	27	47	31	7.0	3.5	3.3
9	3.9	4.6	3.7	14	16	9.2	30	50	30	6.8	3.5	3.2
10	3.8	4.6	3.8	14	15	9.1	35	47	27	6.6	3.6	3.2
11	3.8	4.6	3.9	8.9	15	8.9	35	40	24	6.3	3.5	3.2
12	3.8	4.7	4.4	8.3	15	9.7	31	39	25	6.0	3.6	3.0
13	3.8	4.6	4.8	7.9	14	12	29	41	24	5.8	3.6	3.0
14	4.1	4.6	4.3	15	14	17	25	42	21	5.6	3.6	3.2
15	8.6	4.6	4.1	11	13	15	24	44	20	5.3	3.6	3.2
16	11	5.0	4.0	64	11	15	23	48	18	5.0	3.5	3.2
17	6.8	4.0	4.0	36	13	15	23	52	17	4.9	3.6	3.1
18	5.5	3.9	4.5	24	12	13	23	54	16	4.7	3.6	3.1
19	5.3	4.3	14	26	11	13	24	51	15	4.6	3.4	3.1
20	5.4	4.3	34	31	11	13	21	48	15	4.6	3.4	3.2
21	5.5	4.2	65	146	11	14	21	47	16	4.3	3.4	3.2
22	5.3	4.0	19	153	11	15	19	46	15	4.3	3.4	3.2
23	4.9	3.9	16	99	11	17	19	46	14	4.2	3.3	3.2
24	4.6	3.9	43	86	10	19	20	44	13	4.1	3.3	3.2
25	4.4	3.9	30	55	10	20	23	44	12	4.0	3.3	3.2
26	4.3	3.8	16	43	10	20	23	45	19	3.9	3.3	3.0
27	4.2	3.7	12	50	11	19	21	43	20	3.8	3.3	3.0
28	4.1	3.6	9.9	30	11	20	19	40	15	3.7	3.4	3.0
29	4.0	3.5	9.8	26	-----	20	20	39	13	3.7	3.6	3.0
30	4.0	3.5	9.0	27	-----	19	23	37	12	3.7	3.5	2.9
31	4.0	-----	7.7	25	-----	18	-----	35	-----	3.6	3.2	-----
TOTAL	144.0	128.2	354.9	1,048.4	397	430.9	716	1,341	659	178.3	108.0	95.3
MEAN	4.65	4.27	11.4	33.8	14.2	13.9	23.9	43.3	22.0	5.75	3.48	3.18
MAX	11	5.4	65	153	23	20	35	54	34	11	3.6	3.6
MIN	3.4	3.5	3.3	5.4	10	8.9	18	24	12	3.6	3.2	2.9
AC-FT	286	254	704	2,080	787	855	1,420	2,660	1,310	354	214	189
CAL YR 1969	TOTAL 8,232.1			MEAN 22.6	MAX 163	MIN 3.3	AC-FT 16,330					
WTR YR 1970	TOTAL 5,601.0			MEAN 15.3	MAX 153	MIN 2.9	AC-FT 11,110					

## PEAK DISCHARGE (BASE, 50 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1230	3.30	150	1-23	2400	3.31	152
12-24	0400	2.63	54	1-27	0345	2.78	70
1-16	1130	2.97	94	5- 5	1830	2.70	60
1-21	1800	3.87	303	5-17	1800	2.72	62

10344300 Stampede Reservoir near Boca, Calif.

LOCATION.--Lat 39°28'15", long 120°06'15", in SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.29, T.19 N., R.17 E., Sierra County, in control house on Stampede Dam on Little Truckee River, just downstream from mouth of Davies Creek and 6.2 miles north of Boca.

DRAINAGE AREA.--136 sq mi.

PERIOD OF RECORD.--August 1969 to current year.

GAGE.--Water-stage recorder with mercury-column manometer. Datum of gage is at mean sea level (levels by Bureau of Reclamation).

EXTREMES.--Current year: Maximum contents, 102,500 acre-ft (elevation, 5,906.6 ft) June 8; below top of inactive storage prior to Oct. 25.

Period of record: Maximum contents, 102,500 acre-ft (elevation, 5,906.6 ft) June 8, 1970; below top of inactive storage prior to Oct. 25, 1969.

REMARKS.--Reservoir is formed by rolled-earth and rockfill dam. Storage began Aug. 1, 1969. Usable capacity, 220,200 acre-ft between elevations 5,796.5 (top of inactive storage) and 5,948.7 ft (spillway crest). Inactive storage, 5,000 acre-ft (includes 800 acre-ft dead storage) below elevation 5,796.5 ft. Elevation of streambed at dam axis, 5,737.0 ft. Figures given herein represent usable contents. Reservoir is used for flood control, municipal water supply, enhancement of fishery, and recreation.

COOPERATION.--Records furnished by Bureau of Reclamation.

## MONTH-END ELEVATIONS AND CONTENTS, AT 0800 HOURS, OCTOBER 1969 TO SEPTEMBER 1970

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Oct. 31 . . . . .	5,798.2	371	+371
Nov. 30 . . . . .	5,818.4	6,150	+5,780
Dec. 31 . . . . .	5,837.1	14,370	+8,220
Calendar year 1969 . . . . .	-	-	+14,370
Jan. 31 . . . . .	5,874.9	47,890	+33,520
Feb. 28 . . . . .	5,882.8	58,900	+11,010
Mar. 31 . . . . .	5,893.0	75,680	+16,780
Apr. 30 . . . . .	5,901.2	91,240	+15,560
May 31 . . . . .	5,906.3	101,700	+10,460
June 30 . . . . .	5,905.4	99,870	-1,830
July 31 . . . . .	5,902.8	94,360	-5,510
Aug. 31 . . . . .	5,897.8	84,650	-9,710
Sept. 30 . . . . .	5,896.8	82,700	-1,950
Water year 1969-70 . . . . .	-	-	+82,700

## PYRAMID AND WINNEMUCCA LAKES BASIN

## 10344400 LITTLE TRUCKEE RIVER ABOVE BOCA RESERVOIR, NEAR BOCA, CALIF.

LOCATION.--Lat 39°26'10", long 120°05'00", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.3, T.18 N., R.17 E., Nevada County, on left bank 1 mile upstream from Boca Reservoir, 1.5 miles upstream from Dry Creek, and 3.5 miles north of Boca.

DRAINAGE AREA.--146 sq mi.

PERIOD OF RECORD.--June 1903 to October 1910, September 1939 to current year. Published as "at Pine Station" June 1903 to December 1907 and as "at Starr" January 1908 to October 1910. Monthly discharge only for some periods, published in WSP 1314 and 1734.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 5,618.67 ft above mean sea level (Bureau of Reclamation bench mark). June 1903 to October 1910, nonrecording gages at different sites and datums.

AVERAGE DISCHARGE (adjusted for storage).--38 years (1903-10, 1939-70), 195 cfs (141,300 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 696 cfs Feb. 11 (gage height, 2.32 ft), momentary opening of gates at Stampede Dam; minimum daily, 0.50 cfs Oct. 2-15, Oct. 19 to Nov. 4.  
Period of record: Maximum discharge, 13,300 cfs Feb. 1, 1963 (gage height, 9.00 ft), from rating curve extended above 1,600 cfs on basis of slope-area measurement of peak flow; minimum daily, 0.30 cfs Sept. 16-21, 1969.

REMARKS.--Records poor prior to Nov. 6 and excellent thereafter. Flow slightly regulated by Independence Lake (capacity, 17,500 acre-ft) and one transmountain diversion to Sierra Valley, and Stampede Reservoir (capacity, 220,200 acre-ft).

REVISIONS (WATER YEARS).--WSP 1564: 1903-4, 1906-7, 1910, drainage area at site used 1903-7.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.60	.50	.80	1.8	12	13	11	260	358	46	403	29
2	.50	.50	.80	1.6	11	12	11	261	407	44	401	28
3	.50	.50	.80	1.4	9.0	10	11	262	406	43	400	28
4	.50	.50	.80	1.4	9.0	9.6	10	280	405	43	400	29
5	.50	.60	.90	1.2	9.0	9.0	11	313	410	42	398	29
6	.50	.80	.90	1.2	9.0	9.0	12	313	415	42	398	29
7	.50	.70	.90	1.6	9.6	12	12	313	415	42	398	29
8	.50	.70	1.0	1.9	10	12	12	335	431	42	398	29
9	.50	.80	1.0	5.0	10	12	12	369	462	42	398	29
10	.50	.80	1.1	7.0	9.6	11	12	367	459	42	398	29
11	.50	.80	1.1	4.1	31	10	14	365	458	42	188	29
12	.50	.80	1.2	3.7	14	11	12	364	457	42	36	28
13	.50	.80	1.2	4.6	12	14	11	393	458	42	33	29
14	.50	.80	1.1	13	11	18	11	425	457	51	30	29
15	.50	.80	1.1	9.0	10	19	10	427	457	44	30	29
16	1.1	.80	1.0	42	9.0	19	9.9	426	457	124	29	29
17	1.4	.80	1.0	32	11	18	9.7	427	398	185	29	29
18	.90	.80	1.1	20	9.6	16	8.7	281	259	185	29	29
19	.50	.80	1.4	19	8.0	14	9.0	121	192	185	29	29
20	.50	.80	5.4	22	8.5	13	8.2	120	192	185	29	29
21	.50	.80	11	108	7.5	14	8.6	120	192	185	29	29
22	.50	.80	5.4	125	8.0	14	8.7	140	155	185	29	29
23	.50	.80	4.6	70	8.5	15	7.9	178	46	195	29	29
24	.50	.80	12	77	8.5	17	23	178	43	203	29	29
25	.50	.80	12	38	9.0	18	41	237	42	203	29	29
26	.50	.80	7.0	28	10	17	43	298	45	203	29	29
27	.50	.80	3.7	48	11	15	37	252	46	203	29	29
28	.50	.90	2.1	27	12	15	23	304	43	203	29	29
29	.50	.90	2.3	21	-----	14	100	305	42	203	29	29
30	.50	.80	1.9	17	-----	14	258	303	45	312	29	29
31	.50	-----	1.8	14	-----	12	-----	303	-----	398	29	-----
TOTAL	17.50	22.60	88.40	766.5	296.8	426.6	767.7	9,040	8,652	4,006	4,773	867
MEAN	.56	.75	2.85	24.7	10.6	13.8	25.6	292	288	129	154	28.9
MAX	1.4	.90	12	125	31	19	258	427	462	398	403	29
MIN	.50	.50	.80	1.2	7.5	9.0	7.9	120	42	42	29	28
AC-FT	35	45	175	1,520	589	846	1,520	17,930	17,160	7,950	9,470	1,720
MEAN a	6.60	97.8	137	570	209	287	287	462	258	39.7	-3.90	-3.87
AC-FT a	2,100	5,820	8,400	35,040	11,600	17,630	17,080	28,390	15,330	2,440	-240	-230

CAL YR 1969 TOTAL 109,261.60 MEAN 299 MAX 1,780 MIN .30 AC-FT 216,700 MEAN a 326 AC-FT a 236,100  
WTR YR 1970 TOTAL 29,724.10 MEAN 81.4 MAX 462 MIN .50 AC-FT 58,960 MEAN a 196 AC-FT a 141,700

a Adjusted for change in storage in Stampede Reservoir.

NOTE.--For months when inflow to the reservoir was small and other quantities were large, discordant figures of net flow may appear. This arises primarily from the difficulty of computing net inflow as the residual of several larger quantities, which are not susceptible to measurement with a precision necessary to produce a final answer within desirable limits of accuracy.

## PYRAMID AND WINNEMUCCA LAKES BASIN

541

10344490 Boca Reservoir at Boca, Calif.

LOCATION.--Lat 39°23'20", long 120°05'40", in NE 1/4 sec. 28, T.18 N., R.17 E., Nevada County, in control house at Boca Dam on Little Truckee River, 1,800 ft upstream from mouth, and 0.5 mile northwest of Boca.

DRAINAGE AREA.--172 sq mi.

PERIOD OF RECORD.--December 1938 to current year. Month-end contents only for December 1938 to September 1957, published in WSP 1734.

GAGE.--Pressure gage with mercury column read once daily. Datum of gage is at mean sea level (levels by Bureau of Reclamation).

EXTREMES.--Current year: Maximum contents, 27,920 acre-ft Jan. 28 (elevation, 5,590.50 ft); minimum, 18,620 acre-ft June 25 to July 3, July 9-16 (elevation, 5,577.95 ft).

Period of record: Maximum contents, 41,440 acre-ft Dec. 23, 1955 (elevation, 5,605.55 ft); minimum, 37 acre-ft Mar. 4-9, 1955 (elevation, 5,521.65 ft).

REMARKS.--Reservoir is formed by earthfill, rock-faced dam. Storage began Dec. 8, 1938. Usable capacity, 40,900 acre-ft between elevations 5,521 (outlet sill) and 5,605 ft (top of spillway gates). Elevation of spillway (gate open) is 5,589.01 ft. Dead storage, 240 acre-ft. Figures given herein represent usable contents. Water is used for irrigation in the State of Nevada and for power development.

COOPERATION.--Daily elevations furnished by Washoe County Water Conservation District.

REVISIONS.--WSP 1634: Drainage area.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

5,570	13,760
5,580	20,020
5,590	27,510
5,600	36,150

## CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21,600	21,380	21,240	22,040	27,590	27,350	27,390	20,460	19,400	18,620	19,260	25,570
2	21,600	21,380	21,240	22,040	27,430	27,350	27,390	20,460	19,260	18,620	19,640	25,650
3	21,570	21,350	21,240	22,040	27,430	27,350	27,310	20,500	19,200	18,620	20,090	25,690
4	21,460	21,350	21,240	22,040	27,390	27,350	27,350	20,500	19,160	18,660	20,710	25,720
5	21,500	21,350	21,240	22,040	27,350	27,350	27,310	20,460	19,060	18,660	20,930	25,800
6	21,460	21,350	21,240	22,040	27,350	27,350	27,310	20,460	18,990	18,660	21,780	25,800
7	21,460	21,350	21,240	22,040	27,310	27,350	27,310	20,460	18,930	18,660	22,360	25,800
8	21,460	21,380	21,240	22,100	27,310	27,350	27,310	20,460	18,860	18,660	22,880	25,880
9	21,460	21,380	21,210	22,070	27,310	27,350	27,270	20,460	18,900	18,620	23,470	25,880
10	21,420	21,380	21,210	22,140	27,310	27,350	27,270	20,570	18,930	18,620	23,920	25,920
11	21,420	21,380	21,210	22,180	27,310	27,390	27,310	20,710	18,960	18,620	24,680	25,960
12	21,380	21,380	21,210	22,180	27,350	27,350	27,270	20,710	18,990	18,620	24,800	26,040
13	21,350	21,380	21,210	22,220	27,350	27,350	27,270	20,570	19,060	18,620	24,830	26,040
14	21,350	21,380	21,210	22,440	27,350	27,350	26,990	20,500	19,060	18,620	24,860	26,040
15	21,350	21,380	21,210	22,650	27,310	27,390	26,790	20,500	19,100	18,620	24,950	26,120
16	21,350	21,380	21,210	22,920	27,270	27,470	26,200	20,460	19,160	18,620	24,990	26,120
17	21,420	21,380	21,210	23,540	27,350	27,510	25,690	20,430	19,200	18,660	25,020	26,200
18	21,500	21,350	21,180	23,850	27,350	27,470	25,260	20,430	19,200	18,860	25,060	26,200
19	21,500	21,350	21,180	24,000	27,350	27,430	24,600	20,430	19,060	19,020	25,100	26,310
20	21,420	21,350	21,280	24,300	27,310	27,470	24,040	20,430	19,020	19,200	25,140	26,310
21	21,420	21,350	21,320	24,640	27,310	27,470	23,470	20,500	18,990	19,330	25,140	26,310
22	21,420	21,350	21,420	25,800	27,310	27,470	22,950	20,540	18,990	19,400	25,220	26,350
23	21,420	21,320	21,460	26,550	27,310	27,470	22,360	20,460	18,790	19,540	25,260	26,390
24	21,420	21,280	21,680	27,390	27,310	27,470	21,820	20,430	18,660	19,670	25,260	26,430
25	21,420	21,240	21,850	27,590	27,310	27,470	21,500	20,400	18,620	19,840	25,340	26,470
26	21,420	21,240	21,960	27,630	27,310	27,470	21,180	20,360	18,620	19,950	25,340	26,550
27	21,420	21,240	22,000	27,840	27,310	27,470	20,930	20,290	18,620	19,640	25,370	26,590
28	21,420	21,240	22,040	27,920	27,310	27,470	20,600	20,120	18,620	19,260	25,410	26,590
29	21,420	21,240	22,040	27,750	-----	27,470	20,290	20,120	18,620	19,060	25,450	26,630
30	21,420	21,240	22,040	27,750	-----	27,470	20,360	19,880	18,620	18,790	25,530	26,670
31	21,420	-----	22,040	27,670	-----	27,430	-----	19,670	-----	18,860	25,570	-----
MAX	21,600	21,380	22,040	27,920	27,590	27,510	27,390	20,710	19,400	19,950	25,570	26,670
MIN	21,350	21,240	21,180	22,040	27,270	27,350	20,290	19,670	18,620	18,620	19,260	25,570
(+)	5,582.00	5,581.75	5,582.85	5,590.20	5,589.75	5,589.90	5,580.50	5,579.50	5,577.95	5,578.30	5,587.55	5,588.95
(#)	-180	-180	+800	+5,630	-360	+120	-7,070	-690	-1,050	+240	+6,710	+1,100

CAL YR 1969 Max 27,920 Min 96  
WTR YR 1970 Max 27,920 Min 18,620

+ ELEVATION, IN FEET, AT END OF MONTH.

# CHANGE IN CONTENTS, IN ACRE-FEET.

## PYRAMID AND WINNEMUCCA LAKES BASIN

## 10344500 LITTLE TRUCKEE RIVER AT BOCA, CALIF.

LOCATION.--Lat 39°23'10", long 120°05'40", in NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.28, T.18 N., R.17 E., Nevada County, on right bank 800 ft upstream from mouth, 1,000 ft downstream from Boca Dam, and 0.3 mile northwest of Boca.

DRAINAGE AREA.--172 sq mi.

PERIOD OF RECORD.--April to October 1890 (monthly discharge only), January 1911 to September 1915, January 1939 to current year. Monthly discharge only for January 1939 to September 1957, published in WSP 1734.

GAGE.--Water-stage recorder. Altitude of gage is 5,500 ft (from topographic map). Jan. 1, 1911, to Sept. 30, 1915, nonrecording gage at site 650 ft downstream at different datum. January 1939 to September 1957, records computed from daily log of rated settings of needle valve in dam, and from computed flow over spillway.

AVERAGE DISCHARGE (unadjusted).--35 years (1911-15, 1939-70), 188 cfs (136,200 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 720 cfs June 17 (gage height, 3.90 ft); minimum daily, 0.15 cfs Sept. 19-22.

Period of record: Maximum discharge, 8,800 cfs Dec. 24, 1955, from records of Washoe County Water Conservation District; no flow many days in most years.

REMARKS.--Records good. Flow regulated by Boca Reservoir (capacity, 40,900 acre-ft), Independence Lake (capacity, 17,500 acre-ft), one transmountain diversion to Sierra Valley, and Stampede Reservoir (capacity, 220,200 acre-ft).

REVISIONS.--WSP 1564: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.54	.47	.54	.60	91	46	43	251	415	43	194	.68
2	.54	.47	.54	.60	74	46	42	251	422	43	157	.61
3	.54	.47	.54	.60	65	43	39	254	422	43	111	.61
4	.61	.47	.54	.60	60	43	36	290	422	43	91	.61
5	.61	.54	.54	.60	55	43	35	313	425	43	92	.61
6	.61	.47	.54	.60	51	40	33	308	425	43	92	.61
7	.54	.47	.54	.60	49	40	32	308	425	42	106	.75
8	.54	.47	.54	.60	47	43	32	303	425	43	118	.93
9	.61	.47	.54	.60	46	44	30	300	425	42	118	.93
10	.61	.47	.54	.60	46	44	30	300	425	42	55	.84
11	.61	.47	.54	.60	44	43	33	366	425	42	.75	.75
12	.68	.47	.54	.60	51	43	32	401	422	42	.75	.75
13	.61	.47	.54	.61	53	47	93	415	422	42	.68	.75
14	.68	.47	.54	1.2	50	54	137	432	422	43	.68	.84
15	.75	.47	.54	.75	47	63	234	432	422	43	.68	.84
16	.75	.47	.54	1.8	45	65	298	432	422	75	.68	.84
17	.68	.47	.54	2.0	51	68	298	429	375	95	2.4	.68
18	.54	.47	.54	1.3	47	66	295	285	290	93	.93	1.2
19	.47	.47	.61	1.1	43	60	295	96	242	93	1.0	.15
20	.47	.47	.68	.93	38	58	293	93	194	104	.84	.15
21	.47	.54	.75	2.3	36	57	298	95	192	115	.84	.15
22	.54	.54	.61	1.7	34	57	298	154	192	115	.84	.15
23	.54	.54	.60	2.6	33	57	303	192	134	115	.84	.20
24	.47	.54	.80	86	32	58	249	192	70	115	.84	.25
25	.47	.54	.70	127	32	59	192	266	46	130	.75	.30
26	.47	.54	.60	131	32	60	192	308	43	254	.68	.25
27	.47	.54	.60	184	35	57	192	305	43	342	.68	.25
28	.47	.54	.60	176	38	54	192	303	43	313	.68	.30
29	.40	.54	.60	147	-----	53	164	360	43	293	.75	.30
30	.47	.54	.60	125	-----	50	170	397	43	293	.75	.30
31	.47	-----	.60	104	-----	48	-----	404	-----	230	.68	-----
TOTAL	17.23	14.87	18.07	1,103.49	1,325	1,609	4,610	9,235	8,716	3,414	1,151.72	16.58
MEAN	.56	.50	.58	35.6	47.3	51.9	154	298	291	110	37.2	.55
MAX	.75	.54	.80	184	91	68	303	432	425	342	194	1.2
MIN	.40	.47	.54	.60	32	40	30	93	43	42	.68	.15
AC-FT	34	29	36	2,190	2,630	3,190	9,140	18,320	17,290	6,770	2,280	33
CAL YR 1969	TOTAL	110,269.49	MEAN	302	MAX	1,690	MIN	.36	AC-FT	218,700		
WAT YR 1970	TOTAL	31,230.96	MEAN	85.6	MAX	432	MIN	.15	AC-FT	61,950		

LOCATION.--Lat 39°25'41", long 120°01'59", in NE $\frac{1}{4}$  sec.12, T.18 N., R.17 E., Nevada County, on left bank 0.5 mile upstream from Mystic Canyon, 0.7 mile downstream from Parad powerplant, 2.5 miles north of Floriston, 3.4 miles downstream from Bronco Creek, and 3.5 miles upstream from California-Nevada State line.

PERIOD OF RECORD.--March to October 1890 (monthly discharge only), September 1899 to current year. Published as "near Boca" March to October 1890, "at or near Nevada-California State line" September 1899 to August 1912, and as "at Iceland" August 1912 to December 1937. Monthly discharge only for January 1944 to July 1957. published in WSP 1734.

AVERAGE DISCHARGE.--71 years (1899-1970), 796 cfs (576,700 acre-ft per year).

REMARKS.--Records excellent. Flow regulated by Lake Tahoe, Prosser Creek, Stampede and Boca Reservoirs, Donner and Independence Lakes, and by several powerplants. Records of chemical analyses and water temperatures for the water year 1970 are published in Part 2 of this report for Truckee River at Floriston, Calif. No appreciable inflow between sampling point and gaging station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	467	395	407	387	2,880	1,550	601	645	1,200	1,490	714	600
2	451	383	391	383	2,720	1,530	601	682	1,270	1,480	684	582
3	423	383	391	383	2,620	1,520	592	744	1,290	1,470	634	565
4	407	403	423	399	2,550	1,510	568	940	1,290	1,470	606	563
5	403	411	435	375	2,460	1,510	579	1,110	1,260	1,460	605	569
6	399	427	431	416	2,410	1,500	596	1,120	1,210	1,450	601	565
7	399	395	427	401	2,370	1,510	628	1,030	1,180	1,420	604	562
8	407	387	431	398	2,340	1,530	728	1,060	1,160	1,400	617	558
9	431	375	431	505	2,310	1,490	655	1,100	1,250	1,320	616	557
10	419	379	431	606	2,160	1,480	535	1,140	1,250	854	632	553
11	399	423	431	439	1,480	1,450	538	1,110	1,190	824	634	572
12	395	411	431	395	867	1,440	523	1,120	1,170	808	632	557
13	395	399	443	412	1,680	1,470	551	1,130	1,150	777	631	557
14	391	391	435	700	1,950	1,550	583	1,200	1,130	643	636	535
15	419	395	435	646	1,860	1,570	628	1,270	1,090	624	647	533
16	538	399	419	1,920	1,620	1,600	704	1,420	1,090	628	644	554
17	534	387	399	1,960	1,680	1,650	696	1,590	1,080	619	638	579
18	471	423	399	1,630	2,000	1,610	675	1,490	1,060	597	595	577
19	455	423	447	1,440	2,120	1,580	679	1,220	1,070	588	593	575
20	439	419	856	1,510	2,170	1,490	668	1,200	1,010	593	593	574
21	427	415	1,590	3,420	2,140	1,260	671	1,130	1,000	602	591	574
22	415	407	1,250	4,590	2,140	1,270	669	1,170	1,030	595	586	573
23	403	403	880	3,950	2,000	1,230	661	1,220	1,050	597	584	571
24	411	403	1,160	4,750	1,510	1,010	617	1,200	970	591	582	582
25	475	419	1,140	4,460	1,500	829	562	1,250	904	594	613	579
26	471	415	850	4,290	1,510	678	589	1,300	854	682	607	572
27	419	411	695	4,090	1,510	653	580	1,250	1,050	805	593	570
28	403	407	615	3,380	1,530	646	568	1,140	1,120	842	595	569
29	435	407	561	3,500	-----	657	567	1,160	1,730	823	595	561
30	525	407	547	3,240	-----	644	651	1,220	1,530	861	592	537
31	431	-----	455	2,970	-----	623	-----	1,220	-----	798	612	-----
TOTAL	13,457	12,102	18,636	57,945	56,087	40,040	18,463	35,581	34,638	28,305	19,106	16,975
MEAN	434	403	601	1,869	2,003	1,292	615	1,148	1,155	913	616	566
MAX	538	427	1,590	4,750	2,880	1,650	728	1,590	1,730	1,490	714	600
MIN	391	375	391	375	867	623	523	645	854	588	582	533
AC-FT	26,690	24,000	36,960	114,900	111,200	79,420	36,620	70,570	68,700	56,140	37,900	33,670
CAL YR 1969	TOTAL	568,138	MEAN	1,557	MAX	4,860	MIN	369	AC-FT	1,127,000		
WAT YR 1970	TOTAL	351,335	MEAN	963	MAX	4,750	MIN	375	AC-FT	696,900		





## 10356500 SUSAN RIVER AT SUSANVILLE, CALIF.

LOCATION.--Lat 40°25'03", long 120°40'15", in SW¼NE¼ sec.31, T.30 N., R.12 E., Lassen County, on left bank 0.5 mile west of Susanville and 1.1 miles upstream from Piute Creek.

DRAINAGE AREA.--184 sq mi.

PERIOD OF RECORD.--June 1900 to December 1905 (gage height only August 1901 to January 1903), March to May 1913 (gage heights, only), February 1917 to June 1921, October 1950 to current year. Published as "near Susanville" 1900-1905. Discharge records for August to December 1901 and January 1903, published in WSP 300, have been found to be unreliable and should not be used.

GAGE.--Water-stage recorder. Datum of gage is 4,225.72 ft above mean sea level. Prior to Oct. 1, 1950, nonrecording gages at several sites in vicinity of old powerplant 0.9 mile upstream at various datums.

AVERAGE DISCHARGE.--26 years (1900-1901, 1903-5, 1917-20, 1950-70), 98.2 cfs (71,150 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 5,850 cfs Jan. 24 (gage height, 8.89 ft, 10.4 ft, from floodmarks), from rating curve extended as explained below; minimum daily, 7.0 cfs July 29-31.

Period of record: Maximum discharge, 5,850 cfs Jan. 24, 1970 (gage height, 8.89 ft, 10.4 ft, from floodmarks), from rating curve extended above 1,000 cfs on basis of slope-area measurement at gage height 6.62 ft and contracted-opening measurement at gage height, 8.89 ft; no flow Aug. 15, 1961.

REMARKS.--Records fair. Flow regulated by McCoy Flat Reservoir and Hog Flat Reservoir (combined usable capacity, 25,300 acre-ft). Diversions for irrigation of 1,400 acres above station. Records of chemical analyses for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.2	13	18	46	432	200	183	107	115	94	13	19
2	7.1	13	18	40	385	181	187	109	106	91	18	10
3	7.4	13	19	49	363	160	179	121	100	90	21	9.2
4	7.7	13	17	50	343	135	168	140	94	96	29	8.8
5	8.0	41	19	31	316	124	169	157	92	90	35	9.7
6	8.1	32	16	28	185	136	181	173	91	87	49	9.4
7	8.2	23	15	30	164	165	190	181	83	83	56	9.1
8	8.6	20	16	29	145	293	191	180	78	80	55	8.7
9	8.5	19	16	36	135	207	213	215	84	75	52	8.2
10	8.2	18	16	217	127	188	221	282	132	74	54	7.8
11	8.0	17	17	111	124	165	226	259	112	71	57	7.5
12	8.2	17	37	126	174	159	218	248	104	67	56	7.4
13	8.1	16	47	248	180	175	212	235	108	63	50	7.3
14	8.3	16	34	460	158	214	214	216	118	61	46	7.6
15	16	16	25	250	155	216	198	204	111	67	41	7.9
16	36	16	21	844	154	199	183	204	108	66	37	7.8
17	37	15	19	934	163	195	169	215	102	63	32	7.7
18	21	14	20	544	155	170	157	222	97	62	34	7.5
19	18	15	94	452	143	158	140	219	95	45	51	7.7
20	16	14	139	424	136	151	114	213	106	36	50	7.8
21	15	15	456	2,040	139	147	112	203	107	24	56	7.8
22	14	14	152	2,330	144	144	105	195	112	17	59	7.8
23	14	14	94	2,780	144	142	100	190	101	14	61	7.8
24	14	15	141	3,460	140	144	96	181	98	11	71	7.7
25	13	14	167	1,250	134	147	95	175	96	8.6	74	7.7
26	13	14	112	912	134	143	118	173	102	8.1	73	7.8
27	13	14	85	1,050	135	139	124	169	112	7.4	73	7.9
28	13	14	61	742	150	140	115	160	107	7.2	73	7.8
29	14	18	55	615	-----	146	110	151	130	7.0	75	7.5
30	13	19	46	549	-----	149	113	143	98	7.0	73	7.5
31	13	-----	44	483	-----	152	-----	128	-----	7.0	59	-----
TOTAL	404.6	512	2,036	21,160	5,257	5,184	4,801	5,768	3,099	1,579.3	1,583	253.4
MEAN	13.1	17.1	65.7	683	188	167	160	186	103	50.9	51.1	8.45
MAX	37	41	456	3,460	432	293	226	282	132	96	75	19
MIN	7.1	13	15	28	124	124	95	107	78	7.0	13	7.3
AC-FT	803	1,020	4,040	41,970	10,430	10,280	9,520	11,440	6,150	3,130	3,140	503
CAL YR 1969	TOTAL 62,705.7		MEAN 172		MAX 1,540	MIN 6.4		AC-FT 124,400				
WTR YR 1970	TOTAL 51,637.3		MEAN 141		MAX 3,460	MIN 7.0		AC-FT 102,400				

## HONEY LAKE BASIN

## 10358470 WILLOW CREEK TRIBUTARY NEAR SUSANVILLE, CALIF.

LOCATION.--Lat 40°29'48", long 120°33'30", in SW $\frac{1}{4}$  sec.31, T.31 N., R.13 E., Lassen County, on left bank at culvert on State Highway 139 and 7.5 miles northeast of Susanville.

DRAINAGE AREA.--3.08 sq mi.

PERIOD OF RECORD.--Water years 1963-65 (annual maximum), October 1965 to current year.

GAGE.--Water-stage recorder with recording rain-gage attachment and crest-stage gages. Altitude of gage is 4,890 ft (from topographic map). July 16, 1962, to Aug. 30, 1965, crest-stage gages at same site and datum.

AVERAGE DISCHARGE.--5 years, 0.63 cfs (456 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 183 cfs Jan. 23 (gage height, 7.51 ft); no flow for several months.  
Period of record: Maximum discharge, 183 cfs Jan. 23, 1970 (gage height, 7.51 ft); no flow for several months in each year.

REMARKS.--Records good. No storage or diversion above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	0	0	.90	.84	.17	.08				
2	0	0	0	0	.84	1.2	.26	.07				
3	0	0	0	0	.90	.90	.20	.07				
4	0	0	0	0	.90	.84	.20	.06				
5	0	.01	0	0	.90	1.0	.20	.06				
6	0	0	0	0	.84	1.5	.20	.08				
7	0	0	0	0	.84	2.5	.20	.08				
8	0	0	0	0	.78	3.6	.17	.08				
9	0	0	0	.50	.78	1.0	.17	.17				
10	0	0	0	.40	.72	.84	.17	.36				
11	0	0	0	.04	.67	.67	.17	.10				
12	0	0	0	.32	1.3	.67	.17	.20				
13	0	0	0	2.0	.78	.84	.20	.08				
14	0	0	0	5.0	.84	.96	.20	.04				
15	0	0	0	1.6	.72	.67	.17	.03				
16	.01	0	0	21	.57	.67	.23	.03				
17	0	0	0	11	1.0	.62	.17	.02				
18	0	0	0	3.6	.67	.62	.17	.01				
19	0	0	0	3.4	.57	.62	.26	0				
20	0	0	0	2.7	.52	.62	.23	0				
21	0	0	.75	14	.67	.52	.26	0				
22	0	0	.02	8.2	.57	.52	.23	0				
23	0	0	.18	38	.52	.48	.21	0				
24	0	0	1.2	15	.52	.48	.18	0				
25	0	0	.57	1.5	.57	.38	.16	0				
26	0	0	.03	1.4	.52	.36	.50	0				
27	0	0	0	9.4	.57	.32	.25	0				
28	0	0	0	1.6	.67	.26	.18	0				
29	0	0	0	1.5	-----	.32	.12	0				
30	0	0	0	1.4	-----	.32	.10	0				
31	0	-----	0	1.1	-----	.23	-----	0	-----			-----
TOTAL	.01	.01	2.75	144.66	20.65	25.37	6.10	1.62	0	0	0	0
MEAN	.0003	.0003	.089	4.67	.74	.82	.20	.052	0	0	0	0
MAX	.01	.01	1.2	38	1.3	3.6	.50	.36	0	0	0	0
MIN	0	0	0	0	.52	.23	.10	0	0	0	0	0
AC-FT	.02	.02	5.5	287	41	50	12	3.2	0	0	0	0
(a)	1.31	.45	3.37	7.46	1.11	.84	0	0	0	0	0	0
CAL YR 1969	TOTAL 361.00			MEAN .99	MAX 18	MIN 0	ACFT 716					
WAT YR 1970	TOTAL 201.17			MEAN .55	MAX 38	MIN 0	ACFT 399					

a Precipitation, in inches (some precipitation falling as snow may not be included).

## 10358500 WILLOW CREEK NEAR SUSANVILLE, CALIF.

LOCATION.--Lat 40°29'21", long 120°32'10", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.5, T.30 N., R.13 E., Lassen County, on left bank 4 miles upstream from Peters Valley Creek, and 8 miles northeast of Susanville.

DRAINAGE AREA.--90.0 sq mi, excludes that of Eagle Lake basin.

PERIOD OF RECORD.--October 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,836.27 ft above mean sea level, unadjusted.

AVERAGE DISCHARGE.--20 years, 33.7 cfs (24,420 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 793 cfs Jan. 23 (gage height, 5.54 ft); minimum daily, 13 cfs Sept. 13-15.

Period of record: Maximum discharge, 816 cfs Feb. 1, 1963 (gage height, 5.59 ft), from rating curve extended above 540 cfs; minimum, 8.1 cfs Nov. 16, 1951.

REMARKS.--Records good. Diversions for irrigation of 5,200 acres above station. Some flow at times enters Willow Creek from Eagle Lake through an abandoned tunnel.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	34	31	39	156	87	20	31	18	19	16	18
2	18	33	31	34	143	101	21	28	17	18	17	15
3	18	34	31	31	144	106	19	27	17	19	17	15
4	19	34	31	32	136	103	21	26	17	18	17	15
5	18	34	30	31	130	100	21	24	17	18	17	15
6	19	38	31	30	122	98	22	23	17	17	20	15
7	21	36	31	32	115	91	22	26	17	17	21	15
8	22	34	32	32	108	152	23	25	17	18	22	14
9	22	33	32	41	101	143	23	26	16	18	22	14
10	22	33	32	73	95	112	24	29	17	17	23	14
11	22	33	32	68	89	98	24	27	17	18	23	14
12	22	33	33	69	88	90	24	26	18	18	24	14
13	23	33	27	96	94	84	24	27	18	17	24	13
14	24	34	37	200	97	81	25	26	18	18	25	13
15	27	32	34	218	90	76	25	24	18	17	26	13
16	31	35	33	345	81	73	25	24	18	17	25	14
17	32	33	32	368	92	68	25	23	18	17	24	19
18	32	34	32	214	100	62	25	22	17	17	21	18
19	33	34	37	147	92	58	26	17	17	16	20	16
20	33	34	44	133	88	56	27	18	17	16	21	18
21	34	33	60	196	89	54	29	19	16	16	21	17
22	35	33	70	234	94	51	29	19	16	16	20	18
23	34	33	68	273	96	38	29	19	16	16	20	19
24	41	33	94	684	94	28	29	19	16	15	20	21
25	40	33	101	462	88	26	28	19	16	16	22	21
26	39	33	79	247	85	24	29	20	16	15	21	22
27	37	32	66	377	83	22	33	19	16	15	21	23
28	36	33	62	255	80	21	35	19	17	15	21	22
29	35	34	51	185	-----	21	35	20	18	16	21	21
30	34	32	47	184	-----	20	33	20	19	16	21	21
31	34	-----	44	156	-----	20	-----	19	-----	16	21	-----
TOTAL	873	1,007	1,395	5,486	2,970	2,164	775	711	512	522	654	507
MEAN	28.2	33.6	45.0	177	103	69.8	25.8	22.9	17.1	16.8	21.1	16.9
MAX	41	38	101	684	156	152	35	31	19	19	26	23
MIN	16	32	27	30	80	20	19	17	16	15	16	13
AC-FT	1,730	2,000	2,770	10,880	5,690	4,290	1,540	1,410	1,020	1,040	1,300	1,010
CAL YR 1969	TOTAL 20,980			MEAN 57.5		MAX 636		MIN 10		AC-FT 41,610		
WTR YR 1970	TOTAL 17,476			MEAN 47.9		MAX 684		MIN 13		AC-FT 34,660		

## PEAK DISCHARGE (BASE, 200 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-14	2100	4.08	260	1-23	2345	5.54	793
1-17	0400	4.72	457	1-27	1145	4.60	415

## HONEY LAKE BASIN

10359100 SHAFFER CREEK NEAR LITCHFIELD, CALIF

LOCATION.--Lat 40°23'30", long 120°18'23", in SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.8, T.29 N., R.15 E., Lassen County, at culvert on U.S. Highway 395, 4.3 miles east of Litchfield, and 5.0 miles northwest of Wendal.

DRAINAGE AREA.--5.63 sq mi.

PERIOD OF RECORD.--August 1963 to September 1969 (annual maximum), October 1969 to current year.

GAGE.--Water-stage recorder with recording rain-gage attachment, and crest-stage gages. Altitude of gage is 4,110 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 389 cfs Jan. 23 (gage height, 12.16 ft, from well floodmarks); no flow for several months.  
Period of record: Maximum discharge, 389 cfs Jan. 23, 1970 (gage height, 12.16 ft, from well floodmarks), from rating table based on theoretical computations through culverts and a road overflow computation above 11.05 ft.

REMARKS.--Records good between 5 cfs and 170 cfs, fair otherwise. No diversions above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				0	.26	.04						
2				0	.17	.04						
3				0	.17	.02						
4				0	.15	.02						
5				0	.10	.03						
6				0	.07	.02						
7				0	.04	.02						
8				0	.04	1.7						
9				0	.03	.17						
10				0	.02	.15						
11				0	.02	.13						
12				0	.02	.07						
13				0	.03	.06						
14				17	.05	.06						
15				1.4	.03	.04						
16				34	.12	.04						
17				3.5	2.6	.03						
18				1.7	.24	.03						
19				1.1	.13	.03						
20				.80	.06	.02						
21				.76	.04	.02						
22				.97	.03	.02						
23				25	.03	.02						
24				24	.03	.02						
25				2.7	.02	0						
26				1.8	.02	0						
27				15	.02	0						
28				3.1	.02	0						
29				.88	-----	0						
30				.72	-----	0						
31		-----		.37	-----	0	-----		-----		-----	
TOTAL	0	0	0	134.80	4.56	2.80	0	0	0	0	0	0
MEAN	0	0	0	4.35	.16	.090	0	0	0	0	0	0
MAX	0	0	0	34	2.6	1.7	0	0	0	0	0	0
MIN	0	0	0	0	.02	0	0	0	0	0	0	0
AC-FT	0	0	0	267	9.0	5.6	0	0	0	0	0	0
(a)	.88	.22	2.49	2.98	.59	.32	0	.32	1.22	0	0	0

CAL YR 1969 TOTAL -- MEAN -- MAX -- MIN -- ACFT --  
WAT YR 1970 TOTAL 142.16 MEAN .39 MAX 34 MIN 0 ACFT 282

a Precipitation, in inches (some precipitation falling as snow may not be included).

LOCATION (revised).--Lat 40°39'54", long 120°47'25", in NE<sup>1</sup>SE<sup>1</sup> sec. 1, T.32 N., R.10 E., Lassen County, on right bank 0.3 mile upstream from Eagle Lake and 18 miles northwest of Susanville.

COOPERATION.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			0	0	206	125	57	33	1.4			
2			0	0	165	103	48	25	.90			
3			0	0	120	85	43	17	.60			
4			0	0	79	74	40	15	.30			
5			0	0	89	59	35	15	0			
6			0	0	100	54	32	18	0			
7			0	0	107	89	30	22	0			
8			0	10	126	195	28	27	0			
9			0	26	149	179	27	32	0			
10			0	42	156	126	23	36	0			
11			0	55	150	90	21	37	0			
12			0	50	207	80	20	40	0			
13			0	41	224	93	21	42	0			
14			0	28	168	145	25	40	0			
15			0	27	126	209	35	31	0			
16			0	68	102	226	39	21	0			
17			0	185	47	227	43	14	0			
18			0	182	81	182	35	10	0			
19			.40	180	99	139	35	9.3	0			
20		11		165	88	125	38	9.3	0			
21			79	224	77	118	38	9.4	0			
22			101	370	69	123	29	9.7	0			
23			62	624	60	132	25	8.9	0			
24			25	884	47	138	23	7.8	0			
25			58	636	40	145	19	6.8	0			
26			48	629	47	141	21	5.5	0			
27			28	499	63	116	28	4.7	0			
28			18	375	98	102	36	3.5	0			
29			7.9	336	-----	93	36	2.8	0			
30			0	291	-----	85	34	2.4	0			
31		-----	0	250	-----	73	-----	1.9	-----			-----
TOTAL	0	0	438.30	6,177	3,090	3,871	964	557.0	3.20	0	0	0
MEAN	0	0	14.1	199	110	125	32.1	18.0	.11	0	0	0
MAX	0	0	101	884	224	227	57	42	1.4	0	0	0
MIN	0	0	0	0	40	54	19	1.9	0	0	0	0
AC-FT	0	0	869	12,250	6,130	7,680	1,910	1,100	6.4	0	0	0
CAL YR 1969	TOTAL -		MEAN -		MAX -	MIN -	AC-FT -					
WAT YR 1970	TOTAL 15,100.50		MEAN 41.4		MAX 884	MIN 0	AC-FT 29,950					

## HONEY LAKE BASIN

10360230 EAGLE CREEK AT EAGLEVILLE, CALIF.

LOCATION.--Lat 41°18'45", long 120°07'26", in SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.23, T.40 N., R.16 E., Modoc County, on left bank 0.6 mile southwest of Eagleville.

DRAINAGE AREA.--6.36 sq mi.

PERIOD OF RECORD.--October 1961 to September 1964, October 1965 to September 1968, October 1969 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,700 ft (from topographic map). Prior to September 1964 at site 500 ft upstream at different datum.

AVERAGE DISCHARGE.--8 years (1961-64, 1966-68, 1970), 7.20 cfs (5,220 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 116 cfs June 6 (gage height, 3.06 ft); minimum daily, 0.50 cfs Dec. 8-11, Jan. 5, 20.  
Period of record: Maximum discharge, 116 cfs June 6, 1970 (gage height, 3.06 ft); no flow Feb. 6, 1966.  
Flood of Dec. 23, 1964, reached a stage of 4.50 ft, from floodmarks, site and datum then in use (discharge, 800 cfs).

REMARKS.--Some diversion above station for irrigation.

COOPERATION.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	2.2	3.7	.70	4.1	4.0	6.7	6.0	44	33	7.9	2.6
2	2.0	2.2	3.5	.70	2.9	4.6	6.3	7.8	49	33	7.5	2.6
3	1.9	2.2	3.5	.60	3.5	6.6	6.3	12	61	33	7.0	2.6
4	1.9	3.1	1.1	.70	3.5	3.5	6.5	17	66	33	6.3	3.2
5	1.8	4.9	1.1	.50	4.1	4.1	8.1	18	82	34	5.8	3.1
6	1.7	3.6	1.0	.80	4.1	3.6	8.8	15	100	28	5.6	2.6
7	1.7	3.1	.60	4.6	4.1	4.2	9.3	13	74	23	5.5	2.6
8	2.1	3.0	.50	4.9	4.1	4.4	8.8	14	58	21	4.9	2.5
9	2.1	2.7	.50	4.9	4.3	4.5	9.1	13	52	18	4.3	2.5
10	2.1	2.6	.50	6.1	4.6	5.6	9.9	12	41	17	3.9	2.3
11	1.9	2.6	.50	7.2	4.9	4.3	9.4	10	33	14	3.1	2.3
12	1.7	2.5	1.0	8.3	5.0	4.5	8.5	10	29	10	2.6	2.3
13	1.7	2.3	.90	10	4.7	4.8	8.3	10	25	9.3	2.6	2.4
14	1.8	2.2	.80	10	3.5	5.2	8.2	10	24	9.1	2.5	2.4
15	2.5	2.3	.70	9.6	4.1	4.7	7.7	12	25	8.5	2.7	2.4
16	2.7	2.3	.80	8.3	4.4	4.7	7.3	17	25	8.1	2.6	2.3
17	1.8	2.6	.80	5.8	4.6	4.7	7.4	24	26	7.9	2.7	2.2
18	1.6	2.6	.80	2.8	4.4	5.5	7.4	27	32	7.9	3.0	2.2
19	1.5	2.6	1.3	.70	2.9	5.7	6.8	25	43	8.4	2.9	2.4
20	1.8	2.6	4.2	.50	3.2	5.2	7.3	24	48	7.8	2.8	2.4
21	1.9	2.6	9.0	.70	3.5	5.1	6.5	24	51	7.2	2.8	2.3
22	1.8	2.5	1.0	3.1	3.7	5.4	6.3	25	56	7.1	3.0	2.2
23	1.7	2.5	.90	12	4.0	5.9	6.2	26	64	6.7	3.0	2.2
24	1.8	2.2	.80	14	3.8	7.0	6.1	27	60	6.4	3.0	2.2
25	1.5	2.1	.80	11	3.6	7.8	6.0	28	52	6.2	2.9	2.2
26	1.4	2.1	.70	9.4	3.8	7.4	6.0	38	58	5.9	2.8	2.2
27	2.2	2.1	.60	6.1	3.8	6.7	5.7	48	65	8.0	2.6	2.1
28	2.5	2.0	.60	2.9	4.1	6.9	5.6	47	60	15	2.6	2.0
29	2.4	1.9	.70	3.5	-----	7.3	5.0	45	50	12	2.5	2.0
30	2.3	2.9	.70	4.1	-----	7.1	5.4	42	40	10	2.5	2.1
31	2.2	-----	.70	4.6	-----	6.8	-----	41	-----	8.9	2.6	-----
TOTAL	60.0	77.1	44.30	159.10	111.3	167.8	216.9	687.8	1,493	457.4	116.5	71.4
MEAN	1.94	2.57	1.43	5.13	3.98	5.41	7.23	22.2	49.8	14.8	3.76	2.38
MAX	2.7	4.9	9.0	14	5.0	7.8	9.9	48	100	34	7.9	3.2
MIN	1.4	1.9	.50	.50	2.9	3.5	5.0	6.0	24	5.9	2.5	2.0
AC-FT	119	153	88	316	221	333	430	1,360	2,960	907	231	142
CAL YR 1969	TOTAL	181.40	MEAN	.50	MAX	9	MIN	0	AC-FT	360		
WTR YR 1970	TOTAL	3,662.60	MEAN	10.0	MAX	100	MIN	.50	AC-FT	7,260		

## 10360900 BIDWELL CREEK BELOW MILL CREEK, NEAR FORT BIDWELL, CALIF.

LOCATION.--Lat 41°52'57", long 120°10'26", in SE $\frac{1}{4}$  sec.6, T.46 N., R.16 E., Modoc County, on right bank 0.9 mile downstream from Mill Creek, and 2.0 miles northwest of Fort Bidwell.

DRAINAGE AREA.--25.6 sq mi.

PERIOD OF RECORD.--October 1960 to current year. Prior to October 1961, published as Bidwell Creek near Fort Bidwell.

GAGE.--Water-stage recorder. Altitude of gage is 5,000 ft (from topographic map).

AVERAGE DISCHARGE.--10 years, 20.2 cfs (14,630 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 260 cfs Jan. 23 (gage height, 4.06 ft); minimum daily, 3.1 cfs Dec. 5.

Period of record: Maximum discharge, 682 cfs Dec. 24, 1964 (gage height, 5.64 ft), from rating curve extended above 105 cfs on basis of slope-area measurement of maximum flow; minimum, 1.4 cfs Nov. 5, 1960.

REMARKS.--Less than 2 cfs diverted upstream for irrigation. No storage above station.

COOPERATION.--Records furnished by the California Department of Water Resources and reviewed by Geological Survey.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	4.4	4.0	4.4	17	18	23	16	83	18	7.8	4.6
2	4.6	4.4	4.0	4.4	16	16	23	21	88	17	7.5	4.5
3	4.4	4.4	4.1	4.4	16	16	24	32	96	16	7.3	4.4
4	4.3	4.4	4.1	4.4	15	15	24	47	103	15	7.2	5.0
5	4.2	7.3	3.1	4.4	15	15	28	64	100	15	7.0	5.1
6	4.2	5.3	4.0	4.4	15	15	36	68	103	15	6.9	4.8
7	4.1	4.9	3.8	5.2	14	19	39	61	95	14	6.8	4.7
8	4.9	4.7	3.8	5.0	15	20	36	74	85	14	6.8	4.5
9	4.5	4.5	3.6	4.4	15	19	37	87	77	13	6.7	4.4
10	4.9	4.6	3.6	4.0	16	19	42	78	76	13	6.4	4.5
11	4.4	4.6	3.6	3.8	19	19	40	65	69	13	6.2	4.8
12	4.2	4.6	4.8	4.0	23	18	36	55	61	12	5.9	4.6
13	4.3	4.4	5.0	4.8	22	21	32	47	56	12	6.0	4.8
14	4.6	4.3	4.3	6.4	20	27	29	42	50	12	5.9	4.9
15	4.8	4.4	3.9	6.6	19	28	26	46	45	11	5.7	4.9
16	6.6	4.4	3.6	11	19	28	22	63	43	11	5.6	4.7
17	5.7	4.0	3.5	17	18	27	21	96	41	11	5.5	4.7
18	4.9	4.2	3.5	15	16	25	21	124	38	10	5.5	4.6
19	4.8	4.3	5.2	14	16	24	21	135	36	10	5.4	4.7
20	5.2	4.2	7.3	16	16	23	19	138	36	10	5.2	4.7
21	5.7	4.2	13	55	15	23	18	122	33	9.9	5.0	4.6
22	5.5	4.1	8.3	196	15	24	16	117	31	9.7	5.1	4.5
23	5.4	4.0	6.4	172	15	27	16	112	28	9.4	5.1	4.1
24	5.5	4.0	5.3	168	15	31	16	106	25	9.2	5.0	4.1
25	4.9	4.0	4.7	88	15	36	15	105	24	8.9	4.9	4.1
26	4.6	3.9	4.1	57	15	36	15	127	23	8.8	4.9	4.0
27	4.6	3.6	3.7	49	16	33	15	142	26	8.6	4.8	3.8
28	4.7	3.2	3.6	34	18	31	14	127	33	8.5	4.7	3.8
29	4.6	3.3	3.6	28	-----	30	14	109	24	8.4	4.5	3.7
30	4.6	3.9	4.4	23	-----	28	15	98	21	8.3	4.6	3.5
31	4.6	-----	4.4	20	-----	25	-----	90	-----	8.1	4.5	-----
TOTAL	148.6	130.5	144.3	1,033.6	466	736	733	2,614	1,649	359.8	180.4	134.1
MEAN	4.79	4.35	4.65	33.3	16.6	23.7	24.4	84.3	55.0	11.6	5.82	4.47
MAX	6.6	7.3	13	196	23	36	42	142	103	18	7.8	5.1
MIN	4.1	3.2	3.1	3.8	14	15	14	16	21	8.1	4.5	3.5
AC-FT	295	259	286	2,050	924	1,460	1,450	5,180	3,270	714	358	266

CAL YR 1969 TOTAL 9,021.7 MEAN 24.7 MAX 247 MIN 3.1 AC-FT 17,890  
 WTR YR 1970 TOTAL 8,329.3 MEAN 22.8 MAX 196 MIN 3.1 AC-FT 16,520

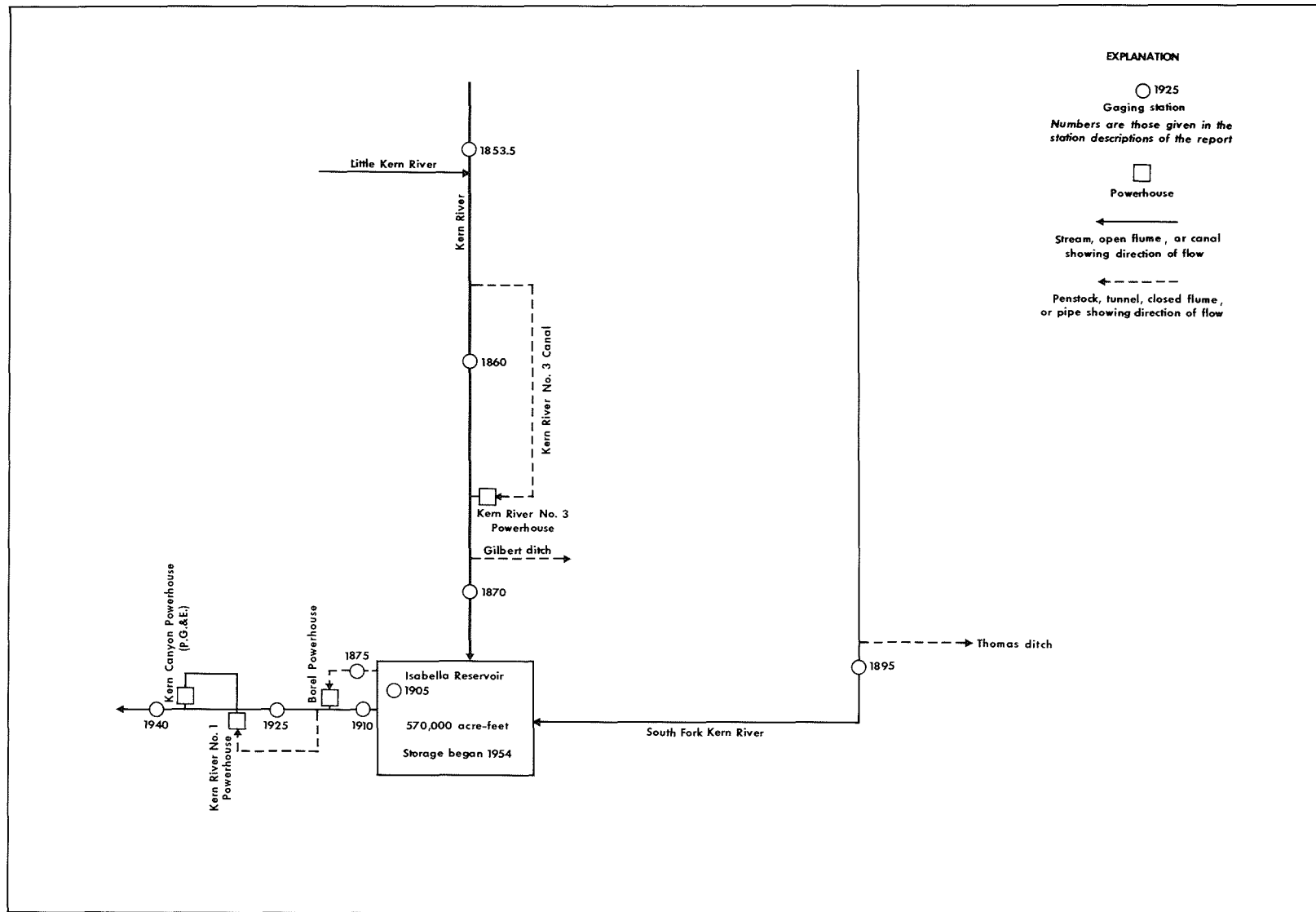


FIGURE 2.—Schematic diagram showing diversions and storage in Kern River basin.



## 11185350 KERN RIVER NEAR QUAKING ASPEN CAMP, CALIF.

LOCATION.--Lat 36°08'04", long 118°25'49", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.32, T.20 S., R.33 E., Tulare County, Sequoia National Forest, on right bank 0.4 mile upstream from Little Kern River, and 6.8 miles east of Quaking Aspen Camp.

DRAINAGE AREA.--530 sq mi.

PERIOD OF RECORD.--October 1960 to current year.

GAGE --Water-stage recorder. Datum of gage is 4,693 ft above mean sea level (river-profile survey).

AVERAGE DISCHARGE.--10 years, 582 cfs (421,700 acre-ft per year); median of yearly mean discharges, 500 cfs (362,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 2,360 cfs June 2 (gage height, 6.20 ft); minimum daily, 154 cfs Sept. 29, 30.

Period of record: Maximum discharge, 9,360 cfs Dec. 6, 1966 (gage height, 10.89 ft in gage well, 12.9 ft, outside from floodmarks), from rating curve extended above 6,600 cfs on basis of slope-area measurement of maximum flow; minimum, 61 cfs Jan. 20, 1962.

REMARKS.--Records good. No regulation or diversion above station. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	382	298	236	224	270	275	382	405	2,110	639	317	205
2	373	293	234	222	258	275	390	444	2,100	643	298	200
3	365	290	236	198	258	261	405	495	1,910	660	293	193
4	359	288	238	188	256	263	417	545	1,770	643	280	188
5	356	285	241	180	254	275	441	584	1,530	657	280	185
6	356	303	234	201	254	270	477	654	1,450	696	275	185
7	351	312	232	220	252	283	507	629	1,490	688	268	180
8	345	306	234	218	256	280	524	646	1,470	820	266	177
9	340	298	245	234	261	278	562	702	1,350	1,010	258	174
10	331	301	252	245	275	290	618	780	1,240	1,180	249	173
11	323	306	245	230	301	273	671	744	1,040	1,010	245	172
12	323	303	234	234	288	275	654	699	965	788	249	172
13	320	296	234	232	285	278	632	702	896	716	261	170
14	323	290	230	268	280	290	566	832	800	664	270	170
15	331	293	226	256	270	296	531	1,040	724	629	258	170
16	402	285	224	672	270	306	501	1,240	744	622	268	167
17	399	266	222	451	273	320	465	1,450	844	587	258	165
18	368	261	222	362	258	328	444	1,610	947	559	252	164
19	356	268	243	354	252	317	441	1,560	1,030	562	241	164
20	351	270	280	348	249	314	432	1,420	1,180	584	230	162
21	337	263	268	328	263	320	423	1,360	1,220	538	226	162
22	331	261	275	326	252	334	393	1,470	1,230	498	218	161
23	328	252	254	317	254	348	387	1,690	1,210	465	214	160
24	328	249	254	340	252	373	393	1,910	1,130	429	210	159
25	326	249	280	314	249	408	411	1,830	1,080	426	209	158
26	320	245	270	301	249	450	435	1,530	1,040	420	209	156
27	314	241	238	303	247	453	423	1,650	1,130	435	210	155
28	309	234	209	280	258	438	379	1,790	938	402	238	155
29	306	232	207	270	-----	435	376	1,870	800	379	232	154
30	301	234	226	268	-----	426	393	1,930	685	359	224	154
31	298	-----	228	261	-----	402	-----	2,010	-----	340	214	-----
TOTAL	10,552	8,272	7,451	8,845	7,344	10,134	14,073	36,221	36,053	19,048	7,720	5,110
MEAN	340	276	240	285	262	327	469	1,168	1,202	614	249	170
MAX	402	312	280	672	301	453	671	2,010	2,110	1,180	317	205
MIN	298	232	207	180	247	261	376	405	685	340	209	154
AC-FT	20,930	16,410	14,780	17,540	14,570	20,100	27,910	71,840	71,510	37,780	15,310	10,140
CAL YR 1969	TOTAL 512,235	MEAN 1,403	MAX 7,040	MIN 194	ACFT 1,016,000							
WAT YR 1970	TOTAL 170,823	MEAN 468	MAX 2,110	MIN 154	ACFT 338,800							

PEAK DISCHARGE (BASE, 1,300 CFS).--June 2 (0600) 2,360 cfs (6.20 ft); June 22 (0900) 1,370 cfs (4.97 ft).

## BUENA VISTA LAKE BASIN

## 11186000 KERN RIVER NEAR KERNVILLE, CALIF.

LOCATION.--Lat 35°56'43", long 118°28'36", in SW $\frac{1}{4}$  sec.12, T.23 S., R.32 E. (unsurveyed), Tulare County, on left bank at Packsaddle Canyon Creek, 30 ft upstream from sand trap sluice gates, 100 ft downstream from diversion dam, and 13.4 miles north of Kernville.

DRAINAGE AREA.--846 sq mi.

PERIOD OF RECORD.--January 1912 to current year. Records for water year 1912 incomplete, yearly estimates published in WSP 1315-A. Prior to October 1953, records for river and canal published separately; combined flow only, October 1953 to September 1960.

GAGE.--Water-stage recorder on river; water-stage recorder and rectangular concrete-lined flume for canal diversion. Altitude of gage is 3,620 ft (from topographic map). Prior to Apr. 1, 1913, at site 1.4 miles downstream at different datum. Apr. 1 to Sept. 14, 1913, nonrecording gage and Sept. 15, 1913, to Sept. 30, 1967, water-stage recorder, at site 1.2 miles downstream at different datum.

AVERAGE DISCHARGE (River only).--9 years (1911-20), 790 cfs (571,900 acre-ft per year); 49 years (1921-70), 347 cfs (251,400 acre-ft per year); median of yearly mean discharges, 228 cfs (165,000 acre-ft per year). (Combined river and diversion).--59 years (1911-70), 727 cfs (526,700 acre-ft per year); median of yearly mean discharges, 615 cfs (446,000 acre-ft per year).

EXTREMES (River only).--Current year: Maximum discharge, 5,080 cfs Jan. 16 (gage height, 8.84 ft); minimum daily, 36 cfs Jan. 7, Feb. 1, 2.

Period of record: Maximum discharge, 60,000 cfs Dec. 6, 1966 (gage height, 22.77 ft, site and datum then in use, from floodmarks), from rating curve extended above 6,000 cfs on basis of computed flow over dam at gage height 17.55 ft (basic data for computation furnished by Southern California Edison Co.) and slope-area measurement of maximum flow; no flow July 31 to Nov. 7, Nov. 12 to Dec. 7, 1924, Jan. 16 to Feb. 7, 1925.

(Combined flow).--Current year: Maximum discharge, 5,590 cfs Jan. 16; minimum daily, 171 cfs Sept. 30.

Period of record: Maximum discharge, 60,000 cfs Dec. 6, 1966; minimum daily, 78 cfs Aug. 30, 31, Sept. 17, 19, 1924.

REMARKS.--Records excellent. Since 1921 Kern River No. 3 Canal diverts up to 630 cfs 100 ft upstream from station, from left bank of Kern River in sec.12, T.23 S., R.32 E. (unsurveyed), for power development; water is returned to river 15 miles downstream from station. For records of combined discharge of river and canal, see following page.

COOPERATION.--Gage-height record and 26 discharge measurements for Kern River and gage-height record and 13 discharge measurements for canal furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

REVISIONS (WATER YEARS).--WSP 1445: 1912, 1916(M). WSP 1930: 1914(M), 1918(M).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	52	43	41	36	79	98	121	1,870	250	95	90
2	53	43	43	41	36	75	100	169	1,870	204	95	79
3	52	42	42	41	40	73	119	273	1,670	210	94	74
4	52	42	42	41	38	77	139	328	1,600	200	95	76
5	52	42	42	39	38	80	160	372	1,340	204	94	81
6	52	46	43	40	38	81	224	488	1,270	258	94	80
7	52	53	43	36	41	81	260	440	1,270	235	93	78
8	52	45	43	38	43	82	280	488	1,240	364	94	73
9	54	44	42	42	44	82	328	600	1,160	492	92	74
10	54	46	42	48	43	84	460	730	1,030	790	94	70
11	53	49	49	44	51	81	556	625	812	650	93	67
12	53	46	44	43	46	81	464	556	680	368	92	67
13	54	46	44	38	46	81	424	536	615	268	92	67
14	56	45	44	86	47	86	339	665	512	196	95	70
15	56	46	44	53	44	87	283	986	400	154	92	76
16	90	46	44	2,630	46	82	238	1,280	384	133	92	77
17	113	44	44	952	47	80	184	1,480	492	110	90	74
18	69	45	44	329	44	84	149	1,640	576	100	89	75
19	60	46	57	168	54	76	149	1,600	690	98	93	78
20	58	46	87	108	52	73	133	1,460	842	102	95	78
21	58	46	48	69	48	74	131	1,340	914	95	95	78
22	58	45	55	71	46	76	121	1,420	944	94	94	78
23	58	44	44	44	46	80	128	1,700	938	93	96	76
24	58	43	48	203	45	99	120	2,080	806	94	95	77
25	58	43	65	117	45	132	116	2,020	760	93	95	85
26	58	43	60	57	44	176	148	1,550	675	94	95	75
27	57	44	44	55	44	188	146	1,570	790	94	94	73
28	59	43	45	39	56	154	113	1,640	600	93	95	73
29	62	43	48	42	-----	148	111	1,690	416	92	95	73
30	62	43	40	42	-----	154	117	1,670	310	92	95	71
31	61	-----	42	38	-----	128	-----	1,810	-----	94	102	-----
TOTAL	1,850	1,351	1,465	5,635	1,248	3,014	6,338	33,327	27,476	6,414	2,914	2,263
MEAN	59.7	45.0	47.3	182	44.6	97.2	211	1,075	916	207	94.0	75.4
MAX	113	53	87	2,630	56	188	556	2,080	1,870	790	102	90
MIN	52	42	40	36	36	73	98	121	310	92	89	67
AC-FT	3,670	2,680	2,910	11,180	2,480	5,980	12,570	66,100	54,500	12,720	5,780	4,490
CAL YR 1969	TOTAL	628,484		MEAN	1,722	MAX	14,400	MIN	40	AC-FT	1,247,000	
WTR YR 1970	TOTAL	93,295		MEAN	256	MAX	2,630	MIN	36	AC-FT	185,100	

## 11186000 KERN RIVER NEAR KERNVILLE, CALIF.--Continued

COMBINED DISCHARGE, IN CUBIC FEET PER SECOND, OF KERN RIVER AND KERN RIVER NO. 3 CANAL  
NEAR KERNVILLE, CALIF., WATER YEAR 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	458	391	329	337	506	553	665	693	2,460	843	430	258
2	452	387	333	326	479	587	672	743	2,470	798	405	256
3	444	384	325	313	473	523	692	845	2,270	804	393	246
4	442	379	318	301	467	509	709	899	2,190	795	384	239
5	441	377	315	293	462	538	727	943	1,930	799	378	231
6	440	377	327	313	456	544	790	1,060	1,870	853	374	230
7	435	453	326	320	457	555	832	1,010	1,860	829	365	228
8	426	425	325	318	459	562	854	1,060	1,830	958	364	221
9	420	418	319	343	468	559	907	1,170	1,750	1,090	348	214
10	414	410	305	478	493	576	1,040	1,300	1,620	1,390	337	210
11	406	425	311	426	576	541	1,140	1,200	1,400	1,250	328	206
12	402	421	327	402	543	538	1,050	1,140	1,270	963	325	205
13	402	409	330	391	529	541	1,000	1,140	1,200	864	338	205
14	404	401	325	461	542	588	918	1,270	1,100	791	349	206
15	409	399	316	539	511	615	864	1,580	988	749	340	205
16	496	411	314	3,160	498	631	819	1,870	972	729	339	202
17	537	391	308	1,470	505	650	764	2,080	1,080	703	335	198
18	487	365	311	908	471	653	726	2,240	1,170	678	325	195
19	467	371	342	752	461	624	726	2,200	1,280	674	316	191
20	459	376	565	692	451	607	705	2,060	1,430	693	304	191
21	439	370	434	652	480	608	701	1,940	1,500	667	295	191
22	435	364	543	657	453	624	663	2,020	1,530	628	284	190
23	430	354	411	625	456	645	653	2,290	1,530	590	278	188
24	431	346	384	781	452	672	646	2,670	1,400	551	272	185
25	428	344	454	684	446	716	668	2,620	1,350	538	267	185
26	420	344	554	623	442	789	715	2,140	1,270	542	263	183
27	414	343	397	629	440	797	716	2,170	1,380	551	263	181
28	412	327	332	589	470	755	667	2,240	1,190	528	286	181
29	406	322	320	546	-----	744	641	2,290	1,010	496	305	177
30	402	332	353	523	-----	735	684	2,260	903	477	286	171
31	396	-----	347	488	-----	693	-----	2,380	-----	455	270	-----
TOTAL	13,454	11,436	11,200	19,340	13,446	19,272	23,354	51,523	45,203	23,276	10,146	6,169
MEAN	434	381	361	624	480	622	778	1,662	1,507	751	327	206
MAX	537	453	565	3,160	576	797	1,140	2,670	2,470	1,390	430	258
MIN	396	322	305	293	440	509	641	693	903	455	263	171
AC-FT	26,690	22,680	22,220	39,360	26,670	38,230	46,320	102,200	89,660	46,170	20,120	12,240
CAL YR 1969	TOTAL 812,289		MEAN 2,225		MAX 14,400		MIN 243		AC-FT 1,611,000			
WTR YR 1970	TOTAL 247,819		MEAN 679		MAX 3,160		MIN 171		AC-FT 491,500			

## BUENA VISTA LAKE BASIN

## 11187000 KERN RIVER AT KERNVILLE, CALIF.

LOCATION.--Lat 35°45'34", long 118°25'12", in NE $\frac{1}{4}$  sec.15, T.25 S., R.33 E., Kern County, on left bank 0.5 mile upstream from highway bridge at Kernville, 1.7 miles upstream from Caldwell Creek, 9.5 miles upstream from Isabella Dam, and 42 miles northeast of Bakersfield.

DRAINAGE AREA.--1,009 sq mi.

PERIOD OF RECORD.--January 1905 to December 1912, October 1953 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is 2,634.57 ft above mean sea level. January 1905 to September 1912, nonrecording gage at two sites 3.5 miles downstream at different datums. October 1953 to Feb. 20, 1967, water-stage recorder 0.6 mile downstream at datum 2,621.57 ft above mean sea level.

AVERAGE DISCHARGE.--24 years, 893 cfs (647,000 acre-ft per year); median of yearly mean discharges, 720 cfs (522,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 10,400 cfs Jan. 16 (gage height, 10.57 ft); minimum daily, 164 cfs Sept. 29.

Period of record: Maximum discharge, 74,000 cfs Dec. 6, 1966 (gage height, 19.32 ft, from floodmarks, present site), from rating curve extended above 11,000 cfs on basis of slope-area measurement of maximum flow; minimum discharge, 74 cfs Oct. 27, 1954, Aug. 1, Oct. 4, 1961.

Maximum stage known from at least 1912 to December 1966, 18.4 ft, from floodmarks, Nov. 19, 1950, site and datum then in use (discharge, 38,700 cfs).

REMARKS.--Records good. Slight regulation at times by operation of Kern River No. 3 canal and powerplant.

A few small diversions for irrigation above station. Gilbert irrigation ditch diverts up to 7 cfs around station during irrigation season. Records of water temperatures and suspended-sediment loads for the water year 1970 are published in Part 2 of this report.

COOPERATION.--Eleven discharge measurements furnished by the Southern California Edison Co.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	458	400	348	349	555	625	706	750	2,560	777	387	250
2	452	400	357	338	525	670	701	775	2,570	760	367	241
3	444	394	339	326	520	625	713	831	2,370	770	359	233
4	442	388	339	311	525	605	728	895	2,180	784	350	220
5	441	383	334	297	515	635	742	928	1,910	769	345	214
6	440	394	348	313	510	645	786	1,020	1,760	810	342	219
7	435	482	339	330	510	650	835	1,020	1,770	812	336	218
8	426	438	339	338	510	655	852	1,010	1,780	903	336	211
9	420	432	334	359	520	650	891	1,070	1,690	992	325	202
10	414	422	318	537	540	665	963	1,190	1,590	1,280	315	200
11	405	438	314	468	635	635	1,060	1,190	1,350	1,280	309	197
12	410	427	334	454	590	635	1,070	1,110	1,210	991	308	196
13	416	422	334	442	570	630	1,030	1,090	1,140	864	322	194
14	416	410	326	470	585	676	969	1,200	1,050	807	327	196
15	410	405	322	659	555	706	926	1,460	946	764	321	193
16	500	422	314	4,720	540	724	895	1,740	912	738	321	189
17	581	422	318	2,260	545	739	814	1,980	987	709	321	180
18	545	394	311	1,170	510	742	777	2,180	1,080	670	312	174
19	527	400	330	908	510	708	767	2,150	1,180	657	294	173
20	488	405	631	820	510	677	749	1,990	1,310	668	271	174
21	454	406	432	771	510	676	734	1,870	1,390	638	264	176
22	444	402	568	760	510	692	698	1,940	1,410	603	257	177
23	438	384	417	727	510	708	692	2,170	1,400	572	253	173
24	432	375	389	820	510	727	691	2,460	1,300	534	250	170
25	432	375	447	814	510	777	702	2,340	1,240	516	247	168
26	427	370	624	700	510	827	743	2,100	1,190	518	246	169
27	416	366	410	682	510	859	754	2,130	1,250	520	247	167
28	416	348	341	665	580	818	711	2,280	1,170	496	266	165
29	405	344	326	595	-----	798	682	2,340	972	462	281	164
30	405	357	363	565	-----	776	742	2,380	856	440	264	165
31	400	-----	357	540	-----	744	-----	2,480	-----	416	248	-----
TOTAL	13,739	12,005	11,603	23,508	14,930	21,699	24,123	50,069	43,523	22,520	9,391	5,768
MEAN	444	400	374	758	533	700	804	1,615	1,451	726	303	192
MAX	581	482	631	4,720	635	859	1,070	2,480	2,570	1,280	387	250
MIN	400	344	311	297	510	605	682	750	856	416	246	164
AC-FT	27,250	23,810	23,010	46,630	29,610	43,040	47,850	99,310	86,330	44,670	18,630	11,440
CAL YR 1969	TOTAL 866,731			MEAN 2,375			MAX 16,700	MIN 276	AC-FT 1,719,000			
CTR YR 1970	TOTAL 252,878			MEAN 693			MAX 4,720	MIN 164	AC-FT 501,600			

PEAK DISCHARGE (BASE, 2,000 CFS).--Jan. 16 (1300) 10,400 cfs (10.57 ft); June 2 (1100) 2,870 cfs (6.65 ft).

## 11187500 BOREL CANAL BELOW ISABELLA DAM, CALIF.

LOCATION.--Lat 35°38'32", long 118°28'09", in NE¼ sec.30, T.26 S., R.33 E., Kern County, on right bank 500 ft downstream from Isabella Dam, and 3 miles upstream from point where canal crosses Erskine Creek.

PERIOD OF RECORD.--January 1910 to September 1914, October 1925 to current year. Monthly discharge only for some periods, published in WSP 1315-A. Published as Kern River Power Co.'s Canal at or near Kernville 1910-14. Published as "at Tillie Creek" 1925-51.

GAGE.--Water-stage recorder. Altitude of gage is 2,540 ft (from topographic map). Prior to Apr. 29, 1952, at site 4 miles upstream at different datum.

AVERAGE DISCHARGE.--49 years, 372 cfs (269,500 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 634 cfs Mar. 13, 14, 1952; no flow at times each year.

REMARKS.--Records excellent. Canal diverts from right bank of Kern River 5.5 miles upstream from Isabella Dam, and above South Fork Kern River. When capacity of Isabella Reservoir is above 110,000 acre-ft, the diversion is at the dam. Canal is used to supply Borel powerplant of Southern California Edison Co., 6 miles downstream from station, at which point water is returned to the Kern River. Water temperatures for the water year 1970 are published in Part 2 of this report.

COOPERATION.--Water-stage recorder graph and 27 discharge measurements furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	533	536	520	558	555	531	556	547	543	558	542	550
2	532	536	485	559	556	539	558	548	548	558	541	551
3	530	542	461	535	556	527	556	548	552	559	544	550
4	530	550	443	480	554	531	554	548	552	559	546	552
5	530	549	430	434	554	536	560	546	550	558	546	552
6	530	546	427	371	554	537	546	546	550	556	545	552
7	530	540	427	348	553	538	544	545	480	545	544	549
8	531	542	416	346	552	537	544	544	490	546	544	552
9	527	540	410	346	552	540	544	545	0	544	544	551
10	528	541	409	346	552	540	545	547	151	544	545	550
11	527	541	408	346	551	541	546	547	564	546	547	520
12	527	537	399	406	551	541	544	545	572	546	544	445
13	527	540	394	332	552	542	546	545	567	545	545	502
14	527	540	394	110	553	542	546	546	568	550	546	547
15	527	541	392	354	556	542	544	546	574	556	544	547
16	527	541	404	524	552	541	544	435	578	555	545	548
17	527	540	415	524	545	542	546	525	570	554	546	549
18	527	540	416	524	546	542	544	544	561	556	545	497
19	527	540	416	524	545	544	544	546	559	554	545	469
20	527	540	505	524	544	549	544	546	559	553	542	481
21	533	546	547	537	507	549	546	542	559	554	542	489
22	538	546	559	537	479	550	546	543	559	552	541	497
23	537	536	560	553	475	551	546	544	560	546	542	517
24	535	468	560	559	476	551	546	545	561	545	543	474
25	537	546	559	559	476	556	545	546	563	542	543	429
26	535	546	559	561	476	557	545	545	561	545	499	415
27	534	546	558	559	491	554	546	543	560	545	30	402
28	537	546	558	554	516	554	546	543	560	546	149	395
29	536	546	562	553	-----	556	547	543	562	542	538	386
30	537	545	559	553	-----	556	546	544	560	541	550	375
31	536	-----	558	554	-----	556	-----	544	-----	542	551	-----
TOTAL	16,466	16,193	14,710	14,570	14,929	16,872	16,414	16,771	15,693	17,042	15,918	14,993
MEAN	531	540	475	470	533	544	547	541	523	550	513	500
MAX	538	550	562	561	556	557	560	548	578	559	551	552
MIN	527	468	392	110	475	527	544	435	0	541	30	375
AC-FT	32,660	32,120	29,180	28,900	29,610	33,470	32,560	33,270	31,130	33,800	31,570	29,740

CAL YR 1969 TOTAL 193,635 MEAN 531 MAX 592 MIN 22 ACFT 384,100  
WAT YR 1970 TOTAL 190,571 MEAN 522 MAX 578 MIN 0 ACFT 378,000

## BUENA VISTA LAKE BASIN

11189500 SOUTH FORK KERN RIVER NEAR ONYX, CALIF.

LOCATION.--Lat 35°44'22", long 118°10'33", T.25 S., R.35 E., Kern County, on left bank 0.8 mile north of State Highway 178, 1.6 miles upstream from Canebrake Creek, and 5 miles northeast of Onyx.

DRAINAGE AREA.--530 sq mi.

PERIOD OF RECORD.--September 1911 to August 1914, January 1919 to September 1942, October 1947 to current year. Yearly estimate for water year 1927 (incomplete) and monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Altitude of gage is 2,900 ft (from topographic map). Sept. 12, 1911, to Aug. 31, 1914, nonrecording gage and Jan. 23, 1919, to Apr. 17, 1936, water-stage recorder, at site 140 ft upstream at datum 4.88 ft lower. Apr. 18, 1936, to September 1942, and October 1947, to Feb. 9, 1967, at datum 4.88 ft higher.

AVERAGE DISCHARGE.--46 years (1911-13, 1919-25, 1926-27, 1929-42, 1946-70), 116 cfs (84,040 acre-ft per year); median of yearly mean discharges, 81 cfs (58,700 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 782 cfs Jan. 16 (gage height, 3.96 ft); minimum daily, 9.2 cfs Aug. 10.

Period of record: Maximum discharge, 28,700 cfs Dec. 6, 1966 (gage height, 16.9 ft, from floodmarks, present datum), from rating curve extended above 3,300 cfs on basis of slope-area measurement of maximum flow; no flow for several days in 1929, 1934, 1960-61.

REMARKS.--Records good. Lowell and Thomas ditches divert above station for irrigation of 160 acres below station; combined capacity, 7 cfs.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	62	64	58	100	123	258	192	106	37	22	18
2	54	61	64	59	92	132	250	190	98	35	23	16
3	54	62	64	54	89	130	302	192	96	33	18	14
4	54	62	61	50	93	116	314	196	92	33	14	13
5	55	61	58	48	92	116	317	192	90	36	13	12
6	57	67	60	46	90	122	327	188	87	36	12	14
7	58	83	65	57	91	129	330	186	85	35	12	17
8	59	81	61	60	94	133	324	182	80	34	10	20
9	59	82	59	66	98	136	327	186	76	36	9.6	20
10	59	79	51	77	108	133	341	192	78	41	9.2	19
11	56	79	51	64	162	117	348	182	75	47	10	18
12	56	81	58	73	140	124	327	174	71	42	15	18
13	57	79	62	65	126	127	299	171	74	38	16	18
14	54	75	62	71	126	136	265	172	75	34	17	18
15	54	75	58	89	114	148	248	172	74	32	17	17
16	59	76	60	366	110	153	238	171	71	30	18	14
17	70	75	63	324	109	160	225	171	69	26	22	15
18	71	69	63	184	99	174	216	169	65	23	26	16
19	68	66	63	164	91	174	220	167	60	22	19	16
20	66	69	99	174	83	172	222	163	57	23	15	17
21	66	68	102	168	92	168	211	158	54	23	13	17
22	65	68	110	159	89	176	192	153	52	26	12	18
23	63	67	106	150	99	186	180	150	47	26	14	18
24	63	61	94	150	102	226	182	142	40	25	12	18
25	63	57	89	136	98	278	194	141	37	23	10	18
26	63	57	110	122	96	335	214	141	36	20	10	19
27	63	65	85	120	97	392	216	134	36	23	10	19
28	63	61	54	112	109	372	200	131	36	22	12	19
29	63	57	50	91	-----	358	172	124	35	25	18	19
30	63	64	52	90	-----	362	188	115	36	26	22	19
31	62	-----	61	92	-----	320	-----	110	-----	23	20	-----
TOTAL	1,872	2,069	2,159	3,539	2,889	5,928	7,647	5,107	1,988	935	470.8	514
MEAN	60.4	69.0	69.6	114	103	191	255	165	66.3	30.2	15.2	17.1
MAX	71	83	110	366	162	392	348	196	106	47	26	20
MIN	54	57	50	46	83	116	172	110	35	20	9.2	12
AC-FT	3,710	4,100	4,280	7,020	5,730	11,760	15,170	10,130	3,940	1,850	934	1,020

CAL YR 1969	TOTAL	224,313.0	MEAN	615	MAX	4,680	MIN	35	ACFT	444,900
WAT YR 1970	TOTAL	35,117.8	MEAN	96.2	MAX	392	MIN	9.2	ACFT	69,660

## PEAK DISCHARGE (BASE, 180 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-16	1900	3.96	782	3-27	1200	3.41	465
2-11	1200	2.45	195	4-10	1700	3.19	386

## 11190500 ISABELLA RESERVOIR NEAR LAKE ISABELLA, CALIF.

LOCATION.--Lat 35°38'46", long 118°28'41", in SW $\frac{1}{4}$  sec.19, T.26 S., R.33 E., Kern County, in main control tower near left abutment of main dam on Kern River, 1.5 miles north of town of Lake Isabella, and 2.8 miles upstream from Erskine Creek.

DRAINAGE AREA.--2,074 sq mi.

PERIOD OF RECORD.--October 1953 to current year. Prior to October 1968, published as "near Isabella."

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers).

EXTREMES.--Current year: Maximum contents, 327,771 acre-ft June 10 (elevation, 2,581.21 ft); minimum, 169,093 acre-ft Sept. 30 (elevation, 2,559.40 ft).

Period of record: Maximum contents, 578,100 acre-ft July 14, 1969 (elevation, 2,606.21 ft); minimum since reservoir first filled, 169,093 acre-ft Sept. 30, 1970 (elevation, 2,559.40 ft).

REMARKS.--Reservoir is formed by earthfill dam with sidehill spillway and auxiliary earthfill dam, completed in 1954; regulation began Apr. 15, 1954. Usable capacity, 569,679 acre-ft between elevations 2,470.0 ft (invert of main outlet) and 2,605.5 ft (spillway crest) above mean sea level. Dead storage, 326 acre-ft. Surcharge flood control storage, 271,800 acre-ft between ungated spillway crest and elevation 2,627.0 ft (maximum design spillway flood pool). Records, including extremes, represent total contents at 2400 hours. Water is released to Kern River through tunnel in left abutment of main dam and to Borel Canal (see sta 11187500) through concrete conduit in auxiliary dam.

COOPERATION.--Records furnished by Corps of Engineers, not rounded to Geological Survey standards.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

2,500	5,850	2,540	77,336
2,505	8,862	2,550	118,540
2,510	13,091	2,570	239,041
2,515	18,895	2,590	407,545
2,520	26,430	2,620	747,393
2,530	47,317		

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	351,800	282,712	225,186	225,326	249,128	257,261	261,725	263,325	317,214	315,949	263,477	193,828
2	349,315	281,443	224,976	225,256	249,349	257,864	261,041	263,706	320,176	315,022	261,041	192,477
3	347,192	280,019	224,906	225,046	249,497	258,165	260,359	264,088	322,300	314,098	258,618	191,196
4	344,811	278,127	224,767	224,767	249,719	258,769	259,904	264,547	323,920	313,090	255,983	189,600
5	342,439	275,928	224,767	224,697	249,942	259,374	259,450	265,083	324,774	311,917	253,288	188,519
6	340,074	274,286	224,697	224,627	250,164	259,752	258,996	265,619	325,201	310,496	250,460	187,378
7	337,805	272,493	224,627	224,697	250,312	260,207	258,920	266,310	325,543	308,912	247,799	186,303
8	335,195	270,630	224,537	224,767	250,535	260,586	259,072	267,002	326,142	307,497	245,006	185,232
9	332,769	268,542	224,557	225,256	250,683	260,889	259,147	267,848	327,514	306,087	242,014	184,227
10	330,352	266,540	224,488	225,955	251,277	261,573	259,298	269,160	327,771	305,093	239,186	183,413
11	328,029	264,318	224,418	226,516	251,872	261,877	259,828	270,088	327,342	304,101	236,449	182,725
12	325,543	261,953	224,418	226,796	252,244	262,258	260,283	271,017	327,085	302,698	233,586	181,915
13	322,982	259,752	224,418	226,796	252,691	262,486	260,738	272,027	326,742	301,053	230,956	181,044
14	320,346	257,487	224,488	227,007	253,288	262,867	261,117	273,194	326,399	299,494	228,343	180,175
15	317,805	255,083	224,557	227,850	253,586	263,248	261,573	274,989	325,714	297,857	225,815	179,185
16	315,359	252,989	224,557	238,103	253,810	263,554	261,801	277,262	324,945	295,981	223,442	178,383
17	313,007	251,277	224,557	243,033	254,035	263,859	262,029	279,624	324,176	294,355	221,083	177,583
18	310,747	249,423	224,557	244,713	254,334	264,012	262,105	282,474	323,578	292,815	218,945	176,723
19	308,329	247,209	224,557	245,593	254,483	264,012	262,258	285,020	323,067	291,199	216,612	175,866
20	306,004	244,860	225,326	246,106	254,483	263,783	262,258	287,098	322,896	289,587	214,224	175,133
21	303,936	242,814	225,326	246,621	254,783	263,554	262,258	289,024	322,726	287,820	212,054	174,524
22	301,628	240,706	225,815	247,062	255,008	263,325	262,182	291,037	322,556	285,818	209,963	173,916
23	299,330	239,041	225,745	247,357	255,232	262,943	262,105	293,463	322,130	283,666	207,883	173,127
24	297,041	238,536	225,605	247,799	255,532	262,562	262,029	296,470	321,450	281,443	205,947	172,521
25	294,924	236,305	225,605	248,389	255,757	262,182	262,029	299,166	320,770	279,388	204,088	171,796
26	292,653	234,086	226,235	248,463	255,983	262,182	262,105	301,464	320,091	277,498	202,237	171,254
27	290,634	231,879	226,235	248,610	256,058	262,182	262,334	303,523	319,328	275,380	200,396	170,772
28	288,944	229,895	226,025	249,054	256,734	262,410	262,486	305,921	318,735	273,194	198,890	170,171
29	287,258	228,202	225,885	248,980	-----	262,410	262,562	308,412	317,890	270,785	197,650	169,691
30	285,579	226,376	225,675	248,832	-----	262,410	262,867	311,165	316,876	268,234	196,415	169,093
31	284,064	-----	225,535	248,832	-----	262,258	-----	314,182	-----	265,849	195,184	-----
MAX	351,800	282,712	226,235	249,054	256,734	264,012	262,867	314,182	327,771	315,949	263,477	193,828
MIN	284,064	226,376	224,418	224,627	249,128	257,261	258,920	263,325	316,876	265,849	195,184	169,093
(a)	2,575.93	2,568.22	2,568.10	2,571.34	2,572.40	2,573.13	2,573.21	2,579.61	2,579.93	2,573.60	2,563.59	2,559.40
(b)	-70,318	-57,688	-841	+23,297	+7,902	+5,524	+609	+51,315	+2,694	-51,027	-70,665	-26,091
(c)	3,560	1,966	981	927	1,290	1,944	2,594	4,955	6,050	6,959	6,375	4,598
CAL YR 1969	MAX 578,100	MIN 124,300	(b) +101,035									
WAT YR 1970	MAX 351,800	MIN 169,093	(b) -185,317									

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

c Evaporation, in acre-feet.

## BUENA VISTA LAKE BASIN

## 11191000 KERN RIVER BELOW ISABELLA DAM, CALIF.

LOCATION.--Lat 35°38'21", long 118°29'02", in S1NW1 sec.30, T.26 S., R.33 E., Kern County, on right bank 200 ft downstream from highway bridge, 0.6 mile downstream from Isabella Dam, and 1.6 miles southwest of town of Lake Isabella.

DRAINAGE AREA.--2,074 sq mi.

PERIOD OF RECORD.--April 1945 to current year. Prior to October 1952, published as "below Isabella damsite."

GAGE.--Water-stage recorder. Datum of gage is 2,435.07 ft above mean sea level (levels by Corps of Engineers). Prior to Mar. 12, 1952, water-stage recorder at site 0.6 mile upstream at different datum. Mar. 12, 1952, to July 26, 1953, nonrecording gage at present site and datum.

AVERAGE DISCHARGE (adjusted for diversion to Borel Canal since 1945 and for change in storage and evaporation from Isabella Reservoir since 1954).--25 years, 897 cfs (649,900 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 2,130 cfs June 9 (gage height, 10.17 ft); minimum daily, 0.20 cfs Jan. 8.

Period of record: Maximum discharge, 39,000 cfs Nov. 19, 1950 (gage height, 28.6 ft, from floodmarks, present site and datum), from rating curve extended above 1,100 cfs on basis of slope-area measurement of maximum flow; minimum, 2.1 cfs (regulated) Nov. 27, 1951. Maximum discharge since construction of Isabella Dam in 1954, 7,300 cfs May 3, 1969 (gage height, 17.67 ft); no flow Oct. 29, 1954, Mar. 22, 1960.

REMARKS.--Records good. Flow regulated by Isabella Reservoir (see sta 11190500) beginning Apr. 15, 1954. Borel Canal (see sta 11187500) diverts above station. Diversion for irrigation of 3,500 acres between head of Isabella Reservoir and upstream stations. An additional 6,500 acres in reservoir can be irrigated when reservoir stage is low. Records of chemical analyses for the water year 1970 are published in Part 2 of this report.

REVISIONS (WATER YEARS).--WRD Calif. 1967: 1958(M).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,080	629	523	6.1	2.8	2.4	655	182	570	702	958	267
2	1,070	538	91	6.1	2.8	2.4	736	220	670	718	968	296
3	1,070	636	5.7	6.1	2.8	61	773	234	764	711	1,000	310
4	1,060	923	5.7	6.1	2.8	40	750	254	869	728	1,080	288
5	1,090	963	5.7	6.1	2.8	32	713	254	970	839	1,120	217
6	1,130	997	5.7	6.1	2.8	21	670	254	1,030	939	1,120	212
7	1,130	940	5.7	2.5	2.8	44	574	237	1,230	1,040	1,140	208
8	1,130	968	5.7	.20	2.8	65	592	179	912	1,100	1,180	226
9	1,130	1,040	5.7	3.2	2.8	65	595	123	843	1,130	1,200	143
10	1,130	1,080	6.1	6.3	2.8	55	602	122	1,350	1,140	1,200	47
11	1,130	1,180	5.2	6.1	3.0	40	562	150	866	1,120	1,180	12
12	1,120	1,150	5.1	64	2.8	66	525	161	809	1,150	1,150	14
13	1,150	1,150	4.8	237	2.8	101	500	178	721	1,130	1,030	28
14	1,210	1,150	4.9	466	2.8	99	439	176	669	1,050	1,060	46
15	1,210	1,120	4.9	220	2.8	108	391	159	686	990	993	53
16	1,210	1,040	4.9	71	2.8	128	349	308	746	968	927	67
17	1,210	983	4.9	199	2.7	167	324	294	815	915	921	55
18	1,210	882	4.9	187	2.7	245	317	341	891	875	865	19
19	1,210	1,050	6.0	205	2.7	299	319	381	928	867	841	10
20	1,180	1,050	6.5	244	2.2	355	341	428	936	894	865	9.9
21	1,140	1,050	6.5	244	2.2	383	341	455	960	912	811	9.7
22	1,180	1,040	8.0	244	2.2	428	341	492	997	945	731	9.7
23	1,180	834	13	233	2.2	501	331	554	1,080	1,010	674	8.6
24	1,160	413	6.5	226	2.2	588	305	567	1,100	1,040	684	7.3
25	1,110	996	6.1	226	2.1	662	254	547	1,090	950	641	6.8
26	1,060	1,000	6.1	226	2.2	660	240	498	987	957	657	6.5
27	969	1,000	6.1	226	2.4	578	236	484	877	993	1,100	9.0
28	880	938	6.1	226	2.4	487	199	534	803	1,050	838	11
29	947	769	6.1	226	-----	542	188	505	755	1,060	364	10
30	781	737	6.1	226	-----	620	176	451	726	1,050	307	10
31	781	-----	6.1	114	-----	620	-----	486	-----	1,010	278	-----
TOTAL	33,948	28,226	788.8	4,364.90	73.2	8,064.8	13,298	10,208	26,650	29,983	27,933	2,616.5
MEAN	1,095	941	25.4	141	2.61	260	443	329	888	967	901	87.2
MAX	1,210	1,160	523	466	3.0	662	773	567	1,350	1,150	1,200	310
MIN	781	413	4.8	.20	2.1	2.4	176	122	570	702	278	6.5
AC-FT	67,340	55,990	1,560	8,660	145	16,000	26,380	20,250	52,860	59,470	55,410	5,190
MEAN a	541	544	502	1,005	701	926	1,044	1,786	1,558	800	369	226
AC-FT a	33,240	32,390	30,880	61,780	38,950	56,940	62,140	109,800	92,730	49,200	22,690	13,440

CAL YR 1969 TOTAL 881,012.7 MEAN 2,414 MAX 6,440 MIN 3.0 AC-FT 1,747,000 MEAN a 3,147 AC-FT a 2,278,000  
WTR YR 1970 TOTAL 186,154.2 MEAN 510 MAX 1,350 MIN .2 AC-FT 369,200 MEAN a 835 AC-FT a 604,200

a Adjusted for change in contents and evaporation from Isabella Reservoir and for diversion to Borel Canal.



## 11192500 KERN RIVER NEAR DEMOCRAT SPRINGS, CALIF.

LOCATION.--Lat 35°31'15", long 118°40'34", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.6, T.28 S., R.31 E., Kern County, on left bank 1.0 mile southwest of Democrat Springs and 2.1 miles upstream from Cow Creek.

DRAINAGE AREA.--2,258 sq mi.

PERIOD OF RECORD.--July 1950 to current year. Prior to October 1954, records for river and conduit published separately; combined flow only, October 1954 to September 1960.

GAGE.--Water-stage recorder on river; water-stage recorder for conduit diversion. Altitude of gage is 1,850 ft (from topographic map).

AVERAGE DISCHARGE (River only, unadjusted).--20 years, 616 cfs (446,300 acre-ft per year).

(Combined river and diversion, adjusted for storage).--20 years, 957 cfs (693,300 acre-ft per year).

EXTREMES (River only).--Current year: Maximum discharge, 1,900 cfs June 9 (gage height, 10.62 ft); minimum daily, 2.0 cfs Jan. 9.

Period of record (prior to regulation by Isabella Reservoir): Maximum discharge, 40,000 cfs Nov. 19, 1950 (gage height, 30.7 ft), from rating curve extended above 8,700 cfs on basis of computation of maximum flow over dam (basic data for computation furnished by Southern California Edison Co.); minimum daily, 0.7 cfs Nov. 17-19, 1951.

1954 to current year: Maximum discharge, 10,100 cfs Dec. 6, 1966 (gage height, 18.55 ft); minimum daily, 0.1 cfs Oct. 30 to Nov. 12, 1955.

(Combined flow).--Current year: Maximum discharge, 2,050 cfs June 9; minimum daily, 369 cfs Jan. 9.

Period of record (prior to regulation by Isabella Reservoir): Maximum discharge, 40,000 cfs Nov. 19, 1950; minimum daily, 123 cfs Sept. 22, 1951.

1954 to current year: Maximum discharge, 10,100 cfs Dec. 6, 1966; minimum daily, 10 cfs Dec. 17, 1968.

REMARKS.--Records good. Kern River No. 1 conduit diverts up to about 420 cfs from left bank of Kern River in sec.13, T.28 S., R.30 E., for power development; water is returned to river 7 miles below station. Flow regulated by Isabella Reservoir 20 miles upstream beginning in 1954 (see sta 11190500). Many diversions above station for irrigation. For records of combined discharge of river and conduit, see following page.

COOPERATION.--Gage-height record and 12 discharge measurements for river and gage-height record and 11 discharge measurements for conduit furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

REVISIONS.--WSP 1930: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,200	856	880	184	192	210	723	332	678	827	1,150	411
2	1,210	693	208	184	187	231	805	380	744	852	1,180	449
3	1,200	693	144	181	186	220	859	384	862	852	1,180	454
4	1,200	1,090	105	122	187	270	852	406	950	841	1,280	470
5	1,220	1,110	86	91	187	271	806	406	1,090	953	1,330	384
6	1,270	1,200	80	46	184	242	789	404	1,100	1,050	1,320	378
7	1,260	1,110	80	5.0	184	245	687	398	1,260	1,150	1,350	366
8	1,260	1,100	79	2.1	181	286	627	362	1,290	1,230	1,380	387
9	1,260	1,210	69	2.0	182	278	678	302	513	1,260	1,410	364
10	1,260	1,230	68	2.9	189	294	696	284	1,090	1,290	1,420	235
11	1,270	1,350	65	2.3	200	347	672	314	1,030	1,250	1,390	178
12	1,260	1,350	61	31	194	585	621	324	1,020	1,290	1,370	91
13	1,270	1,330	49	195	194	334	618	328	911	1,300	1,280	98
14	1,350	1,330	47	186	210	290	573	354	838	1,210	1,260	192
15	1,350	1,320	46	196	206	294	518	312	848	1,150	1,210	198
16	1,360	1,230	48	523	213	310	488	362	908	1,130	1,110	221
17	1,350	1,160	60	468	203	334	456	398	967	1,070	1,240	226
18	1,350	1,060	65	398	203	393	454	459	1,020	1,040	1,430	172
19	1,350	1,230	65	370	202	436	442	488	1,080	1,020	1,030	115
20	1,340	1,240	100	406	200	472	463	533	1,080	1,050	1,030	113
21	1,260	1,240	189	402	181	505	473	560	1,110	1,080	1,000	130
22	1,340	1,230	192	402	141	522	470	579	1,110	1,100	936	120
23	1,330	1,180	192	400	139	585	468	642	1,220	1,160	831	156
24	1,320	769	192	400	135	654	454	666	1,240	1,220	859	131
25	1,250	1,180	194	395	134	735	417	660	1,250	1,130	810	82
26	1,220	1,130	195	395	134	778	384	609	1,150	1,130	741	67
27	1,140	1,190	189	400	140	714	409	588	1,020	1,160	789	61
28	1,040	1,170	184	398	190	621	376	657	946	1,220	633	60
29	1,030	967	187	393	-----	624	356	645	897	1,250	518	60
30	950	914	184	393	-----	717	352	579	866	1,240	465	60
31	942	-----	182	371	-----	711	-----	591	-----	1,220	442	-----
TOTAL	38,412	33,422	4,485	7,944.3	5,078	13,508	16,986	14,306	30,088	34,725	33,374	6,429
MEAN	1,239	1,114	145	256	181	436	566	461	1,003	1,120	1,077	214
MAX	1,360	1,350	880	523	213	778	859	666	1,290	1,300	1,430	470
MIN	942	269	46	2.0	134	210	352	284	513	827	442	60
AC-FT	76,190	66,290	8,900	15,760	10,070	26,790	33,690	28,380	59,680	68,880	66,200	12,750

CAL YR 1969 TOTAL 956,234.7 MEAN 2,620 MAX 6,640 MIN 1.2 AC-FT 1,897,000  
 WTR YR 1970 TOTAL 238,757.3 MEAN 654 MAX 1,430 MIN 2.0 AC-FT 473,600

## BUENA VISTA LAKE BASIN

## 11192500 KERN RIVER NEAR DEMOCRAT SPRINGS, CALIF.--Continued

COMBINED DISCHARGE, IN CUBIC FEET PER SECOND, OF KERN RIVER AND KERN RIVER NO. 1 CONDUIT  
NEAR DEMOCRAT SPRINGS, CALIF., WATER YEAR 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,590	1,250	1,260	572	582	580	1,130	719	1,050	1,220	1,500	785
2	1,600	1,090	584	571	575	601	1,210	766	1,120	1,240	1,530	826
3	1,590	1,090	522	568	576	587	1,260	770	1,240	1,250	1,530	831
4	1,590	1,480	489	508	576	640	1,250	791	1,320	1,230	1,630	845
5	1,610	1,500	470	476	574	641	1,200	790	1,460	1,350	1,680	759
6	1,660	1,590	461	433	573	613	1,190	787	1,470	1,450	1,670	754
7	1,650	1,500	461	384	572	614	1,090	780	1,630	1,550	1,700	740
8	1,650	1,490	460	375	571	653	1,030	744	1,580	1,630	1,730	761
9	1,650	1,600	446	369	572	646	1,080	683	654	1,660	1,760	736
10	1,650	1,620	446	393	577	663	1,100	666	1,350	1,690	1,770	609
11	1,660	1,750	444	387	586	613	1,070	695	1,410	1,640	1,750	555
12	1,650	1,750	440	416	580	607	1,020	706	1,400	1,680	1,730	468
13	1,660	1,710	428	581	580	690	1,010	708	1,300	1,700	1,640	475
14	1,750	1,720	426	573	592	681	970	735	1,220	1,600	1,630	572
15	1,750	1,710	427	583	585	684	913	693	1,240	1,540	1,580	577
16	1,760	1,620	428	912	584	701	882	744	1,300	1,520	1,480	598
17	1,740	1,550	445	861	575	725	850	782	1,350	1,460	1,490	597
18	1,750	1,440	449	786	575	787	850	843	1,410	1,420	1,470	542
19	1,750	1,610	449	758	573	832	837	869	1,470	1,400	1,380	484
20	1,740	1,620	487	796	572	869	858	913	1,470	1,420	1,420	483
21	1,660	1,610	575	791	553	903	861	939	1,500	1,440	1,370	498
22	1,740	1,610	579	790	513	921	858	959	1,500	1,460	1,310	485
23	1,730	1,560	578	787	512	987	853	1,020	1,610	1,530	1,210	520
24	1,720	647	577	790	507	1,060	840	1,050	1,640	1,580	1,240	496
25	1,650	1,560	579	785	505	1,140	804	1,040	1,640	1,490	1,190	446
26	1,620	1,570	580	785	505	1,170	771	988	1,540	1,490	1,120	434
27	1,540	1,570	576	789	510	1,110	796	966	1,410	1,520	1,170	421
28	1,430	1,550	571	789	560	1,010	763	1,040	1,340	1,580	1,010	414
29	1,430	1,340	575	784	-----	1,010	743	1,020	1,290	1,610	894	411
30	1,340	1,290	572	783	-----	1,110	738	957	1,260	1,600	839	394
31	1,340	-----	572	761	-----	1,110	-----	968	-----	1,570	816	-----
TOTAL	50,650	44,997	16,356	19,936	15,715	24,958	28,827	26,131	41,174	46,520	44,239	17,516
MEAN	1,634	1,500	528	643	561	805	961	843	1,372	1,501	1,427	584
MAX	1,760	1,750	1,260	912	592	1,170	1,260	1,050	1,640	1,700	1,770	845
MIN	1,340	647	426	369	505	580	738	666	654	1,220	816	394
AC-FT	100,500	89,250	32,440	39,540	31,170	49,500	57,180	51,830	81,670	92,270	87,750	34,740
CAL YR 1969	TOTAL	1,093,756	MEAN	2,997	MAX	7,030	MIN	306	AC-FT	2,169,000		
WTR YR 1970	TOTAL	377,019	MEAN	1,033	MAX	1,770	MIN	369	AC-FT	747,800		

## 11194000 KERN RIVER NEAR BAKERSFIELD, CALIF.

LOCATION.--Lat 35°25'54", long 118°56'43", in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.2, T.29 S., R.28 E., Kern County, on left bank 1.9 miles upstream from Sacramento Gulch, 0.8 mile northeast of Oil City, and 5.8 miles northeast of Bakersfield Post Office.

DRAINAGE AREA.--2,407 sq mi.

PERIOD OF RECORD.--October 1893 to current year. Daily discharges for period October 1953 to September 1963 are in files of California District office of Geological Survey. Monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder and prior to Jan. 24, 1969, a wooden control. Datum of gage is at mean sea level.

AVERAGE DISCHARGE.--77 years, 962 cfs (697,000 acre-ft per year).

EXTREMES.--Current year: Maximum daily discharge, 1,810 cfs Oct. 18, 19; minimum daily, 375 cfs Jan. 8. Period of record: Maximum discharge, 36,000 cfs Nov. 19, 1950 (elevation, 461.37 ft); minimum daily, 74 cfs Sept. 19, 1948. Maximum discharge since construction of Isabella Dam in 1954, 9,290 cfs Dec. 6, 1966 (elevation, 454.94 ft); minimum daily, 37 cfs Dec. 15, 1968.

REMARKS.-- Flow regulated by Isabella Reservoir beginning in 1954 (see sta 11190500), and three powerplants; many diversions above station for irrigation.

COOPERATION.--Records furnished by Kern County Land Company and reviewed by Geological Survey.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,610	1,280	1,270	583	613	601	1,240	700	1,100	1,310	1,560	801
2	1,630	1,170	638	585	604	615	1,290	776	1,200	1,330	1,570	823
3	1,630	1,230	612	562	599	608	1,310	783	1,320	1,330	1,580	829
4	1,620	1,500	587	519	598	690	1,310	809	1,430	1,350	1,640	833
5	1,650	1,530	565	470	597	693	1,280	813	1,520	1,460	1,680	787
6	1,680	1,600	549	401	597	638	1,250	811	1,490	1,570	1,680	778
7	1,680	1,550	532	378	596	646	1,160	808	1,750	1,580	1,700	771
8	1,690	1,560	524	375	594	695	1,080	771	1,440	1,640	1,750	780
9	1,690	1,620	516	378	594	693	1,140	709	957	1,670	1,780	766
10	1,690	1,640	496	383	594	704	1,180	685	1,560	1,680	1,770	644
11	1,690	1,690	478	384	593	628	1,130	710	1,490	1,660	1,750	591
12	1,690	1,690	464	416	594	683	1,050	727	1,440	1,700	1,720	506
13	1,710	1,690	448	581	595	743	1,050	733	1,340	1,670	1,640	490
14	1,770	1,700	435	603	596	719	997	756	1,300	1,610	1,620	594
15	1,780	1,680	421	604	600	722	962	713	1,320	1,540	1,560	621
16	1,800	1,620	429	1,120	609	734	936	760	1,390	1,510	1,490	666
17	1,800	1,580	435	1,000	610	764	908	811	1,450	1,460	1,470	672
18	1,810	1,580	437	884	603	842	904	867	1,520	1,420	1,440	580
19	1,810	1,640	437	828	602	889	888	930	1,560	1,410	1,410	477
20	1,750	1,640	545	873	563	921	914	965	1,570	1,440	1,430	475
21	1,690	1,650	569	868	534	964	916	993	1,590	1,450	1,380	485
22	1,760	1,640	579	868	529	983	916	1,020	1,630	1,500	1,320	470
23	1,770	1,510	583	860	530	1,040	904	1,060	1,720	1,560	1,240	499
24	1,750	666	582	862	529	1,120	884	1,080	1,740	1,610	1,240	486
25	1,680	1,540	581	863	529	1,220	847	1,070	1,720	1,510	1,190	465
26	1,630	1,560	581	857	520	1,220	770	1,040	1,610	1,510	1,160	438
27	1,540	1,570	580	867	532	1,160	830	1,030	1,510	1,540	1,180	430
28	1,460	1,540	581	859	583	1,070	771	1,080	1,430	1,610	1,030	421
29	1,440	1,400	583	847	-----	1,060	745	1,040	1,380	1,620	922	406
30	1,380	1,370	582	829	-----	1,190	729	993	1,350	1,610	853	398
31	1,380	-----	582	812	-----	1,210	-----	1,030	-----	1,590	826	-----
TOTAL	51,660	45,636	17,201	21,319	16,237	26,465	30,291	27,073	43,827	47,450	44,581	17,982
MEAN	1,666	1,521	555	688	580	854	1,010	873	1,461	1,531	1,438	599
MAX	1,810	1,700	1,270	1,120	613	1,220	1,310	1,080	1,750	1,700	1,780	833
MIN	1,380	666	421	375	520	601	729	685	957	1,310	826	398
AC-FT	102,500	90,520	34,120	42,290	32,210	52,490	60,080	53,700	86,930	94,120	88,430	35,670
CAL YR 1969	TOTAL	1,166,361	MEAN	3,196	MAX	7,520	MIN	342	ACFT	2,313,000		
WAT YR 1970	TOTAL	389,722	MEAN	1,068	MAX	1,810	MIN	375	ACFT	773,000		

## BUENA VISTA LAKE BASIN

11194200 WAGONWHEEL CREEK NEAR REWARD, CALIF.

LOCATION.--Lat 35°19'24", long 119°44'31", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.8, T.30 S., R.21 E., Kern County, at culvert on private road 3.5 miles west of Reward.

DRAINAGE AREA.--1.38 sq mi.

PERIOD OF RECORD.--Water years 1958-65 (annual maximum), October 1965 to current year.

GAGE.--Water-stage recorder, crest-stage gage, and tipping-bucket rain gage. Altitude of gage is 1,500 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 37 cfs Mar. 4 (gage height, 7.77 ft); no flow most of year.

Period of record: Maximum discharge, 306 cfs Aug. 14, 1965 (gage height, 13.44 ft, from floodmarks), from rating curve based on computation of flow through culvert at gage heights 6.97, 9.05, 9.55, 9.92 ft, and on computation of flow through culvert plus road-overflow at gage height 13.44 ft; no flow for several months in each year.

REMARKS.--Records fair. No regulation or diversion above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						0						
2						0						
3						0						
4						1.7						
5						0						
6						0						
7						0						
8						0						
9						0						
10						0						
11						0						
12						0						
13						0						
14						0						
15						0						
16						0						
17						0						
18						0						
19						0						
20						0						
21						0						
22						0						
23						0						
24						0						
25						0						
26						0						
27						0						
28						0						
29					-----	0						
30					-----	0						
31		-----			-----	0	-----		-----			-----
TOTAL	0	0	0	0	0	1.7	0	0	0	0	0	0
MEAN	0	0	0	0	0	.055	0	0	0	0	0	0
MAX	0	0	0	0	0	1.7	0	0	0	0	0	0
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	0	0	3.4	0	0	0	0	0	0
(a)	0	.5	.2	1.4	1.5	1.2	0	0	0	0	0	0

CAL YR 1969 TOTAL 51.14 MEAN .14 MAX 11 MIN 0 ACFT 101  
WAT YR 1970 TOTAL 1.7 MEAN .004 MAX 1.7 MIN 0 ACFT 3

PEAK DISCHARGE (BASE, 5.0 CFS).--Mar. 4 (1965) 37 cfs (7.17 ft).

a Precipitation, in inches.

## 11195500 SAN EMIGDIO CREEK AT SAN EMIGDIO RANCHHOUSE, CALIF

LOCATION.--Lat 34°58'54", long 119°11'03", in San Emigdio Grant, Kern County, on left bank 50 ft downstream from unnamed tributary, 0.8 mile upstream from San Emigdio ranchhouse, and 13 miles west of Wheeler Ridge.

DRAINAGE AREA.--48.8 sq mi.

PERIOD OF RECORD.--March 1959 to current year.

GAGE.--Water-stage recorder and sharp-crested weir with rectangular flume for flows below 15 cfs. Datum of gage is 1,617.57 ft above mean sea level.

AVERAGE DISCHARGE.--11 years, 1.57 cfs (1,140 acre-ft per year); median of yearly mean discharges, 1.2 cfs (870 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 26 cfs Feb. 9 (gage height, 9.77 ft); minimum daily, 1.6 cfs June 20, 21, Sept. 26, 28-30.

Period of record: Maximum discharge, 6,690 cfs Aug. 5, 1961 (gage height, 19.87 ft, from floodmarks), from rating curve extended above 20 cfs on basis of slope-area measurements at gage heights 10.94 and 19.87 ft; minimum daily, 0.30 cfs Apr. 23, 24, 1962 and many days in 1965, 1966.

Maximum stage known since at least 1938 (from information by local residents), that of Aug. 5, 1961.

REMARKS.--Records good. Small diversions for stock and domestic use above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.5	5.4	5.2	4.3	4.3	12	2.6	3.7	1.7	1.9	1.9	1.9
2	5.6	5.4	5.2	4.2	4.3	8.8	2.6	3.2	1.7	1.8	2.0	1.9
3	5.8	5.4	5.2	3.8	4.2	4.7	2.6	3.0	1.7	1.8	1.9	1.9
4	6.0	5.2	5.2	3.4	4.1	4.3	2.5	2.8	1.7	1.8	2.0	1.9
5	6.0	5.4	5.2	2.7	3.9	5.7	2.4	2.8	1.7	1.8	2.0	1.8
6	6.1	6.4	5.0	3.2	3.9	5.3	2.5	2.9	1.8	1.8	2.0	1.8
7	6.1	6.6	5.2	3.3	3.8	4.5	2.5	3.0	1.8	1.8	2.0	1.7
8	6.1	6.1	5.5	3.6	3.6	3.7	2.6	2.9	1.8	1.8	2.0	1.7
9	6.1	5.8	5.5	5.3	8.2	3.5	2.5	2.9	2.0	1.9	1.9	1.7
10	6.0	5.8	5.2	7.2	11	4.7	2.5	2.9	2.1	1.8	1.9	1.7
11	5.8	5.6	5.4	6.1	7.1	3.6	2.4	2.9	2.0	2.0	1.9	1.7
12	5.8	5.5	5.2	5.5	4.2	3.2	2.5	2.9	1.9	2.0	1.9	1.8
13	5.6	5.5	5.2	4.9	4.1	2.8	2.6	2.8	1.9	2.0	1.9	1.8
14	5.6	5.4	5.2	5.8	3.9	2.7	2.8	2.6	1.9	1.9	1.9	1.9
15	5.6	5.4	5.2	6.7	3.3	2.6	3.0	2.4	1.9	1.9	1.8	1.9
16	5.5	5.5	5.0	7.6	2.9	2.6	2.9	2.3	1.9	2.0	1.8	1.8
17	5.6	5.4	4.9	6.4	5.5	2.5	3.5	2.2	1.8	2.0	1.8	1.8
18	5.8	5.4	4.5	5.8	3.2	2.7	3.3	2.2	1.7	2.0	1.8	1.8
19	5.5	5.5	4.9	5.5	3.2	2.7	3.1	2.4	1.7	1.9	1.9	1.8
20	5.5	5.6	4.8	6.0	3.0	2.7	3.2	2.5	1.6	1.9	1.9	1.8
21	5.4	5.6	5.1	5.4	2.9	2.6	3.3	2.6	1.6	1.8	1.9	1.8
22	5.4	5.6	5.6	5.0	2.9	2.6	3.2	2.4	1.7	1.8	1.9	1.8
23	5.4	5.6	4.9	4.9	2.8	2.5	3.1	2.2	1.7	1.8	1.9	1.8
24	5.4	5.5	4.8	4.9	2.7	2.4	2.9	2.1	1.7	1.9	1.8	1.8
25	5.4	5.5	6.1	5.0	2.6	2.4	2.8	2.1	1.7	1.8	1.9	1.7
26	5.2	5.6	7.1	5.0	2.5	2.4	2.9	2.1	1.7	1.9	1.9	1.6
27	5.2	5.5	5.5	5.4	2.4	2.4	4.7	2.0	1.8	1.9	2.1	1.7
28	5.2	5.4	3.5	5.0	10	2.3	6.9	2.0	1.9	1.9	1.9	1.6
29	5.4	5.4	2.8	4.8	-----	2.5	5.3	2.0	1.9	1.9	1.9	1.6
30	5.4	5.2	3.3	4.8	-----	2.6	4.5	2.0	1.9	2.0	1.9	1.6
31	5.4	-----	4.4	4.4	-----	2.7	-----	1.9	-----	1.9	1.9	-----
TOTAL	174.4	167.2	155.8	155.9	120.5	112.7	94.2	78.7	53.9	58.4	59.2	53.1
MEAN	5.63	5.57	5.03	5.03	4.30	3.64	3.14	2.54	1.80	1.88	1.91	1.77
MAX	6.1	6.6	7.1	7.6	11	12	6.9	3.7	2.1	2.0	2.1	1.9
MIN	5.2	5.2	2.8	2.7	2.4	2.3	2.4	1.9	1.6	1.8	1.8	1.6
AC-FT	346	332	309	309	239	224	187	156	107	116	117	105

CAL YR 1969 TOTAL 1,952.92 MEAN 5.35 MAX 81 MIN .62 ACFT 3,870

WAT YR 1970 TOTAL 1,284.0 MEAN 3.52 MAX 12 MIN 1.6 ACFT 2,550

PEAK DISCHARGE (BASE, 25 CFS).--Feb. 9 (2000) 26 cfs (9.77 ft).

## BUENA VISTA LAKE BASIN

11195600 PASTORIA CREEK NEAR LEBEC, CALIF.

LOCATION.--Lat 34°54'33", long 118°48'55", in Los Alamos Y Agua Caliente Grant, Kern County, on right bank just upstream from unnamed tributary and 5.8 miles northeast of Lebec.

DRAINAGE AREA.--27.5 sq mi.

PERIOD OF RECORD.--October 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,970.93 ft above mean sea level.

AVERAGE DISCHARGE.--6 years, 0.84 cfs (609 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 14 cfs Apr. 30 (gage height, 2.78 ft), from rating curve extended as explained below; no flow Sept. 3-30.

Period of record: Maximum discharge, 109 cfs Feb. 25, 1969 (gage height, 3.39 ft), from rating curve extended above 6.2 cfs on basis of slope-area measurements of maximum flow; no flow for many days in 1964-67, 1970.

REMARKS.--Records fair. No regulation or diversion above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.63	.27	.19	.20	1.0	3.5	1.4	3.0	.37	.21	.08	.01
2	.63	.19	.17	.19	1.2	5.5	1.4	1.8	.31	.19	.08	.01
3	.63	.19	.15	.19	1.0	2.5	1.2	1.2	.41	.21	.07	0
4	.66	.21	.15	.18	1.0	2.6	1.4	1.3	.37	.26	.07	0
5	.66	.17	.15	.18	1.0	5.5	1.5	1.4	.27	.29	.06	0
6	.72	.37	.11	.17	.80	4.5	1.4	1.4	.27	.25	.06	0
7	.72	.23	.11	.17	.85	3.3	1.3	1.4	.27	.28	.05	0
8	.75	.19	.15	.17	.72	2.7	1.2	1.3	.27	.29	.05	0
9	.75	.17	.15	.22	3.2	2.3	1.3	1.2	.27	.25	.04	0
10	.75	.25	.29	.50	1.9	4.6	1.2	1.2	.29	.25	.04	0
11	.72	.17	.31	.26	1.8	4.0	1.2	1.2	.29	.21	.04	0
12	.66	.25	.21	.20	1.7	3.0	1.2	1.1	.31	.19	.04	0
13	.66	.19	.17	.20	3.5	2.7	1.2	1.0	.31	.15	.03	0
14	.69	.21	.15	.70	3.8	2.6	1.2	.95	.31	.13	.03	0
15	.66	.17	.17	1.5	3.0	2.5	1.2	.95	.34	.11	.03	0
16	.66	.27	.17	2.1	2.5	2.5	1.2	.85	.41	.11	.03	0
17	.72	.23	.15	1.8	4.7	2.7	1.2	.80	.27	.10	.02	0
18	.69	.23	.15	1.6	1.2	2.3	1.1	.78	.27	.10	.02	0
19	.63	.15	.13	1.5	1.3	2.2	1.2	.90	.27	.09	.02	0
20	.60	.17	.11	1.4	1.4	2.2	1.2	.95	.25	.09	.02	0
21	.57	.17	1.0	1.4	1.4	2.2	2.5	1.0	.23	.08	.02	0
22	.66	.17	.38	1.4	1.1	1.9	1.8	.90	.25	.08	.02	0
23	.66	.15	.27	1.4	1.2	1.8	1.4	.85	.23	.07	.02	0
24	.54	.21	.17	1.4	1.2	2.4	1.4	.90	.25	.07	.02	0
25	.29	.25	1.6	1.4	1.1	1.9	1.4	.90	.25	.07	.02	0
26	.29	.13	.60	1.7	1.0	1.9	1.4	.72	.25	.08	.02	0
27	.31	.15	1.1	1.6	1.0	1.7	4.4	.72	.25	.09	.02	0
28	.29	.23	.60	1.7	4.5	1.8	3.7	.63	.25	.09	.02	0
29	.29	.21	.30	1.5	-----	1.6	1.8	.54	.24	.09	.02	0
30	.29	.21	.23	1.4	-----	1.6	3.9	.48	.23	.08	.02	0
31	.29	-----	.21	.95	-----	1.8	-----	.41	-----	.08	.01	-----
TOTAL	18.07	6.16	9.80	29.28	50.07	84.3	48.9	32.73	8.56	4.64	1.09	.02
MEAN	.58	.21	.32	.94	1.79	2.72	1.63	1.06	.29	.15	.035	.0007
MAX	.75	.37	1.6	2.1	4.7	5.5	4.4	3.0	.41	.29	.08	.01
MIN	.29	.13	.11	.17	.72	1.6	1.1	.41	.23	.07	.01	0
AC-FT	36	12	19	58	99	167	97	65	17	9.2	2.2	.04

CAL YR 1969 TOTAL 872.68 MEAN 2.39 MAX 65 MIN .11 ACFT 1,730  
WAT YR 1970 TOTAL 293.62 MEAN .80 MAX 5.5 MIN 0 ACFT 582

PEAK DISCHARGE (BASE, 10 CFS)							
DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1900	2.64	11	2-28	0700	2.65	11
12-25	1500	2.67	12	3-24	0830	2.62	10
2- 9	1800	2.65	11	4-21	1300	2.69	12
2-17	0700	2.66	12	4-30	0930	2.78	14

## 11196400 CALIENTE CREEK ABOVE TEHACHAPI CREEK, NEAR CALIENTE, CALIF.

LOCATION.--Lat 35°18'41", long 118°34'10", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.17, T.30 S., R.32 E., Kern County, on right bank 0.5 mile upstream from Harper Canyon, 1.0 mile upstream from Oiler Canyon, and 3.6 miles northeast of Caliente.

DRAINAGE AREA.--165 sq mi.

PERIOD OF RECORD.--October 1961 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 1,575 ft (from topographic map).

AVERAGE DISCHARGE.--9 years, 2.82 cfs (2,040 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 36 cfs Jan. 16 (gage height, 1.97 ft); minimum daily, 0.17 cfs July 22, Aug. 13, 15.

Period of record: Maximum discharge, 1,410 cfs Aug. 8, 1963 (gage height, 7.48 ft, from floodmarks), from rating curve extended above 51 cfs on basis of slope-area measurement of maximum flow; no flow for several months most years.

REMARKS.--Records good. Small diversions above station for stock and domestic use.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	3.0	3.7	3.9	4.3	6.0	4.3	3.3	1.0	1.0	.38	.94
2	2.2	3.0	3.7	3.7	4.1	8.5	4.3	2.9	.94	.86	.38	.94
3	2.3	3.0	3.7	3.7	4.3	6.3	4.3	2.9	.94	.94	.48	.86
4	2.3	3.0	3.7	3.9	4.3	6.4	3.9	2.6	.94	.94	.44	.86
5	2.2	3.0	3.7	3.7	4.3	9.4	3.7	2.4	.86	.78	.48	1.0
6	2.2	3.6	3.7	3.5	4.3	8.0	3.5	2.7	.94	.78	.48	1.1
7	2.0	4.9	3.7	3.5	4.1	6.5	3.5	3.0	.94	.66	.44	1.2
8	2.0	3.9	3.9	3.5	4.1	6.3	3.3	3.0	.94	.66	.38	1.1
9	2.2	3.7	3.9	3.3	3.9	5.8	3.3	2.9	1.3	.94	.32	1.0
10	2.2	3.5	3.7	3.9	5.1	7.6	3.2	2.9	1.6	.94	.28	1.0
11	2.3	3.5	3.7	3.7	5.6	6.3	3.3	2.9	1.6	.78	.24	.94
12	2.3	3.3	3.7	3.7	4.9	6.0	3.3	2.6	1.5	.66	.20	.94
13	2.3	3.5	3.7	3.9	4.7	5.8	3.5	2.4	1.5	.60	.17	.86
14	2.3	3.5	3.7	4.5	4.9	5.6	4.3	2.3	1.5	.32	.20	.86
15	2.3	3.5	3.7	4.9	4.5	5.6	4.2	2.0	1.5	.32	.17	.78
16	2.6	3.7	3.7	19	4.3	5.6	4.5	1.8	1.4	.32	.20	.78
17	2.7	3.5	3.5	9.8	4.9	5.6	4.3	1.7	1.3	.39	.24	.94
18	2.9	3.5	3.5	6.9	4.3	5.3	3.7	1.5	1.4	.60	.26	1.1
19	2.9	3.3	3.5	6.0	4.1	5.1	3.9	1.7	1.4	.44	.24	1.1
20	2.9	3.2	3.5	5.6	3.9	4.9	4.1	1.9	1.2	.24	.32	1.0
21	3.2	3.3	3.9	5.3	3.9	4.9	4.1	2.0	1.1	.20	.38	1.2
22	3.0	3.5	4.3	5.1	3.5	4.7	3.7	1.9	1.0	.17	.44	1.1
23	3.0	3.5	3.9	5.1	3.7	4.5	3.5	1.9	.78	.20	.48	.94
24	3.2	3.5	3.7	5.3	3.7	4.3	3.5	1.7	.78	.20	.60	.86
25	3.0	3.7	4.5	5.3	3.5	4.3	3.2	1.6	.78	.24	.60	.86
26	3.0	3.3	5.3	5.1	3.7	4.3	3.2	1.7	.78	.24	.66	.66
27	3.2	3.5	4.7	5.8	3.7	4.3	4.7	1.6	.86	.24	.66	.60
28	3.2	3.7	4.3	5.3	4.7	4.1	4.9	1.6	1.1	.24	.78	.54
29	3.2	3.7	4.3	4.9	-----	4.5	4.1	1.6	1.3	.32	.78	.60
30	3.0	3.7	4.3	4.7	-----	4.5	3.7	1.4	1.2	.32	.86	.72
31	3.0	-----	3.9	4.3	-----	4.3	-----	1.2	-----	.32	.94	-----
TOTAL	81.1	104.5	120.7	160.8	119.3	175.3	115.0	67.6	34.38	15.86	13.48	27.38
MEAN	2.62	3.48	3.89	5.19	4.26	5.65	3.83	2.18	1.15	.51	.43	.91
MAX	3.2	4.9	5.3	19	5.6	9.4	4.9	3.3	1.6	1.0	.94	1.2
MIN	2.0	3.0	3.5	3.3	3.5	4.1	3.2	1.2	.78	.17	.17	.54
AC-FT	161	207	239	319	237	348	228	134	68	31	27	54

CAL YR 1969 TOTAL 5,130.92 MEAN 14.1 MAX 354 MIN .72 ACFT 10,180  
WAT YR 1970 TOTAL 1,035.40 MEAN 2.84 MAX 19 MIN .17 ACFT 2,050

PEAK DISCHARGE (BASE, 50 CFS).--No peak above base.

## BUENA VISTA LAKE BASIN

11196420 TEHACHAPI CREEK NEAR TEHACHAPI, CALIF.

LOCATION.--Lat 35°10'26", long 118°28'43", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.6, T.32 S., R.33 E., Kern County, on right bank 1.3 miles downstream from Brite Creek, and 3.2 miles northwest of Tehachapi.

DRAINAGE AREA.--53.2 sq mi.

PERIOD OF RECORD.--September 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,534.48 ft above mean sea level. Prior to Aug. 5, 1964, at site 0.2 mile upstream at different datum.

AVERAGE DISCHARGE.--8 years, 0.26 cfs (188 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 145 cfs Jan. 16, Feb. 10 (gage height, 1.38 ft), from rating curve extended above 63 cfs; minimum daily, 0.01 cfs Aug. 20.

Period of record: Maximum discharge, 1,700 cfs Aug. 8, 1963 (gage heights, 5.30 ft in gage well, 6.40 ft, from floodmarks, site and datum then in use), from slope-area measurement of maximum flow; no flow for parts of most years.

REMARKS.--Records poor prior to Apr. 14, good thereafter.

REVISIONS (WATER YEARS).--WRD Calif. 1967: 1966, WRD Calif. 1969: 1967(M).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	.05	.06	.06	.04	2.0	.48	.24	.24	.06	.04	.03
2	.05	.05	.06	.06	.04	.90	.47	.24	.15	.06	.04	.02
3	.05	.05	.06	.06	.04	.70	.45	.24	.15	.06	.04	.02
4	.05	.05	.06	.06	.04	.50	.43	.36	.15	.06	.03	.03
5	.05	.05	.06	.06	.04	1.2	.42	.36	.24	.06	.04	.03
6	.05	.20	.06	.06	.04	.98	.41	.50	.24	.06	.04	.03
7	.05	.10	.06	.06	.04	.90	.40	.50	.36	.06	.03	.03
8	.05	.06	.06	.06	.04	.84	.38	.50	.36	.06	.02	.03
9	.05	.06	.06	.06	2.0	.80	.37	.50	.50	.15	.02	.03
10	.05	.06	.06	.06	12	.76	.35	.50	.50	.15	.02	.03
11	.05	.06	.06	.07	1.8	.74	.34	.50	.66	.09	.02	.03
12	.05	.06	.06	.08	.10	.72	.33	.50	.66	.09	.03	.03
13	.05	.06	.06	.06	.14	.71	.40	.50	.66	.09	.03	.03
14	.05	.06	.06	.10	.10	.70	.45	.50	1.0	.09	.02	.04
15	.05	.06	.06	2.5	.10	.69	.36	.36	.66	.06	.03	.04
16	.05	.06	.06	16	.10	.68	.50	.24	.50	.06	.03	.04
17	.05	.06	.06	2.0	.18	.66	.50	.36	.50	.06	.04	.04
18	.05	.06	.06	.06	.10	.66	.36	.24	.36	.06	.03	.04
19	.05	.06	.06	.05	.10	.66	.36	.30	.36	.06	.02	.04
20	.05	.06	.06	.04	.10	.66	.24	.36	.36	.05	.01	.04
21	.05	.07	.07	.04	.10	.66	.36	.36	.36	.05	.02	.04
22	.05	.08	.08	.04	.10	.66	.36	.36	.24	.04	.02	.04
23	.05	.06	.07	.04	.10	.66	.36	.24	.15	.03	.02	.04
24	.05	.06	.06	.04	.10	.64	.36	.24	.06	.03	.02	.03
25	.05	.07	.08	.04	.10	.62	.36	.36	.06	.02	.02	.02
26	.05	.06	.07	.04	.10	.60	.36	.36	.06	.02	.03	.02
27	.05	.06	.08	.04	.10	.58	.83	.36	.06	.03	.03	.02
28	.05	.06	.06	.04	4.0	.55	.66	.36	.06	.02	.03	.02
29	.05	.06	.06	.04	-----	.53	.36	.36	.06	.02	.03	.02
30	.05	.06	.06	.04	-----	.51	.24	.24	.06	.02	.03	.03
31	.05	-----	.06	.04	-----	.50	-----	.15	-----	.03	.03	-----
TOTAL	1.54	1.97	1.95	22.00	21.84	22.97	12.25	11.19	9.78	1.80	.86	.93
MEAN	.050	.066	.063	.71	.78	.74	.41	.36	.33	.058	.028	.031
MAX	.05	.20	.08	16	12	2.0	.83	.50	1.0	.15	.04	.04
MIN	.04	.05	.06	.04	.04	.50	.24	.15	.06	.02	.01	.02
AC-FT	3.1	3.9	3.9	44	43	46	24	22	19	3.6	1.7	1.8
CAL YR 1969	TOTAL	527.40	MEAN	1.44	MAX	106	MIN	.02	ACFT	1,050		
WAT YR 1970	TOTAL	109.08	MEAN	.30	MAX	16	MIN	.01	ACFT	216		

## PEAK DISCHARGE (BASE, 10 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-16	unknown	1.38	145	2-28	unknown	0.70	17
2-10	unknown	1.38	145				

NOTE.--No gage-height record Oct. 21 to Dec. 15, Dec. 16 to Jan. 19, Jan. 22 to Mar. 16.



## 11197000 TULARE LAKE IN KINGS COUNTY, CALIF.

LOCATION.--Lat 36°02'36", long 119°38'34", in SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.1, T.22 S., R.21 E., Kings County, at El Rico Ranch, 6.0 miles southwest of Corcoran, and 14.2 miles southeast of Stratford.

PERIOD OF RECORD.--March 1906 to September 1920 (incomplete), February 1937 to September 1961, January 1969 to current year.

GAGE.--Nonrecording gage. Datum of gage is at mean sea level. March 1906 to September 1920 nonrecording gages at various sites at different datums. February 1937 to September 1958 water-stage recorder or nonrecording gage at various sites.

EXTREMES.--January to September 1969: Maximum contents during period, 997,000 acre-ft June 24 (elevation, 192.50 ft); lake dry Oct. 1 to Jan. 23.  
 Water year 1970: Maximum contents, 756,000 acre-ft Oct. 1 (elevation, 189.7 ft); minimum, 237,000 acre-ft Sept. 30 (elevation, 182.8 ft).  
 Period of record: Maximum elevation 196.8 ft June 27, 28, 1941; lake dry or practically dry for parts of 1906, 1914-16, 1919, 1937, 1946, 1950-53, 1955-56, 1958, 1969; lake dry for entire years 1920-22, 1924-36, 1947-49, 1954, 1957, 1959-61. Lake elevation of June 27, 28, 1941, was highest known since about 1890. Historical accounts indicate that Tulare Lake under natural conditions reached an elevation of 216 ft above mean sea level in 1862 and 1868. This lake elevation was the highest since at least the early 1800's.

REMARKS.--Tulare Lake receives water from Kings, Kaweah, and Tule Rivers during high-water periods and occasionally from Kern River, Deer Creek, and several small intermittent streams. Its natural boundary has been greatly altered by construction of levees and other reclamation work. Elevation at lowest point of lakebed is now about 175 ft above mean sea level, lower than previously determined because of variable subsidence. Since July 1969 storage has been reduced by evaporation and pumping for irrigation.

COOPERATION.--Records of elevation and sequence of flooding and dewatering furnished by J. G. Boswell Co. Area-capacity curves furnished by J. B. Summers, civil engineer, Corcoran, based on surveys in 1966.

## CONTENTS, IN ACRE-FEET, AT 0800, JANUARY TO SEPTEMBER 1969

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				-	72,700	284,000	541,000	758,000	838,000	983,000	904,000	810,000
2				-	81,300	284,000	542,000	773,000	839,000	979,000	900,000	808,000
3				-	89,400	281,000	547,000	778,000	841,000	979,000	895,000	806,000
4				-	97,600	294,000	552,000	784,000	848,000	973,000	892,000	804,000
5				-	106,000	310,000	556,000	787,000	858,000	971,000	889,000	802,000
6				-	112,000	323,000	562,000	793,000	865,000	970,000	897,000	800,000
7				-	117,000	328,000	571,000	799,000	875,000	968,000	894,000	798,000
8				-	122,000	340,000	583,000	802,000	883,000	966,000	891,000	796,000
9				-	127,000	352,000	591,000	811,000	893,000	965,000	887,000	794,000
10				-	134,000	361,000	599,000	814,000	902,000	961,000	883,000	792,000
11				-	143,000	375,000	607,000	822,000	916,000	960,000	880,000	790,000
12				-	151,000	388,000	625,000	826,000	929,000	956,000	875,000	788,000
13				-	149,000	405,000	631,000	820,000	937,000	953,000	870,000	786,000
14				-	152,000	412,000	642,000	823,000	943,000	950,000	865,000	783,000
15				-	156,000	420,000	645,000	825,000	948,000	946,000	860,000	780,000
16				-	160,000	425,000	653,000	825,000	957,000	944,000	856,000	778,000
17				-	162,000	429,000	663,000	828,000	966,000	942,000	852,000	775,000
18				-	167,000	445,000	677,000	831,000	974,000	940,000	849,000	772,000
19				-	172,000	448,000	680,000	836,000	976,000	938,000	846,000	770,000
20				-	175,000	454,000	690,000	838,000	984,000	936,000	843,000	768,000
21				100	178,000	468,000	698,000	834,000	988,000	934,000	840,000	767,000
22				1,000	177,000	472,000	705,000	835,000	991,000	931,000	837,000	765,000
23				6,000	177,000	477,000	703,000	836,000	994,000	928,000	834,000	764,000
24				12,200	177,000	482,000	710,000	837,000	997,000	925,000	831,000	762,000
25				15,700	195,000	492,000	715,000	837,000	993,000	922,000	828,000	760,000
26				19,200	210,000	497,000	724,000	838,000	992,000	919,000	824,000	758,000
27				25,100	265,000	504,000	732,000	838,000	992,000	916,000	820,000	756,000
28				36,600	268,000	508,000	740,000	832,000	990,000	912,000	817,000	756,000
29				47,000	-----	514,000	746,000	832,000	988,000	910,000	814,000	754,000
30				53,300	-----	521,000	752,000	833,000	984,000	908,000	812,000	752,000
31		-----		60,100	-----	529,000	-----	833,000	-----	907,000	812,000	-----
MAX				-	268,000	529,000	752,000	838,000	997,000	983,000	904,000	810,000
MIN				-	72,700	281,000	541,000	758,000	838,000	907,000	812,000	752,000
(a)				-	186.1	186.9	189.9	190.7	192.4	191.5	190.4	189.7
(b)				-	+208	+261	+223	+81	+151	-77	-95	-56

CAL YR 1968      b -      MAX -      MIN -  
 WTR YR 1969      b +756      MAX 997,000      MIN -

a Elevation, in feet, at end of month.

b Change in contents, in thousands of acre-feet.

## TULARE LAKE BASIN

11197000 TULARE LAKE IN KINGS COUNTY, CALIF.--Continued

CONTENTS, IN ACRE-FEET, AT 0800, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	750,000	710,000	697,000	681,500	668,000	668,000	643,000	600,000	551,000	483,000	399,000	302,000
2	748,000	709,500	696,000	681,000	668,000	675,000	641,000	599,000	550,000	480,000	396,000	299,000
3	746,000	709,000	696,000	680,000	668,000	674,000	639,000	598,000	548,000	477,000	390,000	296,000
4	744,000	708,500	695,000	679,500	668,000	673,500	637,000	597,000	546,000	473,000	387,000	293,000
5	742,000	708,000	695,000	679,000	668,000	673,000	635,000	596,000	544,000	470,000	384,000	290,000
6	740,000	708,000	694,000	678,500	668,000	672,500	634,000	595,000	542,000	467,000	380,000	287,000
7	738,000	707,500	694,000	678,000	668,000	672,000	633,000	594,000	540,000	465,000	377,000	284,000
8	736,000	707,000	693,000	677,500	668,000	671,500	632,000	593,000	538,000	463,000	374,000	282,000
9	734,000	706,500	693,000	677,000	668,000	671,000	631,000	592,000	536,000	460,000	370,000	280,000
10	732,000	706,000	692,000	676,500	668,000	670,500	630,000	591,000	534,000	456,000	367,000	277,000
11	730,000	706,000	691,000	676,000	668,000	670,000	628,000	590,000	530,000	455,000	363,000	274,000
12	728,000	705,500	690,000	675,500	668,000	669,500	627,000	589,000	527,000	453,000	360,000	271,000
13	726,000	705,000	690,000	675,000	668,000	669,000	626,000	588,000	525,000	451,000	356,000	268,000
14	724,000	705,000	689,000	674,500	668,000	668,500	625,000	587,000	523,000	449,000	353,000	265,000
15	722,000	704,500	688,000	674,000	668,000	668,000	623,000	585,000	521,000	447,000	350,000	262,000
16	720,000	704,000	688,000	673,500	668,000	667,500	621,000	582,000	520,000	445,000	348,000	259,000
17	718,000	704,000	687,000	673,000	668,000	667,000	619,000	580,000	518,000	442,000	346,000	256,000
18	716,000	703,500	686,000	672,500	668,000	666,500	617,000	578,000	516,000	439,000	344,000	253,000
19	715,500	703,000	685,000	672,000	668,000	666,000	615,000	575,000	514,000	436,000	341,000	250,000
20	715,000	702,500	684,900	672,000	668,000	665,500	614,000	572,000	512,000	434,000	338,000	248,000
21	715,000	702,000	684,800	671,500	668,000	665,000	612,000	570,000	511,000	431,000	335,000	246,000
22	714,500	702,000	684,700	671,000	668,000	664,000	611,000	567,000	509,000	428,000	332,000	244,000
23	714,000	701,500	684,600	671,000	668,000	663,000	610,000	564,000	507,000	425,000	329,000	243,000
24	714,000	701,000	684,400	670,500	668,000	662,000	609,000	562,000	505,000	421,000	326,000	242,000
25	713,500	701,000	684,300	670,000	668,000	660,000	607,000	559,000	503,000	417,000	322,000	242,000
26	713,000	700,500	684,200	670,000	668,000	657,000	606,000	557,000	501,000	414,000	319,000	241,000
27	712,500	700,000	684,000	669,500	668,000	654,000	604,000	556,000	498,000	411,000	318,000	240,000
28	712,000	699,000	683,000	669,000	668,000	651,000	602,000	555,000	495,000	408,000	317,000	239,000
29	711,500	698,000	682,500	669,000	-----	648,000	602,000	554,000	490,000	405,000	313,000	238,000
30	711,000	698,000	682,500	668,000	-----	646,000	601,000	553,000	485,000	403,000	310,000	237,000
31	710,500	-----	682,000	668,000	-----	645,000	-----	552,000	-----	401,000	306,000	-----
MAX	750,000	710,000	697,000	681,500	668,000	675,000	643,000	600,000	551,000	483,000	399,000	302,000
MIN	710,500	698,000	682,000	668,000	668,000	645,000	601,000	552,000	485,000	401,000	306,000	237,000
(a)	189.2	189.0	188.8	188.7	188.7	188.4	187.8	187.2	186.2	185.0	183.5	182.8
(b)	-40	-16	-18	-14	0	-23	-43	-45	-73	-82	-98	-67
CAL YR 1969	b +682		MAX 997,000		MIN -							
WTR YR 1970	b -519		MAX 750,000		MIN 237,000							

a Elevation, in feet, at end of month.

b Change in contents, in thousands of acre-feet.

## 11197250 AVENAL CREEK NEAR AVENAL, CALIF.

LOCATION.--Lat 35°51'15", long 120°07'34", in NW¼ sec.10, T.24 S., R.17 E., Kings County, on right bank 550 ft downstream from road ford, 0.4 mile downstream from unnamed tributary, and 10 miles south of Avenal.

DRAINAGE AREA --57.1 sq mi.

PERIOD OF RECORD.--October 1961 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 825 ft (from topographic map).

AVERAGE DISCHARGE.--9 years, 3.71 cfs (2,690 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 95 cfs Mar. 4 (gage height, 2.63 ft); no flow for several months.  
Period of record: Maximum discharge, 2,600 cfs Feb. 24, 1969 (gage height, 7.89 ft), from rating curve extended above 510 cfs on basis of slope-area measurements at gage heights 5.72 and 7.54 ft; no flow for several months in each year.

REMARKS.--Records good. Minor diversions for stock above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.63	.63	.54	.88	.73	21	.46	.38	.12			
2	.63	.63	.58	.88	.73	21	.42	.30	.01			
3	.68	.68	.58	.78	.73	.78	.45	.27	0			
4	.68	.63	.58	.78	.73	20	.46	.27	0			
5	.68	.54	.58	.78	.73	22	.46	.24	0			
6	.54	.63	.63	.68	.73	1.3	.48	.21	0			
7	.54	.68	.63	.54	.73	.88	.48	.24	0			
8	.58	.63	.68	.54	.68	.68	.50	.21	0			
9	.63	.58	.63	.54	.63	.63	.50	.21	0			
10	.63	.58	.63	.54	.73	.54	.54	.18	0			
11	.68	.54	.68	.50	.63	.54	.54	.18	0			
12	.68	.54	.68	.50	.58	.46	.54	.18	0			
13	.63	.54	.68	.50	.54	.42	.63	.15	0			
14	.68	.54	.68	.58	.58	.42	.63	.12	.03			
15	.68	.58	.73	.73	.54	.42	.58	.09	.03			
16	.68	.58	.73	.83	.54	.42	.58	.09	0			
17	.63	.58	.73	.83	.54	.42	.58	.06	0			
18	.68	.58	.73	.98	.54	.42	.54	.03	0			
19	.63	.54	.68	.88	.50	.42	.50	.06	0			
20	.63	.63	.83	.83	.46	.42	.54	.12	0			
21	.63	.63	.88	.78	.50	.42	.58	.12	0			
22	.73	.63	.88	.78	.42	.46	.54	.12	0			
23	.63	.63	.88	.78	.34	.46	.54	.09	0			
24	.68	.58	.83	.78	.34	.46	.50	.06	0			
25	.73	.58	.83	.78	.30	.42	.46	.06	0			
26	.68	.58	.83	.78	.27	.38	.46	.12	0			
27	.58	.63	.83	.78	.27	.38	.50	.15	0			
28	.58	.63	.88	.78	.24	.38	.46	.15	.04			
29	.54	.58	.88	.78	-----	.38	.46	.15	.02			
30	.54	.54	.93	.78	-----	.42	.42	.12	.01			
31	.63	-----	.93	.73	-----	.46	-----	.09	-----			-----
TOTAL	19.77	17.87	22.79	22.63	15.28	97.79	15.33	4.82	.26	0	0	0
MEAN	.64	.60	.74	.73	.55	3.15	.51	.16	.008	0	0	0
MAX	.73	.68	.93	.98	.73	22	.63	.38	.12	0	0	0
MIN	.54	.54	.54	.50	.24	.38	.42	.03	0	0	0	0
AC-FT	39	35	45	45	30	194	30	9.6	.5	0	0	0

CAL YR 1969 TOTAL 8,249.38 MEAN 22.6 MAX 1,190 MIN 0 ACFT 16,360  
WAT YR 1970 TOTAL 216.54 MEAN .59 MAX 22 MIN 0 ACFT 430

PEAK DISCHARGE (BASE, 30 CFS).--Mar. 1 (1400) 57 cfs (2.39 ft); Mar. 4 (1930) 95 cfs (2.63 ft).

## TULARE LAKE BASIN

11197800 POSO CREEK NEAR OILDALE, CALIF.

LOCATION.--Lat 35°30'50", long 118°54'17", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.6, T.28 S., R.29 E., Kern County, on downstream side of highway bridge opposite mouth of Hillvale Canyon, 10 miles northeast of Oildale, and 12 miles northeast of Bakersfield.

DRAINAGE AREA.--230 sq mi.

PERIOD OF RECORD.--July 1959 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 700 ft (from topographic map).

AVERAGE DISCHARGE.--11 years, 28.0 cfs (20,290 acre-ft per year); median of yearly mean discharges, 11 cfs (8,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 2,750 cfs Jan. 16 (gage height, 10.34 ft), from rating curve extended as explained below; minimum daily, 1.6 cfs Aug. 5, 6, 9.  
Period of record: Maximum discharge, 6,700 cfs Feb. 25, 1969 (gage height, 12.85 ft), from rating curve extended above 820 cfs on basis of contracted opening measurement at gage height 11.57 ft; minimum, 0.9 cfs July 26, 1961.

Flood of Apr. 4, 1958, reached a stage of 8.6 ft, from floodmarks (discharge, 2,750 cfs, furnished by Kern County Land Co.).

REMARKS.--Records good. Oilfield waste comprises most of low flow.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	6.7	12	23	31	41	25	30	3.9	2.6	1.9	2.3
2	3.5	6.7	13	21	30	66	23	27	3.2	2.3	1.8	2.3
3	3.7	5.8	14	21	29	98	23	26	2.8	2.8	1.9	2.3
4	3.7	5.3	13	20	29	76	21	23	2.6	2.8	1.9	2.6
5	4.2	7.2	12	18	27	96	21	18	2.6	2.8	1.6	2.6
6	4.4	6.2	13	19	26	102	20	17	2.6	2.8	1.6	2.8
7	4.9	11	13	20	26	94	21	18	3.0	3.0	1.9	3.0
8	4.4	14	13	20	25	82	20	18	3.2	3.0	1.9	3.0
9	3.9	13	15	21	25	73	20	18	3.2	3.2	1.6	3.5
10	4.4	10	16	27	31	78	19	17	3.5	3.0	1.9	3.2
11	4.9	11	17	44	40	84	20	17	4.2	3.0	2.6	3.0
12	4.9	10	18	41	36	69	21	17	5.8	2.9	2.3	3.0
13	4.9	10	18	40	33	62	23	16	5.8	2.9	2.1	3.2
14	5.8	10	18	40	42	57	30	14	5.3	2.8	2.6	3.0
15	5.8	11	17	60	57	57	29	12	5.3	2.8	2.6	3.0
16	5.3	11	17	812	46	55	27	10	4.2	2.8	2.6	3.0
17	5.3	14	17	936	42	49	27	10	3.9	2.8	2.8	2.8
18	5.3	15	17	412	43	48	25	8.5	3.7	2.3	3.0	3.0
19	5.8	15	17	156	40	43	23	7.6	3.9	2.3	2.8	2.6
20	4.9	14	19	96	35	40	23	6.2	3.5	2.3	3.0	2.3
21	4.2	13	24	69	31	34	24	6.7	3.2	2.3	3.2	2.3
22	4.2	12	24	53	31	31	24	6.7	3.0	2.1	3.2	2.6
23	4.2	13	30	44	29	30	23	6.7	3.0	2.1	3.2	2.8
24	4.4	12	27	42	27	31	22	5.3	3.5	1.9	3.2	2.6
25	4.4	12	25	62	28	31	21	5.3	2.8	2.3	3.0	2.6
26	4.9	12	31	42	27	31	21	5.3	2.8	2.6	3.0	3.0
27	6.2	14	44	37	25	29	23	5.3	3.0	2.6	2.8	3.0
28	6.2	13	34	55	29	30	27	4.9	3.0	2.8	2.3	3.0
29	7.2	13	29	41	-----	31	32	4.4	2.8	2.3	2.6	2.8
30	7.2	13	25	35	-----	30	31	4.4	2.6	1.8	2.3	2.8
31	7.2	-----	23	32	-----	29	-----	4.9	-----	1.9	2.8	-----
TOTAL	153.5	333.9	625	3,359	920	1,707	709	390.2	105.9	79.9	76.0	84.0
MEAN	4.95	11.1	20.2	108	32.9	55.1	23.6	12.6	3.53	2.58	2.45	2.80
MAX	7.2	15	44	936	57	102	32	30	5.8	3.2	3.2	3.5
MIN	3.2	5.3	12	18	25	29	19	4.4	2.6	1.8	1.6	2.3
AC-FT	304	662	1,240	6,660	1,820	3,390	1,410	774	210	158	151	167

CAL YR 1969 TOTAL 50,987.1 MEAN 140 MAX 3,180 MIN 1.9 ACFT 101,100  
WAT YR 1970 TOTAL 8,543.4 MEAN 23.4 MAX 936 MIN 1.6 ACFT 16,950

## PEAK DISCHARGE (BASE, 70 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-16	1900	10.34	2,750	3- 3	0700	6.80	105
1-25	0800	6.62	71	3- 6	1500	6.86	115

## TULARE LAKE BASIN

573

## 11200800 DEER CREEK NEAR FOUNTAIN SPRINGS, CALIF.

LOCATION.--Lat 35°56'30", long 118°49'19", in SE $\frac{1}{4}$  sec.10, T.23 S., R.29 E., Tulare County, on left bank 1.0 mile upstream from Pothole Creek, 6.3 miles northeast of Fountain Springs, and 12 miles east of Terra Bella.

DRAINAGE AREA.--83.3 sq mi.

PERIOD OF RECORD.--August 1968 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 980 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 1,810 cfs Jan. 16 (gage height, 7.91 ft), from rating curve extended as explained below; minimum daily, 0.24 cfs Aug. 18.

Period of record: Maximum discharge, 3,340 cfs Feb. 24, 1969 (gage height, 9.85 ft), from rating curve extended above 600 cfs on basis of slope-area measurements at gage height 8.83 ft in gage well, 9.18 ft and 12.54 ft, from floodmarks); no flow Aug. 14-22, 1968.

Flood of Dec. 6, 1966, reached a stage of 12.54 ft, from floodmarks (discharge, 5,330 cfs).

REMARKS --Records good. No storage or diversion above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.1	12	11	18	35	46	32	33	12	6.3	2.3	1.1
2	9.5	11	12	18	34	77	32	32	11	5.1	2.3	1.2
3	9.9	11	12	17	32	57	31	30	9.9	4.8	1.8	1.2
4	9.9	11	12	17	32	56	30	27	9.5	5.1	2.0	.88
5	9.5	11	12	16	31	79	28	23	9.1	4.8	1.8	1.1
6	9.5	12	12	16	29	62	28	22	9.1	4.3	1.8	1.5
7	9.5	19	12	16	28	62	28	24	9.5	3.6	1.8	1.4
8	9.5	16	12	16	27	58	28	23	9.1	3.6	1.7	1.1
9	9.5	14	13	17	24	54	27	23	11	4.0	1.6	1.2
10	10	14	13	46	26	57	27	24	15	4.8	1.6	1.1
11	11	13	12	32	34	52	27	22	14	4.3	1.3	1.2
12	11	13	12	32	30	49	27	21	12	3.8	.88	.88
13	9.9	13	12	34	32	48	26	20	13	3.3	1.3	.98
14	9.9	13	12	37	56	50	29	20	12	3.1	.72	1.4
15	9.9	14	12	63	40	50	28	19	12	2.6	.64	1.6
16	12	18	12	889	35	48	29	18	12	2.8	.52	1.6
17	16	16	12	247	40	48	28	17	11	3.3	.32	1.6
18	15	14	12	104	37	46	28	17	11	3.1	.24	1.4
19	14	13	13	68	34	44	27	17	9.9	2.9	.46	1.6
20	14	13	28	56	32	41	26	16	9.1	2.6	.58	1.5
21	13	12	19	49	34	40	27	16	7.6	2.3	.80	1.8
22	12	12	33	45	32	40	26	16	6.9	2.3	.46	2.1
23	12	12	21	42	31	39	24	16	6.6	2.3	.88	2.1
24	12	12	18	55	30	38	24	15	6.0	2.6	1.2	1.7
25	13	12	22	46	28	37	23	15	6.6	2.4	1.1	1.6
26	13	12	48	41	28	37	22	15	6.3	2.3	.64	1.7
27	13	11	27	45	27	36	34	14	6.3	2.4	.72	1.5
28	13	11	20	45	34	35	36	14	6.9	2.6	1.1	1.4
29	13	12	18	38	-----	35	33	13	7.2	2.3	1.4	1.5
30	13	12	18	37	-----	35	34	13	7.6	2.1	1.4	1.5
31	12	-----	18	36	-----	32	-----	12	-----	2.3	1.1	-----
TOTAL	357.6	389	520	2,238	912	1,488	849	607	289.2	104.1	36.46	42.44
MEAN	11.5	13.0	16.8	72.2	32.6	48.0	28.3	19.6	9.64	3.36	1.18	1.41
MAX	16	19	48	889	56	79	36	33	15	6.3	2.3	2.1
MIN	9.1	11	11	16	24	32	22	12	6.0	2.1	.24	.88
AC-FT	709	772	1,030	4,440	1,810	2,950	1,680	1,200	574	206	72	84

CAL YR 1969 TOTAL 42,932.40 MEAN 118 MAX 1,610 MIN 8.0 ACFT 85,160

WAT YR 1970 TOTAL 7,832.80 MEAN 21.5 MAX 889 MIN .24 ACFT 15,540

PEAK DISCHARGE (BASE, 100 CFS).--Jan. 16 (time unknown) 1,810 cfs (7.91 ft); Mar. 5 (0100) 115 cfs (3.86 ft).

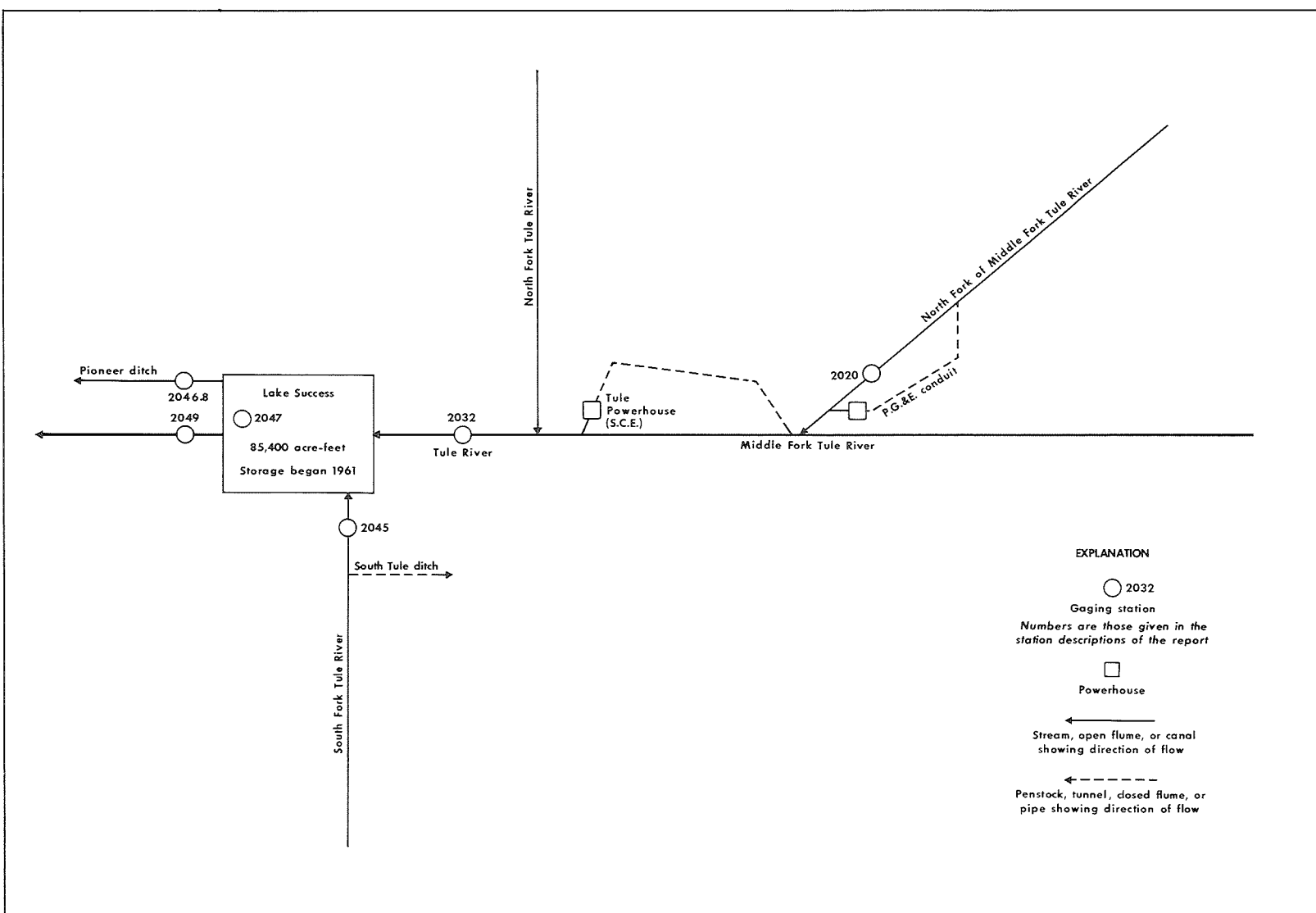


FIGURE 3.--Schematic diagram showing diversions and storage in Tule River basin.

## 11202000 NORTH FORK OF MIDDLE FORK TULE RIVER NEAR SPRINGVILLE, CALIF.

LOCATION.--Lat 36°10'29", long 118°41'41", in T.20 S., R.30 E. (unsurveyed), Tulare County, on right bank 1.2 miles upstream from mouth, 2.2 miles downstream from Hossack Creek, and 7.4 miles northeast of Springville.

DRAINAGE AREA.--39.3 sq mi.

PERIOD OF RECORD.--October 1939 to current year. Monthly discharge only for some periods, published in WSP 1315-A. January 1909 to December 1912 at site 2 miles upstream, records not equivalent. Prior to October 1954, records for river and conduit published separately; combined flow only, October 1954 to September 1960.

GAGE.--Water-stage recorder. Concrete control on river since Aug. 6, 1958. Water-stage recorder and rectangular concrete channel for conduit diversion. Altitude of gage is 2,920 ft (from topographic map).

AVERAGE DISCHARGE (River only).--31 years, 27.8 cfs (20,140 acre-ft per year).  
(Combined river and diversion).--31 years, 59.3 cfs (42,960 acre-ft per year).

EXTREMES (River only).--Current year: Maximum discharge, 2,430 cfs Jan. 16 (gage height, 7.79 ft), from rating curve extended above 390 cfs as explained below; minimum daily, 2.7 cfs Aug. 21, 24, Sept. 17.  
Period of record: Maximum discharge, 16,900 cfs Dec. 6, 1966 (gage height, 13.83 ft, from floodmarks), from rating curve extended above 270 cfs on basis of critical-depth determinations at gage heights 9.67 and 12.47 ft; no flow Sept. 10, 11, 1955.  
(Combined flow).--Current year: Maximum discharge, 2,460 cfs Jan. 16; minimum daily, 16 cfs Sept. 26, 27.  
Period of record: Maximum discharge, 16,900 cfs Dec. 6, 1966; minimum daily, 7.2 cfs Aug. 18, Oct. 17, 1961.

REMARKS.--Pacific Gas and Electric Co. conduit diverts 2.5 miles upstream from station; water is returned to North Fork of Middle Fork Tule River 1.1 miles downstream from station. For records of combined discharge of river and conduit, see following page.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

REVISIONS (WATER YEARS).--WSP 1445: 1951. WSP 1930: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.9	8.0	15	7.8	29	20	9.0	10	22	6.0	3.1	3.0
2	6.9	8.0	21	6.5	26	32	9.2	10	18	5.3	3.0	2.9
3	6.9	7.2	21	4.9	24	22	8.8	11	14	5.6	3.1	2.8
4	6.9	5.9	15	4.9	29	20	8.6	11	8.8	4.8	3.0	2.9
5	6.9	7.4	5.6	4.8	20	20	8.6	14	6.1	3.8	3.0	3.5
6	6.9	8.6	5.1	4.7	18	20	8.8	21	6.2	3.8	3.0	4.0
7	6.9	8.2	5.2	4.7	18	19	9.8	18	8.5	3.8	3.0	3.8
8	6.9	7.0	5.5	4.7	18	18	9.6	20	16	3.8	2.9	3.9
9	6.9	7.5	6.0	9.5	16	18	10	22	18	3.7	3.0	3.7
10	6.7	7.2	5.7	4.9	19	20	14	31	12	3.7	3.0	3.2
11	6.7	6.3	5.1	15	23	18	18	30	9.2	3.6	3.3	3.1
12	6.7	5.4	5.0	9.8	20	18	18	28	8.8	3.6	3.3	3.3
13	6.7	5.4	4.9	7.0	25	19	17	29	9.2	3.5	3.1	2.9
14	6.7	5.4	4.9	4.2	26	21	17	40	10	3.5	2.8	3.0
15	7.2	5.5	4.8	3.7	21	21	12	53	10	3.4	2.8	2.9
16	8.8	6.6	4.9	899	19	22	9.8	62	8.9	3.4	2.8	2.9
17	8.9	5.7	4.8	241	29	22	8.6	64	7.9	3.3	2.9	2.7
18	8.8	7.4	4.7	122	21	18	8.1	64	7.9	3.3	2.8	2.8
19	8.7	5.7	20	78	18	15	7.9	59	7.8	3.3	2.9	3.0
20	8.4	5.3	18	62	15	15	7.7	53	8.2	3.3	3.0	3.1
21	17	5.3	21	53	13	15	7.8	48	9.0	3.2	2.7	3.0
22	21	5.7	22	47	12	15	7.5	48	8.2	3.2	2.8	3.1
23	13	5.6	7.9	46	11	15	7.2	51	7.7	3.2	2.8	2.9
24	7.4	5.2	5.6	98	11	15	7.1	53	8.1	3.2	2.7	3.2
25	7.7	5.1	48	67	11	19	7.1	50	8.1	3.2	2.9	3.3
26	7.8	5.1	22	56	11	24	7.5	40	8.1	3.1	3.1	3.3
27	7.9	5.1	9.8	57	11	20	8.6	39	9.8	3.1	3.2	4.9
28	8.0	5.5	8.9	46	15	18	8.4	35	7.9	3.1	3.1	4.0
29	7.8	5.4	8.6	40	-----	16	8.2	31	7.7	3.1	3.0	4.5
30	6.9	5.3	8.4	35	-----	14	8.9	28	7.6	3.1	3.2	4.0
31	7.7	-----	7.9	31	-----	11	-----	26	-----	3.1	3.2	-----
TOTAL	258.6	187.0	352.3	2,190.3	529	580	298.8	1,099	299.7	113.1	92.5	99.6
MEAN	8.34	6.23	11.4	70.7	18.9	18.7	9.96	35.5	9.99	3.65	2.98	3.32
MAX	21	8.6	48	899	29	32	18	64	22	6.0	3.3	4.9
MIN	6.7	5.1	4.7	4.7	11	11	7.1	10	6.1	3.1	2.7	2.7
AC-FT	513	371	699	4,340	1,050	1,150	593	2,180	594	224	183	198
CAL YR 1969	TOTAL	41,651.5	MEAN	114	MAX	2,640	MIN	1.9	AC-FT	82,620		
WTR YR 1970	TOTAL	6,099.9	MEAN	16.7	MAX	899	MIN	2.7	AC-FT	12,100		

## TULARE LAKE BASIN

11202000 NORTH FORK OF MIDDLE FORK TULE RIVER NEAR SPRINGVILLE, CALIF.--Continued

COMBINED DISCHARGE, IN CUBIC FEET PER SECOND, OF NORTH FORK OF MIDDLE FORK TULE RIVER AND  
PACIFIC GAS AND ELECTRIC CO. CONDUIT NEAR SPRINGVILLE, CALIF., WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	26	21	29	62	67	67	69	85	37	23	19
2	30	26	22	30	59	80	67	71	81	34	23	19
3	31	26	21	28	57	65	68	74	77	34	23	19
4	31	26	24	28	55	62	68	75	74	34	23	19
5	30	25	25	27	54	64	70	78	69	33	22	20
6	30	33	24	27	53	65	73	84	66	32	22	20
7	30	32	24	27	53	66	75	81	67	32	22	20
8	30	29	26	28	53	66	75	83	70	32	21	20
9	30	29	25	38	51	65	76	85	78	32	21	20
10	30	28	26	83	55	68	80	94	68	32	21	18
11	30	28	25	47	59	63	84	93	63	31	21	17
12	30	27	25	43	56	63	84	91	61	31	20	18
13	29	27	25	38	61	68	83	92	59	30	21	18
14	29	27	25	76	62	76	83	103	57	30	21	18
15	29	28	24	71	57	79	77	116	55	28	20	18
16	35	33	24	921	55	80	74	125	54	28	20	18
17	34	29	24	242	65	83	71	127	52	27	20	18
18	32	26	24	144	57	79	67	127	50	27	20	18
19	33	28	49	112	55	72	65	122	49	27	20	18
20	30	26	52	96	52	70	63	116	47	26	20	18
21	22	26	49	87	52	71	63	111	46	26	20	18
22	27	26	53	84	50	72	61	111	45	26	20	18
23	29	26	36	79	48	74	59	114	44	26	20	18
24	27	25	32	132	48	79	59	116	42	25	20	17
25	28	25	80	100	48	84	61	113	42	25	19	17
26	27	25	54	89	48	88	63	103	40	26	19	16
27	27	25	40	90	48	83	64	102	43	25	19	16
28	26	25	34	79	57	81	61	98	42	24	19	17
29	28	25	33	73	-----	78	61	94	41	24	19	17
30	27	24	30	68	-----	74	65	91	40	24	19	18
31	26	-----	30	64	-----	71	-----	89	-----	24	18	-----
TOTAL	906	811	1,006	3,080	1,530	2,256	2,087	3,048	1,707	892	636	545
MEAN	29.2	27.0	32.5	99.4	54.6	72.8	69.6	98.3	56.9	28.8	20.5	18.2
MAX	35	33	80	921	65	88	84	127	85	37	23	20
MIN	22	24	21	27	48	62	59	69	40	24	18	16
AC-FT	1,800	1,610	2,000	6,110	3,030	4,470	4,140	6,050	3,390	1,770	1,260	1,080
CAL YR 1969	TOTAL	57,693	MEAN	158	MAX	2,640	MIN	21	AC-FT	114,400		
WTR YR 1970	TOTAL	18,504	MEAN	50.7	MAX	921	MIN	16	AC-FT	36,700		



## 11203200 TULE RIVER NEAR SPRINGVILLE, CALIF.

LOCATION.--Lat 36°06'02", long 118°52'07", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.17, T.21 S., R.29 E., Tulare County, on left bank 10 ft downstream from highway bridge, 3.5 miles southwest of Springville, and 4.1 miles upstream from Success Dam.

DRAINAGE AREA.--247 sq mi.

PERIOD OF RECORD.--October 1957 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 680 ft (from topographic map). Prior to Mar. 20, 1968, at site 1.9 miles upstream at different datum.

AVERAGE DISCHARGE.--13 years, 149 cfs (108,000 acre-ft per year); median of yearly mean discharges, 99 cfs (71,700 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 9,660 cfs Jan. 16; minimum daily, 7.7 cfs Sept. 2.

Period of record: Maximum discharge, 49,600 cfs Dec. 6, 1966 (gage height, 17.18 ft in gage well, 19.7 ft, from floodmarks, site and datum then in use), from rating curve extended above 7,400 cfs on basis of slope-area measurement of maximum flow; no flow for many days in 1961.

Flood in December 1955 reached a stage of 13.7 ft, from floodmarks (discharge, 21,000 cfs).

REMARKS.--Records good. Many small diversions above station for irrigation. Power is developed on Middle Fork and tributaries. Diversion to Tule River diversion ditch starts 400 ft upstream most of which is returned to the river 0.5 mile downstream. Records since Mar. 20, 1968, include flow diverted to Tule River diversion ditch. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	54	60	85	194	289	184	157	134	46	15	8.1
2	47	54	56	82	182	718	178	162	124	42	15	7.7
3	47	54	57	78	170	426	178	159	118	41	17	8.1
4	47	51	57	75	167	376	172	155	109	40	17	8.5
5	47	49	63	71	160	487	169	155	105	35	16	9.6
6	47	59	62	68	152	336	166	162	97	34	15	11
7	47	94	62	68	150	320	169	163	94	30	15	12
8	47	82	62	68	144	294	172	163	89	27	13	10
9	48	71	64	72	144	277	174	160	101	30	16	10
10	47	69	66	305	150	306	177	170	113	35	14	10
11	47	67	66	178	185	273	177	170	107	34	13	9.9
12	47	66	64	162	164	254	180	163	96	32	13	9.4
13	47	66	63	138	162	251	174	160	92	31	13	10
14	46	66	63	201	311	277	171	168	92	28	12	11
15	49	66	62	385	197	289	166	180	89	25	12	12
16	61	73	62	4,330	179	289	168	189	83	24	12	12
17	74	76	62	1,410	270	285	160	192	80	22	12	12
18	75	72	62	696	222	277	157	196	74	20	12	12
19	69	66	63	432	194	251	148	192	71	20	12	13
20	65	66	232	338	173	240	144	186	68	20	12	15
21	61	66	116	287	170	232	144	176	65	20	12	15
22	56	66	220	267	162	228	142	174	60	20	10	14
23	56	66	129	256	154	225	134	176	53	20	10	13
24	61	66	102	468	152	236	132	176	50	20	12	12
25	60	65	152	375	141	232	130	179	47	19	13	12
26	59	65	260	307	141	240	134	165	47	18	10	12
27	60	63	137	295	141	232	154	162	45	20	10	12
28	60	62	113	282	202	222	151	157	46	18	10	12
29	58	62	99	254	-----	211	144	148	48	15	10	11
30	58	62	94	237	-----	204	146	144	48	15	11	9.9
31	57	-----	89	225	-----	194	-----	142	-----	15	10	-----
TOTAL	1,697	1,964	2,919	12,495	4,933	8,971	4,795	5,201	2,445	816	394	334.2
MEAN	54.7	65.5	94.2	403	176	289	160	168	81.5	26.3	12.7	11.1
MAX	75	94	260	4,330	311	718	184	196	134	46	17	15
MIN	46	49	56	68	141	194	130	142	45	15	10	7.7
AC-FT	3,370	3,900	5,790	24,780	9,780	17,790	9,510	10,320	4,850	1,620	782	663
CAL YR 1969	TOTAL	186,752.0	MEAN	512	MAX	10,400	MIN	42	ACFT	370,400		
WAT YR 1970	TOTAL	46,964.2	MEAN	129	MAX	4,330	MIN	7.7	ACFT	93,150		

## PEAK DISCHARGE (BASE, 350 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-20	0430	-	430	1-24	1400	-	688
12-25	2200	-	450	2-14	0230	-	517
1-10	1100	-	509	2-17	1000	-	374
1-14	2400	-	765	3- 2	1000	-	961
1-16	1230	-	9,660	3- 4	2400	-	857

## TULARE LAKE BASIN

11204500 SOUTH FORK TULE RIVER NEAR SUCCESS, CALIF.

LOCATION.--Lat 36°02'33", long 118°51'24", in NW¼SW¼ sec.4, T.22 S., R.29 E., Tulare County, on left bank 0.5 mile upstream from Crew Creek, 4 miles southeast of Success, and 5 miles upstream from mouth.

DRAINAGE AREA.--109 sq mi.

PERIOD OF RECORD --June 1930 to December 1954, January 1956 to current year. Monthly and yearly discharge only for some periods, published in WSP 1735.

GAGE.--Water-stage recorder. Altitude of gage is 770 ft (from topographic map). Prior to June 26, 1951, at site 0.4 mile downstream at different datum.

AVERAGE DISCHARGE.--38 years, 42.0 cfs (30,430 acre-ft per year); median of yearly mean discharges, 28 cfs (20,300 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 3,400 cfs Jan. 16 (gage height, 7.44 ft); minimum daily, 0.39 cfs Sept. 12.

Period of record: Maximum discharge, 14,300 cfs Dec. 6, 1966 (gage height, 12.50 ft in gage well, 13.3 ft, from floodmarks), from rating curve extended above 4,300 cfs on basis of slope-area measurement of maximum flow; no flow at times in most years.

REMARKS.--Records good. Diversions for irrigation of 1,600 acres above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	12	15	22	55	73	52	47	18	7.1	1.9	.53
2	10	11	15	20	54	127	50	47	16	6.7	1.9	.58
3	10	11	15	18	51	98	49	43	16	6.4	1.8	.59
4	10	11	15	18	50	96	48	39	16	6.4	1.7	.63
5	10	12	15	16	49	114	46	38	15	6.0	1.2	.83
6	10	17	15	18	47	94	46	38	15	5.8	1.0	.88
7	10	34	15	20	46	92	44	38	15	5.5	1.0	.91
8	10	20	15	19	46	87	43	38	14	5.1	1.0	.84
9	10	17	18	22	42	81	42	37	19	4.6	.88	.73
10	12	18	17	96	44	83	41	38	22	4.7	.83	.65
11	13	18	15	50	54	77	38	36	20	4.7	.70	.51
12	12	17	15	48	46	74	38	35	17	4.4	.68	.39
13	10	17	14	44	48	74	37	34	17	4.4	.70	.57
14	10	16	14	60	82	78	40	34	16	3.8	.77	1.4
15	12	16	14	99	60	80	39	33	16	3.6	.50	.88
16	16	26	14	1,270	51	78	41	31	15	3.2	.44	1.8
17	22	26	14	285	67	77	40	30	14	3.2	.43	2.8
18	20	19	14	150	57	74	38	30	14	3.0	.48	1.9
19	17	18	16	110	52	70	38	29	13	2.9	.54	3.1
20	16	18	59	86	48	69	37	29	12	2.8	.52	5.3
21	15	17	26	73	50	68	37	29	12	2.4	.54	4.5
22	15	17	64	69	46	67	36	28	11	2.1	.49	.97
23	14	17	31	64	45	66	35	27	11	1.9	.48	.70
24	15	16	23	119	44	64	34	25	9.9	1.9	.49	.46
25	15	16	44	91	43	64	32	25	8.2	1.8	.48	.49
26	15	16	66	74	41	64	36	25	7.5	1.8	.51	.49
27	15	16	34	75	41	62	49	24	8.1	1.9	.52	.49
28	15	16	30	74	58	60	43	23	7.7	2.4	.49	.41
29	15	16	27	64	-----	58	40	22	7.2	2.3	.50	.40
30	14	16	26	59	-----	57	42	21	7.5	2.4	.45	.43
31	14	-----	24	57	-----	54	-----	20	-----	2.4	.49	-----
TOTAL	413	517	739	3,290	1,417	2,380	1,231	993	410.1	117.6	24.41	35.16
MEAN	13.3	17.2	23.8	106	50.6	76.8	41.0	32.0	13.7	3.79	.79	1.17
MAX	22	34	66	1,270	82	127	52	47	22	7.1	1.9	5.3
MIN	10	11	14	16	41	54	32	20	7.2	1.8	.43	.39
AC-FT	819	1,030	1,470	6,530	2,810	4,720	2,440	1,970	813	233	48	70

CAL YR 1969 TOTAL 62,080.80 MEAN 170 MAX 2,670 MIN 9.6 ACFT 123,100  
WAT YR 1970 TOTAL 11,567.27 MEAN 31.7 MAX 1,270 MIN .39 ACFT 22,940

## PEAK DISCHARGE (BASE, 200 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-14	2230	3.72	254	1-24	1100	3.60	222
1-16	1330	7.44	3,400	3- 4	2200	3.52	203

## TULARE LAKE BASIN

579

## 11204680 PIONEER DITCH BELOW SUCCESS DAM, CALIF.

LOCATION.--Lat 36°03'34", long 118°55'22", in NW $\frac{1}{4}$  sec.35, T.21 S., R.28 E., Tulare County, on left bank 0.1 mile downstream from Success Dam and 5.5 miles east of Porterville.

PERIOD OF RECORD.--April 1959 to current year. Prior to October 1960, monthly diversions only, published with Tule River near Porterville.

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 549.00 ft above mean sea level (levels by Corps of Engineers). Prior to Feb. 1, 1961, at site 0.5 mile downstream at different datum.

AVERAGE DISCHARGE.--11 years, 7.43 cfs (5,380 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 29 cfs Apr. 15, 1961; no flow at times in most years.

REMARKS.--Records excellent. Ditch receives water from Lake Success (see sta 11204700).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	10	5.1	0	0	0	11	12	16	15	11	12
2	10	10	5.1	0	0	0	7.5	13	16	15	11	12
3	10	10	5.1	0	0	0	5.8	14	12	15	12	12
4	10	10	5.1	0	0	0	5.8	14	12	15	12	12
5	10	10	5.1	0	0	0	5.8	14	13	15	12	12
6	10	10	5.1	0	0	0	8.2	14	13	15	12	12
7	10	10	5.1	0	0	0	9.4	14	13	15	12	11
8	10	9.6	5.1	0	0	0	11	14	15	15	13	9.9
9	10	9.6	5.1	0	0	0	11	14	15	14	10	9.9
10	10	9.3	4.7	0	0	0	11	14	15	14	7.5	11
11	10	10	4.7	0	0	0	12	14	15	12	7.5	11
12	10	10	4.7	0	0	0	12	14	15	11	7.5	11
13	10	9.5	4.7	0	0	0	12	14	15	10	10	11
14	10	9.1	4.7	0	0	0	8.4	15	15	11	12	11
15	10	9.1	4.7	0	0	0	7.9	15	15	11	12	11
16	10	9.1	4.7	0	0	0	7.9	15	15	11	12	11
17	10	9.1	4.7	0	0	0	7.9	11	15	11	12	11
18	9.4	9.1	4.7	0	0	0	7.9	8.6	15	11	12	11
19	9.4	9.1	4.7	0	0	0	7.9	10	15	11	12	11
20	10	10	4.7	0	0	0	7.9	12	15	12	12	11
21	10	4.6	4.7	0	0	0	7.9	13	15	14	12	11
22	10	0	4.7	0	0	0	7.9	13	15	14	12	11
23	10	0	0	0	0	0	7.9	13	15	14	11	11
24	10	0	0	0	0	0	11	13	15	14	10	11
25	10	3.0	0	0	0	0	11	13	15	14	11	12
26	10	4.5	0	0	0	0	11	15	15	14	12	12
27	10	4.7	0	0	0	0	11	16	15	14	12	12
28	10	5.0	0	0	0	0	11	16	15	14	12	12
29	10	5.1	0	0	-----	0	12	16	15	14	12	12
30	10	5.1	0	0	-----	3.4	12	16	15	12	12	11
31	10	-----	0	0	-----	8.3	-----	16	-----	11	12	-----
TOTAL	309.8	224.6	107.0	0	0	11.7	281.0	425.6	440	408	349.5	338.8
MEAN	9.99	7.49	3.45	0	0	.38	9.37	13.7	14.7	13.2	11.3	11.3
MAX	11	10	5.1	0	0	8.3	12	16	16	15	13	12
MIN	9.4	0	0	0	0	0	5.8	8.6	12	10	7.5	9.9
AC-FT	614	445	212	0	0	23	557	844	873	809	693	672
CAL YR 1969	TOTAL 2,575.80		MEAN 7.06		MAX 15		MIN 0		AC-FT 5,110			
WTR YR 1970	TOTAL 2,896.00		MEAN 7.93		MAX 16		MIN 0		AC-FT 5,740			

## TULARE LAKE BASIN

## 11204700 LAKE SUCCESS NEAR SUCCESS, CALIF.

LOCATION.--Lat 36°03'40", long 118°55'18", in SE¼NW¼ sec.35, T.21 S., R.28 E., Tulare County, in control tower near right abutment of Success Dam on Tule River, 5 miles east of Porterville.

DRAINAGE AREA.--391 sq mi.

PERIOD OF RECORD.--November 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers).

EXTREMES.--Current year: Maximum contents, 45,380 acre-ft June 1-3 (elevation, 631.00 ft); minimum, 7,895 acre-ft Jan. 6 (elevation, 589.13 ft).  
Period of record: Maximum contents, 101,300 acre-ft Dec. 7, 1966 (elevation, 658.63 ft); minimum since reservoir first filled, 7,895 acre-ft Jan. 6, 1970 (elevation, 589.13 ft).

REMARKS.--Lake is formed by earthfill dam and dike. Storage began November 1961. Usable capacity, 85,440 acre-ft between elevations 559.0 ft (invert of outlet structure) and 652.5 ft (spillway crest). Surcharge flood control storage, 117,400 acre-ft between ungated spillway crest and elevation 686.8 ft (maximum spillway design flood pool). Dead storage 720 acre-ft. Records, including extremes, represent usable contents at 2400 hours.

COOPERATION.--Record of contents furnished by Corps of Engineers, not rounded to Geological Survey standards.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

580	4,010	620	32,006
585	5,903	640	59,546
590	8,378	660	105,146
600	14,935	690	217,161

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42,091	19,700	9,454	8,658	30,260	25,567	31,568	38,482	45,380	35,460	21,079	15,757
2	41,296	19,030	9,479	8,436	30,089	26,581	31,745	38,837	45,380	35,449	20,612	15,692
3	40,489	18,385	9,516	8,231	29,919	27,009	31,901	39,072	45,380	35,460	20,125	15,627
4	39,706	17,765	9,547	8,016	29,729	27,365	32,058	39,245	45,268	35,472	19,920	15,548
5	38,936	17,160	9,602	7,922	29,521	28,021	32,247	39,382	44,879	35,415	19,660	15,434
6	38,105	16,651	9,658	7,895	29,284	28,241	32,437	39,544	44,479	34,961	19,387	15,319
7	37,301	16,213	9,727	8,011	29,038	28,434	32,618	39,706	44,069	34,468	19,115	15,176
8	36,488	15,706	9,789	8,185	28,803	28,560	32,799	39,857	43,771	33,926	18,852	15,013
9	35,712	15,176	9,864	8,384	28,550	28,628	32,949	40,071	43,541	33,293	18,576	14,828
10	34,939	14,652	9,952	9,258	28,338	28,735	33,218	40,298	43,366	32,682	18,324	14,645
11	34,235	14,104	10,053	9,777	28,193	28,774	33,532	40,642	43,192	32,132	18,104	14,454
12	33,510	13,548	10,148	10,243	27,982	28,764	33,849	40,987	42,965	31,599	17,870	14,258
13	32,788	12,991	10,015	10,371	27,782	28,754	34,168	41,309	42,725	31,043	17,622	14,062
14	32,079	12,440	9,864	10,519	27,925	28,774	34,535	41,660	42,500	30,584	17,480	13,867
15	31,351	11,889	9,652	11,260	27,830	28,852	34,882	42,039	42,157	30,099	17,375	13,694
16	30,685	11,345	9,436	23,427	27,659	28,920	35,244	42,420	41,751	29,610	17,286	13,514
17	30,059	10,835	9,216	26,268	27,706	28,959	35,597	42,698	41,348	29,077	17,167	13,341
18	29,392	10,263	8,998	27,243	27,659	28,989	35,896	42,925	40,923	28,580	17,012	13,190
19	28,677	9,671	8,824	27,668	27,526	28,950	36,058	43,112	40,501	28,059	16,871	13,019
20	27,944	9,076	9,076	27,935	27,356	28,871	36,185	43,272	40,033	27,507	16,776	12,855
21	27,177	8,974	9,325	28,165	27,196	28,774	36,289	43,407	39,519	26,962	16,687	12,698
22	26,415	9,040	9,858	28,386	26,962	28,677	36,406	43,528	39,121	26,452	16,599	12,522
23	25,630	9,112	9,839	28,541	26,748	28,570	36,499	43,636	38,764	25,893	16,519	12,407
24	24,903	9,179	9,658	29,195	26,517	28,852	36,616	43,744	38,397	25,323	16,439	12,319
25	24,198	9,228	9,553	29,630	26,250	29,274	36,722	44,002	37,972	24,743	16,351	12,204
26	23,470	9,270	9,852	29,879	25,920	29,709	36,840	44,246	37,540	24,163	16,249	12,110
27	22,832	9,313	9,770	30,139	25,576	30,089	37,159	44,479	37,111	23,573	16,184	12,037
28	22,212	9,350	9,602	30,321	25,449	30,422	37,480	44,741	36,663	23,018	16,089	11,916
29	21,625	9,380	9,380	30,412	-----	30,746	37,816	44,962	36,255	22,479	16,010	11,876
30	20,990	9,423	9,161	30,462	-----	31,053	38,105	45,212	35,850	21,988	15,923	11,863
31	20,348	-----	8,908	30,391	-----	31,331	-----	45,338	-----	21,527	15,851	-----
MAX	42,091	19,700	10,148	30,462	30,260	31,331	38,105	45,338	45,380	35,472	21,079	15,757
MIN	20,348	8,974	8,824	7,895	25,449	25,567	31,568	38,482	35,850	21,527	15,851	11,863
(a)	607.22	591.75	590.90	618.43	613.25	619.35	625.41	630.97	623.50	608.68	601.28	595.54
(b)	-22,352	-10,925	-515	+21,483	-4,942	+5,882	+6,774	+7,233	-9,488	-14,323	-5,676	-3,988
(c)	468	159	79	92	127	263	440	832	940	853	664	509
CAL YR 1969	MAX 95,300	MIN 8,824	(b) -1,992									
WAT YR 1970	MAX 45,380	MIN 7,895	(b) -30,837									

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

c Evaporation, in acre-feet.

## 11204900 TULE RIVER BELOW SUCCESS DAM, CALIF.

LOCATION.--Lat 36°03'23", long 118°55'22", in SW $\frac{1}{4}$  sec.35, T.21 S., R.28 E., Tulare County, on right bank 1,000 ft downstream from Success Dam, and 5 miles east of Porterville.

DRAINAGE AREA.--393 sq mi.

PERIOD OF RECORD.--October 1953 to current year. Prior to October 1960, published as "at Worth Bridge, near Porterville."

GAGE.--Water-stage recorder and broad-crested weir. Datum of gage is 536.00 ft above mean sea level (levels by Corps of Engineers). Prior to October 1960, at site 0.5 mile downstream at different datum.

AVERAGE DISCHARGE (adjusted for storage, diversion, and evaporation).--17 years, 181 cfs (131,100 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 459 cfs Oct. 6 (gage height, 5.83 ft); minimum daily, 2.9 cfs Sept. 30.

Period of record: Maximum discharge, 27,000 cfs Dec. 23, 1955 (gage height, 21.65 ft, site and datum then in use), from rating curve extended above 1,400 cfs on basis of studies of upstream peaks; no flow at times in 1954-57, 1959-62, 1965. Maximum discharge since construction of Success Dam in 1961, 9,050 cfs Dec. 6, 1966 (includes flow through spillway).

Flood of Nov. 19, 1950, reached a stage of 26 ft, from floodmarks, site and datum then in use (discharge, 32,000 cfs).

REMARKS.--Records good. Flow regulated by Lake Success beginning Nov. 23, 1961 (see sta 11204700). Discharge records during periods of high flow include flow over spillway that bypasses the gaging station. Pioneer ditch (see sta 11204680) diverts above station for irrigation. Records of chemical analyses for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	323	385	55	215	323	355	99	19	105	219	216	33
2	430	382	57	201	323	357	118	19	108	36	225	25
3	439	371	57	191	323	355	125	67	108	18	246	20
4	435	365	56	191	323	355	125	100	164	18	89	24
5	433	364	55	134	323	355	120	104	287	40	112	40
6	450	360	52	103	323	355	100	101	308	248	119	52
7	459	360	52	51	323	357	102	100	293	251	119	59
8	447	349	52	29	321	360	108	99	235	280	127	71
9	438	345	52	29	320	358	118	86	203	315	127	77
10	426	345	44	29	320	358	70	79	188	321	124	77
11	417	343	39	29	320	358	37	31	186	300	111	76
12	414	343	39	30	319	358	37	12	193	291	111	76
13	414	340	130	128	318	358	24	12	196	297	108	76
14	414	335	154	165	318	358	12	16	196	243	60	76
15	414	330	151	203	318	358	14	19	254	257	43	72
16	414	328	164	320	318	358	18	19	282	275	42	69
17	414	327	168	375	323	358	18	66	282	273	50	69
18	422	340	168	377	323	360	32	99	280	260	68	69
19	426	340	168	348	323	360	95	108	276	264	59	69
20	439	330	165	312	323	360	108	111	294	272	42	69
21	450	123	67	273	323	360	106	117	300	261	37	69
22	447	55	48	253	323	360	101	121	242	256	35	66
23	446	54	173	253	323	360	96	121	211	264	35	50
24	438	54	202	253	321	156	94	121	221	276	35	37
25	423	54	209	253	335	84	94	57	242	283	35	37
26	411	55	216	253	355	91	94	35	245	286	34	37
27	393	55	219	256	362	95	35	35	245	289	34	37
28	385	55	219	258	357	95	16	29	245	268	34	37
29	355	55	219	258	-----	95	19	26	243	257	34	16
30	385	55	215	258	-----	94	20	26	229	243	34	2.9
31	385	-----	215	301	-----	97	-----	74	-----	225	33	-----
TOTAL	12,986	7,597	3,880	6,329	9,124	9,038	2,155	2,029	6,861	7,386	2,578	1,587.9
MEAN	419	253	125	204	326	292	71.8	65.5	229	238	83.2	52.9
MAX	459	385	219	377	362	360	125	121	308	321	246	77
MIN	323	54	39	29	318	84	12	12	105	18	33	2.9
AC-FT	25,760	15,070	7,700	12,550	18,100	17,930	4,270	4,020	13,610	14,650	5,110	3,150
MEAN a	73.7	79.8	122	555	239	392	202	210	99.8	32.4	12.9	5.76
AC-FT a	4,530	4,750	7,480	34,120	13,280	24,100	12,040	12,930	5,940	1,990	791	343

CAL YR 1969 TOTAL 250,392.1 MEAN 686 MAX 3,210 MIN 3.3 AC-FT 496,700 MEAN a 704 AC-FT a 509,400  
WTR YR 1970 TOTAL 71,550.9 MEAN 196 MAX 459 MIN 2.9 AC-FT 141,900 MEAN a 169 AC-FT a 122,300

a Adjusted for change in contents and evaporation from Lake Success and for diversion to Pioneer ditch.

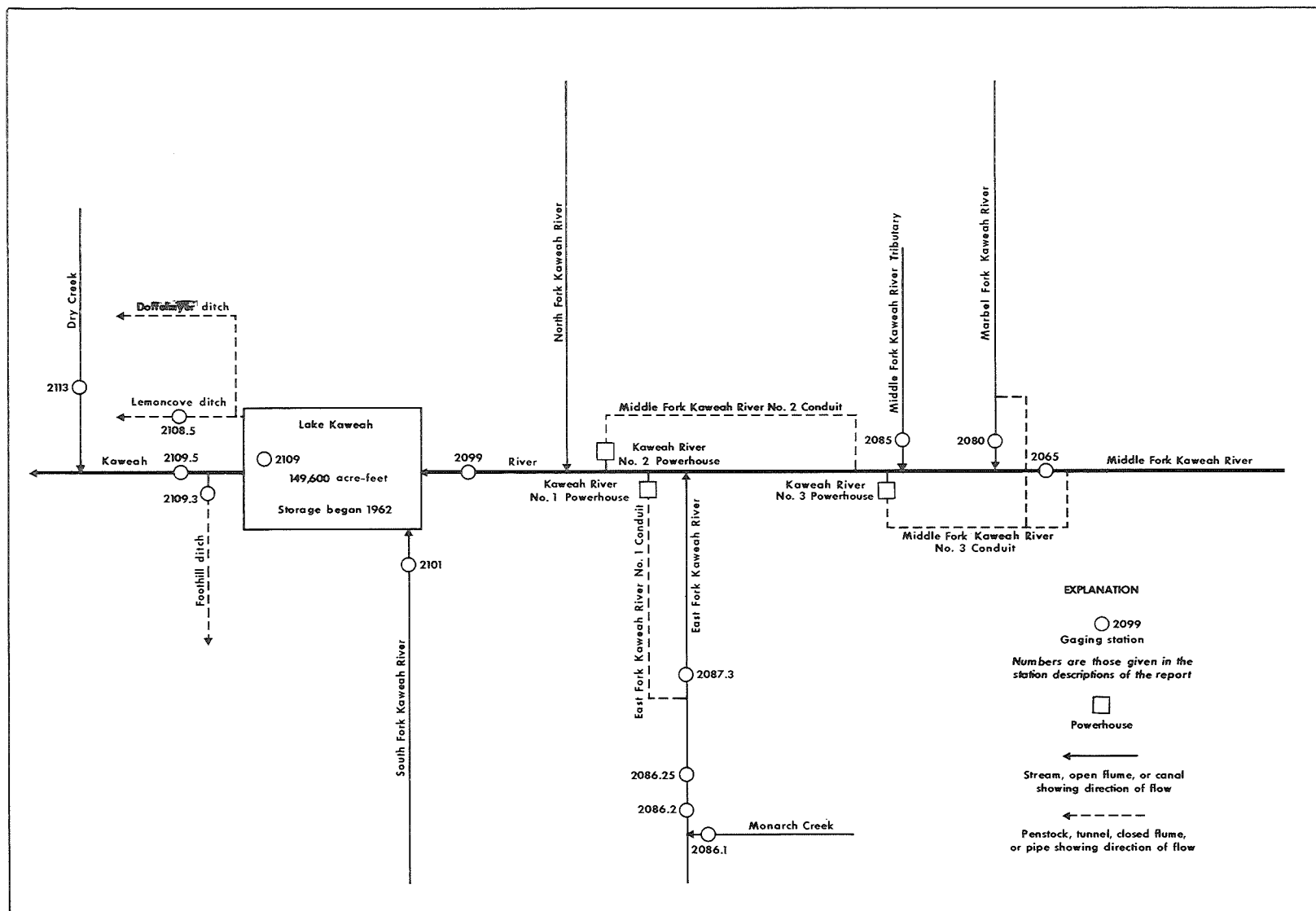


FIGURE 4.--Schematic diagram showing diversions and storage in Kaweah River basin.

## 11206500 MIDDLE FORK KAWEAH RIVER NEAR POTWISHA CAMP, CALIF.

LOCATION.--Lat 36°30'46", long 118°47'25", in NW¼NW¼ sec.25, T.16 S., R.29 E., Tulare County, Sequoia National Park, on right bank 0.7 mile southeast of Potwisha Camp, and 0.9 mile upstream from confluence with Marble Fork Kaweah River.

DRAINAGE AREA.--102 sq mi.

PERIOD OF RECORD.--July 1949 to current year. Monthly discharge only for water years 1956, 1957, published in WSP 1735. Prior to October 1954, records for river and conduit published separately; combined flow only, October 1954 to September 1960.

GAGE.--Water-stage recorder and concrete control on river; water-stage recorder and concrete-lined channel for conduit diversion. Altitude of gage is 2,100 ft (from topographic map). Prior to October 1955, at datum 0.70 ft higher.

AVERAGE DISCHARGE (River only).--21 years, 138 cfs (99,980 acre-ft per year).  
(Combined river and diversion).--21 years, 178 cfs (129,000 acre-ft per year).

EXTREMES (River only).--Current year: Maximum discharge, 2,890 cfs Jan. 16 (gage height, 9.49 ft), from rating curve extended above 1,400 cfs on basis of slope-area measurement at gage height 15.70 ft; minimum daily, 7.1 cfs July 26.

Period of record: Maximum discharge, 46,800 cfs Dec. 23, 1955 (gage height, 29.0 ft, from floodmarks, datum then in use), by slope-area measurement of maximum flow; minimum daily, 0.1 cfs Nov. 12-15, 1949.

(Combined flow).--Current year: Maximum discharge, 2,910 cfs Jan. 16; minimum daily, 14 cfs Sept. 28-30. Period of record: Maximum discharge, 46,800 cfs Dec. 23, 1955; minimum daily, 8.8 cfs Sept. 23-25, 1949.

REMARKS.--Records good. Middle Fork No. 3 conduit diverts from left bank of Middle Fork Kaweah River 0.5 mile upstream from station in NE¼ sec.26, T.16 S., R.29 E. Flow from this conduit joins with that of Marble Fork Kaweah River No. 3 conduit, and the combined flow passes through Kaweah River No. 3 powerhouse of Southern California Edison Co.; water is returned to Kaweah River 2.7 miles downstream from confluence of Marble and Middle Forks. See schematic diagram of Kaweah River basin. For records of combined discharge of river and conduit, see following page.

COOPERATION.--Gage-height record and 12 discharge measurements for river and gage-height record and 13 discharge measurements for conduit furnished by Southern California Edison Co.

REVISIONS.--WSP 1930: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	15	12	13	74	86	90	146	594	83	13	13
2	15	15	12	18	67	113	96	177	546	83	12	12
3	15	15	12	22	66	83	117	220	483	85	16	12
4	14	15	12	21	64	78	130	248	426	84	21	12
5	14	15	12	20	61	82	153	270	370	85	20	12
6	14	16	12	20	61	85	182	302	353	80	20	12
7	14	18	12	21	63	91	184	248	373	82	20	11
8	14	14	11	21	64	89	200	262	350	75	19	11
9	14	14	11	38	62	83	232	286	426	73	19	11
10	14	14	11	144	63	91	268	338	306	93	19	11
11	14	14	11	62	78	78	282	322	256	82	19	10
12	14	14	11	41	76	77	264	284	236	63	18	8.1
13	14	14	11	31	75	88	238	334	193	57	18	8.1
14	14	14	11	128	74	102	191	459	158	54	18	8.1
15	16	14	11	93	64	106	162	610	142	47	18	11
16	72	14	11	1,670	62	109	143	706	143	47	18	14
17	48	13	11	729	79	114	137	722	163	41	18	13
18	37	13	11	335	64	111	128	694	206	37	18	13
19	27	13	43	224	60	99	120	618	234	35	18	13
20	22	13	60	156	55	91	110	542	252	34	17	13
21	17	13	71	137	55	93	107	538	252	30	17	13
22	16	13	82	128	51	102	99	578	246	26	17	13
23	48	12	26	116	48	111	95	638	232	18	17	13
24	35	12	16	247	47	129	100	638	204	14	17	12
25	16	12	167	148	47	150	114	574	189	10	16	12
26	16	12	78	124	51	158	128	514	177	7.1	16	12
27	16	12	39	129	49	142	128	534	196	8.3	16	12
28	16	12	16	109	70	132	109	514	151	9.3	16	11
29	15	12	14	98	-----	122	110	522	122	13	17	11
30	15	12	14	88	-----	110	122	550	94	13	16	11
31	15	-----	14	76	-----	96	-----	558	-----	13	16	-----
TOTAL	646	409	845	5,207	1,750	3,201	4,539	13,946	8,073	1,481.7	540	348.3
MEAN	20.8	13.6	27.3	168	62.5	103	151	450	269	47.8	17.4	11.6
MAX	72	18	167	1,670	79	158	282	722	594	93	21	14
MIN	14	12	11	13	47	77	90	146	94	7.1	12	8.1
AC-FT	1,280	811	1,680	10,330	3,470	6,350	9,000	27,660	16,010	2,940	1,070	691
CAL YR 1969	TOTAL 145,700.6		MEAN 399		MAX 3,520		MIN 5.1		AC-FT 289,000			
WTR YR 1970	TOTAL 40,986.0		MEAN 112		MAX 1,670		MIN 7.1		AC-FT 81,300			

## TULARE LAKE BASIN

## 11206500 MIDDLE FORK KAWEAH RIVER NEAR POTWISHA CAMP, CALIF.--Continued

COMBINED DISCHARGE, IN CUBIC FEET PER SECOND, OF MIDDLE FORK KAWEAH RIVER AND MIDDLE FORK KAWEAH RIVER  
NO. 3 CONDUIT NEAR POTWISHA CAMP, CALIF., WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	45	30	56	127	140	146	201	646	146	53	25
2	50	44	30	53	120	168	152	232	598	146	50	25
3	48	43	30	51	119	137	173	275	535	148	49	24
4	46	42	29	47	117	132	187	303	477	147	48	23
5	44	41	29	42	114	136	210	325	421	148	46	23
6	42	56	29	44	114	139	239	357	404	143	46	24
7	41	71	29	45	116	145	241	303	424	146	45	21
8	40	58	28	45	118	143	257	317	401	139	42	21
9	39	55	29	74	116	137	289	341	477	136	42	20
10	39	54	27	204	117	145	326	393	357	157	41	19
11	44	56	28	121	132	132	339	377	306	145	41	19
12	40	56	27	99	130	131	321	339	286	126	39	18
13	37	54	27	87	129	142	295	389	243	120	38	18
14	37	53	27	185	128	157	248	513	208	116	38	18
15	44	52	26	153	118	161	219	664	192	110	37	16
16	125	55	26	1,700	116	164	199	760	193	110	37	20
17	100	48	26	729	133	169	193	776	213	104	36	18
18	89	44	26	335	118	166	184	748	257	100	36	18
19	78	43	69	251	114	154	176	671	285	98	36	18
20	72	42	121	205	109	146	165	594	303	97	34	18
21	64	40	126	186	109	148	162	590	303	93	33	18
22	59	40	143	177	105	157	154	630	297	89	32	18
23	59	36	86	164	102	166	150	690	284	80	31	18
24	61	35	74	297	100	184	155	690	256	75	30	16
25	57	34	226	197	101	206	169	626	241	71	28	16
26	54	33	139	172	105	214	183	566	229	67	27	16
27	53	33	99	178	103	198	183	586	248	67	28	15
28	51	32	73	155	124	188	164	566	202	63	28	14
29	49	30	67	142	-----	178	165	574	173	60	29	14
30	47	30	63	135	-----	166	176	602	151	58	27	14
31	45	-----	60	129	-----	152	-----	610	-----	55	26	-----
TOTAL	1,705	1,355	1,849	6,458	3,254	4,901	6,220	15,608	9,610	3,360	1,153	565
MEAN	55.0	45.2	59.6	208	116	158	207	503	320	108	37.2	18.8
MAX	125	71	226	1,700	133	214	339	776	646	157	53	25
MIN	37	30	26	42	100	131	146	201	151	55	26	14
AC-FT	3,380	2,690	3,670	12,810	6,450	9,720	12,340	30,960	19,060	6,660	2,290	1,120
CAL YR 1969	TOTAL	158,727		MEAN	435	MAX	3,520	MIN	26	AC-FT	314,800	
WTR YR 1970	TOTAL	56,038		MEAN	154	MAX	1,700	MIN	14	AC-FT	111,200	



LOCATION.--Lat 36°31'08", long 118°48'03", in SE 1/4 sec.23, T.16 S., R.29 E., Tulare County, Sequoia National Park, on left bank 0.1 mile north of Potwisha Camp, and 0.3 mile upstream from confluence with Middle Fork Kaweah River.

PERIOD OF RECORD.--March 1950 to current year. Monthly discharge only for March 1950, published in WSP 1315-A. Prior to October 1954, records for river and conduit published separately; combined flow only, October 1954 to September 1960.

AVERAGE DISCHARGE (River only).--20 years, 75.7 cfs (54,840 acre-ft per year); median of yearly mean discharges, 54 cfs (39,100 acre-ft per year).  
(Combined river and diversion).--20 years, 102 cfs (73,900 acre-ft per year); median of yearly mean discharges, 78 cfs (56,500 acre-ft per year).

Period of record: Maximum discharge, 12,500 cfs Dec. 23, 1955 (gage height, 13.4 ft), from rating curve extended above 1,100 cfs on basis of slope-area measurement of maximum flow; no flow Sept. 5-15, Oct. 24-28, 1953, Oct. 26-31, 1957.

(Combined flow).--Current year: Maximum discharge, 1,310 cfs Jan. 16; minimum daily, 3.9 cfs Sept. 17.  
Period of record: Maximum discharge, 12,500 cfs Dec. 23, 1955; minimum daily, 1.6 cfs July 30,  
Sept. 14-16, 1961, Aug. 25, 1968.

REMARKS.--Records good. Marble Fork Kaweah River No. 3 conduit diverts from left bank of Marble Fork 0.3 mile above station; water is returned to Kaweah River 2.7 miles downstream from confluence of Marble and Middle Forks. See schematic diagram of Kaweah River basin. For records of combined discharge of river and conduit, see following page. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

COOPERATION.--Gage-height record and 12 discharge measurements for river and gage-height record and 13 discharge measurements for conduit furnished by Southern California Edison Co.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	1.1	2.0	1.9	9.5	21	37	51	288	4.2	6.7	5.2
2	1.1	1.3	2.1	3.7	7.1	28	48	76	268	3.8	5.9	3.0
3	1.1	1.3	1.9	5.9	6.7	22	64	106	233	4.0	7.1	1.6
4	1.1	1.3	1.9	5.5	6.3	19	68	121	198	3.3	7.5	1.3
5	1.1	1.4	1.7	7.9	4.4	21	79	141	185	5.5	6.7	1.4
6	1.1	6.5	2.2	9.5	4.2	22	37	161	185	11	6.3	1.5
7	1.1	7.1	2.0	10	5.2	28	97	131	187	4.7	5.9	1.5
8	1.1	1.1	2.0	10	7.1	29	101	149	149	4.7	5.5	1.6
9	1.1	1.2	2.0	16	6.3	25	119	179	205	7.5	5.2	1.7
10	1.1	1.2	1.6	72	6.3	25	139	208	133	16	5.2	1.7
11	2.6	1.6	2.1	29	13	19	143	179	104	11	5.5	1.5
12	1.3	1.8	2.1	14	14	19	128	147	97	5.5	5.5	1.0
13	1.2	1.5	2.0	7.5	12	26	112	183	97	4.7	5.9	1.0
14	1.3	1.2	1.8	38	9.1	42	85	260	51	6.7	5.5	1.1
15	1.6	1.2	1.7	41	7.5	49	71	320	51	5.9	5.2	1.1
16	44	1.2	1.5	614	6.7	52	61	365	51	6.3	5.2	1.1
17	37	1.1	1.5	283	9.1	54	54	374	65	6.3	5.5	1.1
18	25	1.2	1.7	139	3.8	45	49	371	74	7.1	5.9	1.3
19	16	1.2	5.8	88	2.7	33	47	338	89	7.9	5.9	1.3
20	19	1.3	33	50	2.6	31	41	300	88	9.1	5.9	1.4
21	13	1.3	25	41	2.3	35	41	295	79	8.3	5.5	1.5
22	11	1.2	53	40	2.3	44	36	313	65	10	5.5	1.5
23	22	1.1	7.0	35	2.2	52	35	353	57	9.1	5.5	1.5
24	15	1.1	1.7	88	2.2	70	37	356	44	9.5	4.9	1.5
25	1.0	1.1	55	65	2.2	86	47	313	35	11	4.7	1.6
26	.83	1.1	37	33	2.3	95	53	283	28	12	4.9	1.6
27	.83	1.1	7.8	36	2.4	77	44	278	36	14	5.5	1.5
28	.88	1.2	1.2	27	8.1	73	33	273	13	13	5.9	1.5
29	.83	1.8	1.0	20	-----	64	32	285	5.5	11	5.9	1.8
30	.83	2.0	1.9	14	-----	54	37	285	4.2	8.3	5.5	2.1
31	.88	-----	1.9	11	-----	43	-----	288	-----	7.1	5.2	-----
TOTAL	227.08	49.8	265.1	1,855.9	167.6	1,303	2,035	7,482	3,164.7	248.5	177.0	48.5
MEAN	7.33	1.66	8.55	59.9	5.99	42.0	67.8	241	105	8.02	5.71	1.62
MAX	44	7.1	55	614	14	95	143	374	288	16	7.5	5.2
MIN	.83	1.1	1.0	1.9	2.2	19	32	51	4.2	3.3	4.7	1.0
AC-FT	450	99	526	3,680	332	2,580	4,040	14,840	6,280	493	351	96
CAL YR 1969	TOTAL	85,724.40	MEAN	235	MAX	1,940	MIN	.38	AC-FT	170,000		
WAT YR 1970	TOTAL	17,024.18	MEAN	46.6	MAX	614	MIN	.83	AC-FT	33,770		

## TULARE LAKE BASIN

## 11208000 MARBLE FORK KAWEAH RIVER AT POTWISHA CAMP, CALIF.

COMBINED DISCHARGE, IN CUBIC FEET PER SECOND, OF MARBLE FORK KAWEAH RIVER AND MARBLE FORK KAWEAH RIVER  
NO. 3 CONDUIT AT POTWISHA CAMP, CALIF., WATER YEAR 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	17	11	28	62	65	76	92	333	39	14	6.1
2	17	17	11	23	58	69	88	117	313	39	13	5.5
3	17	16	11	21	58	62	104	148	278	40	12	4.8
4	16	15	11	18	56	59	108	163	242	39	9.7	5.0
5	16	15	10	17	54	61	119	183	229	42	8.9	5.3
6	15	19	11	18	54	62	138	204	230	46	8.5	5.4
7	15	28	11	19	57	69	138	173	233	38	8.1	5.4
8	14	31	11	19	58	69	142	192	195	36	7.7	5.0
9	13	29	11	25	56	65	160	222	251	35	7.4	5.1
10	13	29	10	90	56	65	180	251	178	44	7.4	4.9
11	17	33	11	54	64	59	184	222	148	39	7.7	4.7
12	15	34	11	45	65	59	169	188	141	32	7.7	4.0
13	13	33	11	41	62	66	154	225	141	27	7.9	4.0
14	13	31	10	68	59	83	126	305	96	26	7.5	4.1
15	14	31	10	78	57	91	112	365	96	24	7.2	4.1
16	59	29	9.9	638	56	94	102	410	96	23	7.0	4.1
17	51	25	9.9	283	59	96	95	419	111	22	7.3	3.9
18	39	21	10	139	52	87	89	416	120	21	7.7	4.1
19	30	19	14	112	50	75	87	383	136	22	7.7	4.1
20	33	19	44	102	49	72	81	344	134	23	7.5	4.2
21	27	18	46	92	48	76	81	339	125	21	7.1	4.3
22	25	17	85	92	46	86	76	357	111	21	7.1	4.5
23	26	16	48	85	46	95	75	394	103	20	7.1	4.3
24	31	15	41	129	46	113	77	386	89	20	6.5	4.3
25	27	15	97	102	47	129	88	356	80	21	6.2	4.3
26	25	15	79	88	48	138	96	329	73	21	5.5	4.3
27	23	14	48	89	48	119	87	324	81	25	5.8	4.0
28	23	12	33	79	56	114	74	318	57	22	6.5	4.0
29	21	11	32	72	-----	105	72	330	50	20	6.9	4.0
30	19	11	30	66	-----	94	78	328	43	17	6.5	4.1
31	18	-----	28	63	-----	83	-----	327	-----	15	6.1	-----
TOTAL	704	635	815.8	2,795	1,527	2,580	3,256	8,810	4,513	880	243.2	135.9
MEAN	22.7	21.2	26.3	90.2	54.5	83.2	109	284	150	28.4	7.85	4.53
MAX	59	34	97	638	65	138	184	419	333	46	14	6.1
MIN	13	11	9.9	17	46	59	72	92	43	15	5.5	3.9
AC-FT	1,400	1,260	1,620	5,540	3,030	5,120	6,460	17,470	8,950	1,750	482	270
CAL YR 1969	TOTAL	94,386.8	MEAN	259	MAX	1,940	MIN	9.9	AC-FT	187,200		
WAT YR 1970	TOTAL	26,894.9	MEAN	73.7	MAX	638	MIN	3.9	AC-FT	53,350		

## 11208500 MIDDLE FORK KAWEAH RIVER TRIBUTARY NEAR HAMMOND, CALIF.

LOCATION.--Lat 36°29'35", long 118°49'30", in NW¼SW¼ sec.34, T.16 S., R.29 E., Tulare County, Sequoia National Park, at culvert on State Highway 198, 2.7 miles northeast of Hammond.

DRAINAGE AREA.--1.90 sq mi.

PERIOD OF RECORD.--1960-67 (annual maximum only), May 1967 to current year.

GAGE --Water-stage recorder, crest-stage gage, and tipping-bucket rain gage. Altitude of gage is 1,740 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 80 cfs Jan. 16 (gage height, 14.30 ft), from rating curve extended as explained below; no flow many days.

Period of record: Maximum discharge, 879 cfs Dec. 6, 1966 (gage height, 30.63 ft), from rating curve extended above 22 cfs on basis of computation of flow through culvert at gage heights 12.50, 14.80, 16.00, 18.41, 22.06 ft and computation of flow through culvert plus road-overflow at gage height 30.63 ft; no flow many days in each year.

REMARKS.--Records good. Minor diversion above station for domestic use.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	0	.20	.20	.74	2.5	.73	.43	.10	.06	0	0
2	.03	.01	.20	.20	.73	4.2	.85	.49	.09	0	.02	0
3	0	.01	.16	.20	.73	2.6	.67	.43	.08	0	0	0
4	.01	.06	.16	.20	.73	3.0	.67	.24	.13	0	0	0
5	0	.10	.20	.20	.73	3.2	.67	.30	.10	.04	0	.02
6	.02	.20	.20	.20	.67	2.6	.61	.49	.13	.01	0	.03
7	.01	.16	.16	.16	.61	2.1	.67	.43	.13	0	0	0
8	.01	.13	.16	.16	.61	1.9	.61	.43	.13	0	0	0
9	.05	.13	.16	.24	.61	1.8	.61	.36	.49	0	.02	0
10	.03	.13	.16	.85	.61	1.9	.36	.36	.36	0	0	0
11	0	.13	.16	.36	.55	1.6	.49	.36	.30	0	0	0
12	0	.13	.13	.36	.55	1.5	.43	.36	.16	0	0	0
13	.01	.16	.10	.36	.55	1.3	.49	.30	.16	0	0	0
14	.02	.16	.10	1.5	.55	1.3	.61	.30	.16	0	.04	0
15	.05	.16	.13	1.2	.55	1.2	.61	.24	.10	0	.37	.01
16	.06	.16	.13	31	.49	1.2	.61	.20	.11	0	0	.01
17	.05	.16	.13	7.9	1.1	1.2	.67	.20	.08	0	0	0
18	.03	.16	.13	3.3	.73	1.1	.61	.16	.09	0	0	0
19	.04	.20	.13	2.1	.73	1.1	.55	.20	.07	0	0	0
20	.03	.20	.10	1.5	.67	1.1	.55	.24	.08	0	0	0
21	.01	.20	.16	1.3	.61	1.0	.61	.21	.04	0	0	0
22	.03	.20	.13	1.1	.55	.96	.55	.16	0	0	0	0
23	.06	.20	.13	1.0	.49	.96	.55	.15	0	0	0	0
24	.10	.20	.13	2.1	.49	.94	.43	.14	.01	0	0	0
25	.08	.20	.20	1.5	.55	.92	.43	.14	.01	0	0	0
26	.08	.20	.16	1.2	.49	.91	.43	.13	.05	0	0	0
27	.08	.20	.16	.97	.49	.88	.55	.12	.04	0	0	0
28	0	.20	.20	.92	1.1	.82	.55	.12	.03	0	0	0
29	0	.16	.20	.86	-----	.78	.43	.11	.05	0	0	0
30	0	.16	.20	.82	-----	.73	.49	.10	.07	0	0	0
31	0	-----	.20	.77	-----	.70	-----	.10	-----	0	0	-----
TOTAL	.91	4.47	4.87	64.73	18.01	48.00	17.09	8.00	3.35	.11	.45	.07
MEAN	.029	.15	.16	2.09	.64	1.55	.57	.26	.11	.003	.015	.002
MAX	.10	.20	.20	31	1.1	4.2	.85	.49	.49	.06	.37	.03
MIN	0	0	.10	.16	.49	.70	.36	.10	0	0	0	0
AC-FT	1.8	8.9	9.7	128	36	95	34	16	6.6	.2	.9	.1
(a)	.6	.8	2.0	7.7	1.9	1.5	.4	0	.1	0	0	0

CAL YR 1969 TOTAL 1,344.76 MEAN 3.68 MAX 75 MIN 0 ACFT 2,670  
WAT YR 1970 TOTAL 170.06 MEAN .47 MAX 31 MIN 0 ACFT 337

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-10	0300	10.66	3.2	1-24	0600	10.64	3.2
1-14	1630	10.95	6.2	3- 1	2200	11.08	8.0
1-16	1815	14.30	80	3- 4	1900	10.91	5.9

a Precipitation, in inches.

## TULARE LAKE BASIN

11208610 MONARCH CREEK NEAR HAMMOND, CALIF.

LOCATION.--Lat 36°27'09", long 118°35'37", in SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.15, T.17 S., R.31 E., Tulare County, Sequoia National Forest, on right bank 0.2 mile upstream from mouth, 0.3 mile northeast of Mineral King, and 14.9 miles east of Hammond.

DRAINAGE AREA.--1.89 sq mi.

PERIOD OF RECORD.--August 1968 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 8,200 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 66 cfs May 17 (gage height, 2.47 ft); minimum daily, 0.83 cfs Dec. 18.

Period of record: Maximum discharge, 81 cfs June 1, 1969 (gage height, 2.71 ft); minimum daily, 0.83 cfs Dec. 18, 1969.

REMARKS.--Records good. Records of chemical analyses, water temperatures, and suspended-sediment loads for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	1.5	1.0	1.1	2.2	2.2	4.2	5.4	44	10	5.5	1.5
2	2.4	1.4	.95	1.1	2.0	2.3	5.4	6.0	41	10	5.4	1.4
3	2.3	1.4	.95	1.1	2.0	2.2	6.9	7.0	36	9.4	5.7	1.4
4	2.3	1.4	.95	1.1	2.0	2.3	7.4	8.4	30	9.0	5.4	1.4
5	2.2	1.4	.90	1.1	2.0	2.4	9.1	10	26	8.7	5.2	1.4
6	2.2	1.5	.90	1.1	2.0	2.1	11	11	31	8.7	5.1	1.3
7	2.1	1.7	.90	1.1	2.1	2.2	11	11	33	8.1	4.9	1.3
8	2.1	1.6	.90	1.1	2.2	2.1	13	12	28	7.4	4.7	1.3
9	2.0	1.6	1.1	1.1	2.2	2.1	16	13	28	7.2	4.4	1.3
10	2.0	1.7	1.0	1.3	2.2	2.6	18	15	23	7.5	4.3	1.3
11	2.0	1.7	1.0	1.2	2.2	2.1	17	15	22	6.7	4.1	1.2
12	1.9	1.7	.93	1.2	2.2	2.1	15	16	19	6.4	4.3	1.2
13	1.9	1.6	.91	1.2	2.2	2.2	14	20	16	6.1	4.1	1.2
14	1.8	1.6	.88	1.2	2.2	2.4	11	28	16	5.7	3.8	1.2
15	2.3	1.6	.86	1.6	2.1	2.7	9.6	35	15	5.6	3.6	1.2
16	2.9	1.5	.85	4.0	2.1	3.1	8.8	44	17	5.3	3.5	1.2
17	2.2	1.4	.84	3.3	2.2	3.5	8.0	49	20	5.0	3.4	1.1
18	1.9	1.4	.83	3.1	2.2	3.4	7.3	48	21	4.9	3.6	1.1
19	2.2	1.4	1.8	3.0	2.3	3.2	6.7	47	22	5.0	3.2	1.1
20	2.0	1.3	3.0	2.9	2.1	3.0	5.9	36	23	4.7	3.1	1.1
21	2.0	1.2	2.3	2.9	2.1	3.3	5.6	38	22	4.5	2.8	1.0
22	2.1	1.2	2.0	2.8	2.0	3.8	5.2	42	21	4.3	2.6	1.1
23	2.2	1.2	1.6	2.7	2.0	4.8	4.9	43	20	4.2	2.4	1.1
24	2.0	1.2	1.6	2.9	2.0	6.1	5.1	43	19	4.7	2.3	1.0
25	1.9	1.2	2.2	2.7	2.1	7.5	5.7	36	16	5.1	2.2	1.0
26	1.8	1.1	1.6	2.6	2.2	7.3	6.0	35	17	5.4	2.1	1.0
27	1.7	1.1	1.3	2.6	2.1	5.9	5.9	37	15	5.6	2.3	1.0
28	1.7	1.0	1.2	2.5	2.1	5.8	5.2	38	12	5.6	2.2	1.0
29	1.6	1.1	1.1	2.4	-----	5.1	4.9	40	11	5.8	1.9	1.0
30	1.6	1.0	1.1	2.3	-----	4.6	5.0	41	10	5.5	1.6	1.0
31	1.5	-----	1.1	2.2	-----	4.3	-----	44	-----	5.5	1.5	-----
TOTAL	63.3	41.7	38.55	62.5	59.3	108.7	258.8	873.8	674	197.6	111.2	35.4
MEAN	2.04	1.39	1.24	2.02	2.12	3.51	8.63	28.2	22.5	6.37	3.59	1.18
MAX	2.9	1.7	3.0	4.0	2.3	7.5	18	49	44	10	5.7	1.5
MIN	1.5	1.0	.83	1.1	2.0	2.1	4.2	5.4	10	4.2	1.5	1.0
AC-FT	126	83	76	124	118	216	513	1,730	1,340	392	221	70

CAL YR 1969 TOTAL 4,389.75 MEAN 12.0 MAX 63 MIN .83 AC-FT 8,710  
WTR YR 1970 TOTAL 2,524.85 MEAN 6.92 MAX 49 MIN .83 AC-FT 5,010

PEAK DISCHARGE (BASE, 10 CFS)							
DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
4-10	2000	1.95	21	6-19	1745	2.13	32
5-17	unknown	2.47	66				

## 11208620 EAST FORK KAWEAH RIVER BELOW MOSQUITO CREEK, NEAR HAMMOND, CALIF.

LOCATION.--Lat 36°27'05", long 118°37'04", in SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.16, T.17 S., R.13 E., Tulare County, Sequoia National Forest, on right bank 300 ft downstream from Mosquito Creek and 13.2 miles east of Hammond.

DRAINAGE AREA.--16.0 sq mi.

PERIOD OF RECORD.--August 1968 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 7,280 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 336 cfs Jan. 16 (gage height, 3.96 ft); minimum daily, 5.0 cfs Sept. 30.

Period of record: Maximum discharge, 589 cfs May 31, 1969 (gage height, 4.39 ft); minimum daily, 4.7 cfs Oct. 8-12, 1968.

REMARKS.--Records good. Records of chemical analyses, water temperatures, and suspended-sediment loads for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	12	7.9	9.4	13	14	26	34	199	58	20	7.8
2	15	12	8.8	9.4	12	14	27	42	185	56	19	7.4
3	14	11	8.2	9.4	12	13	31	49	169	55	18	7.4
4	14	11	7.9	9.4	12	13	33	53	140	54	18	7.2
5	13	11	7.9	9.4	12	13	37	60	120	54	17	7.1
6	12	12	8.2	9.6	12	13	42	67	124	54	17	7.1
7	12	13	8.2	9.6	12	13	43	64	134	52	16	6.7
8	11	13	8.2	9.8	13	13	46	65	125	49	15	6.5
9	11	13	8.2	10	13	13	52	72	139	47	15	6.5
10	10	13	9.0	13	14	12	58	85	112	47	14	6.3
11	11	14	8.2	12	15	13	61	84	101	44	14	6.2
12	10	14	8.1	12	15	12	59	83	95	43	14	6.4
13	9.6	14	8.0	11	14	12	55	93	84	41	14	6.9
14	9.9	14	7.8	13	14	14	50	127	74	40	13	6.8
15	14	14	7.6	17	13	15	45	166	70	39	13	6.5
16	23	13	7.5	70	13	17	41	195	72	38	13	6.5
17	22	12	7.3	38	14	19	38	208	80	36	13	6.4
18	19	12	7.2	34	13	19	36	204	91	35	12	6.2
19	17	12	19	28	13	18	34	187	99	35	12	6.0
20	16	12	25	23	12	18	32	162	102	33	12	6.2
21	16	11	24	20	12	18	31	165	101	32	11	5.9
22	16	11	20	19	12	20	30	186	100	31	10	5.3
23	16	10	17	13	12	23	29	207	95	30	10	5.4
24	15	9.8	16	21	12	27	29	215	89	28	10	5.3
25	15	9.8	29	18	12	32	31	186	84	27	9.6	5.2
26	14	9.5	24	17	12	33	33	169	85	26	9.4	5.1
27	14	9.5	17	17	12	31	32	182	81	25	9.5	5.2
28	13	8.8	12	15	13	31	31	179	70	24	9.9	5.2
29	13	8.5	11	14	-----	30	30	183	64	23	9.2	5.1
30	12	8.5	10	14	-----	28	32	192	60	23	8.8	5.0
31	12	-----	9.6	13	-----	27	-----	199	-----	21	8.2	-----
TOTAL	435.5	348.4	377.8	543.0	358	588	1,154	4,163	3,144	1,200	404.6	186.8
MEAN	14.0	11.6	12.2	17.5	12.8	19.0	38.5	134	105	38.7	13.1	6.23
MAX	23	14	29	70	15	33	61	215	199	58	20	7.8
MIN	9.6	8.5	7.2	9.4	12	12	26	34	60	21	8.2	5.0
AC-FT	864	691	749	1,080	710	1,170	2,290	8,260	6,240	2,380	803	371
CAL YR 1969	TOTAL 28,630.5		MEAN 78.4		MAX 522		MIN 7.2		AC-FT 56,790			
WTR YR 1970	TOTAL 12,903.1		MEAN 35.4		MAX 215		MIN 5.0		AC-FT 25,590			

## PEAK DISCHARGE (BASE, 60 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-16	1010	3.96	336	5-17	2000	3.82	277
4-10	1900	2.56	64	6-20	2000	3.07	121

## TULARE LAKE BASIN

11208625 EAST FORK KAWEAH RIVER AT SEQUOIA NATIONAL PARK BOUNDARY, NEAR HAMMOND, CALIF.

LOCATION.--Lat 36°27'30", long 118°39'11", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.7, T.17 S., R.31 E., Tulare County, Sequoia National Park, on right bank 0.6 mile southwest of Silver City and 11.4 miles east of Hammond.

DRAINAGE AREA.--23.7 sq mi.

PERIOD OF RECORD.--August 1968 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 6,160 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 450 cfs Jan. 16 (gage height, 4.76 ft); minimum daily, 8.2 cfs Sept. 30.

Period of record: Maximum discharge, 934 cfs May 31, 1969 (gage height, 5.74 ft); minimum daily, 5.4 cfs Oct. 9-12, 1968.

REMARKS.- Records good. Records of chemical analyses, water temperatures, and suspended-sediment loads for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	13	9.5	10	23	23	35	49	264	63	21	10
2	17	12	9.8	10	23	23	37	63	244	61	20	10
3	16	12	9.5	10	22	22	40	77	228	59	19	10
4	15	12	9.2	10	22	22	43	82	199	58	20	9.9
5	15	12	9.2	10	21	25	49	96	168	58	18	9.9
6	14	14	9.5	11	21	23	58	107	170	57	18	10
7	14	14	9.2	11	23	23	59	98	182	55	17	11
8	14	14	9.2	12	23	23	66	102	172	52	17	10
9	13	13	9.2	13	23	22	76	114	199	50	16	10
10	13	14	10	15	24	22	86	135	155	50	15	9.9
11	13	14	9.8	14	26	22	92	133	135	47	15	9.9
12	13	14	9.2	14	25	21	88	128	126	46	15	9.8
13	13	14	9.2	14	24	24	80	144	109	43	15	9.7
14	12	13	9.2	15	23	27	69	193	93	42	14	9.7
15	17	14	8.9	23	23	29	61	247	86	41	14	9.7
16	25	14	8.9	188	23	30	54	278	88	40	14	9.4
17	24	12	8.9	80	24	32	49	288	99	38	14	9.2
18	20	12	8.6	52	23	30	47	281	115	37	14	9.1
19	18	12	32	39	22	30	44	259	126	37	13	9.1
20	18	12	28	35	21	29	42	235	132	35	13	9.1
21	17	12	28	33	21	30	39	235	130	34	13	9.1
22	17	11	24	32	21	32	38	259	126	33	12	9.1
23	16	11	18	31	20	35	38	281	120	32	12	8.9
24	15	11	18	42	21	38	39	288	109	30	12	8.8
25	15	11	38	33	21	44	42	261	101	29	12	8.6
26	14	10	26	31	21	46	45	242	101	28	11	8.5
27	14	10	18	30	21	42	43	254	96	26	12	8.4
28	14	10	13	28	22	42	42	249	82	25	12	8.3
29	13	9.8	12	27	-----	39	40	252	74	24	12	8.3
30	13	9.8	11	25	-----	38	42	259	67	24	11	8.2
31	13	-----	11	24	-----	36	-----	264	-----	22	11	-----
TOTAL	482	366.6	444.0	922	627	924	1,583	5,953	4,096	1,276	452	281.6
MEAN	15.5	12.2	14.3	29.7	22.4	29.8	52.8	192	137	41.2	14.6	9.39
MAX	25	14	38	188	26	46	92	288	264	63	21	11
MIN	12	9.8	8.6	10	20	21	35	49	67	22	11	8.2
AC-FT	956	727	881	1,830	1,240	1,830	3,140	11,810	8,120	2,530	897	559

CAL YR 1969 TOTAL 39,684.6 MEAN 109 MAX 760 MIN 8.6 AC-FT 78,710  
WTR YR 1970 TOTAL 17,407.2 MEAN 47.7 MAX 288 MIN 8.2 AC-FT 34,530

## PEAK DISCHARGE (BASE, 70 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-16	1110	4.76	450	5-17	2115	4.54	375
4-10	1945	3.34	102	6-20	2045	3.68	160

## TULARE LAKE BASIN

591

11208730 EAST FORK KAWEAH RIVER NEAR THREE RIVERS, CALIF.

LOCATION.--Lat 36°27'05", long 118°47'15", in NW¼ sec.14, T.17 S., R.29 E., Tulare County, on left bank just downstream from diversion dam, and 6.6 miles east of Three Rivers.

DRAINAGE AREA.--85.8 sq mi.

PERIOD OF RECORD.--May 1952 to September 1955, October 1957 to current year. Prior to October 1962, combined only.

GAGE.--Water-stage recorder and Parshall flume on river; water-stage recorder and Parshall flume for conduit diversion. Altitude of gage is 2,500 ft (from topographic map). May 15, 1952, to Sept. 30, 1955, at site 200 ft downstream at different datum.

AVERAGE DISCHARGE (River only).--16 years, 94.7 cfs (68,610 acre-ft per year).  
(Combined river and conduit).--16 years, 121 cfs (87,660 acre-ft per year).

EXTREMES (River only).--Current year: Maximum discharge, 3,220 cfs Jan. 16 (gage height, 8.95 ft), from rating curve extended as explained below; minimum daily, 0.87 cfs Aug. 19.

Period of record: Maximum discharge, 13,000 cfs Dec. 6, 1966 (gage height, 21 ft, from floodmarks), from rating curve extended as explained below; no flow Jan. 22, Oct. 18-20, 1962.

(Combined flow).--Current year: Maximum discharge, 3,230 cfs Jan. 16; minimum daily, 13 cfs Sept. 28-30.

Period of record: Maximum discharge, 13,000 cfs Dec. 6, 1966 (gage height, 21 ft, from floodmarks), from rating curve extended above 850 cfs on basis of critical-depth measurement over diversion dam of peak flow; minimum daily, 3.5 cfs Sept. 28, 29, 1960.

REMARKS.--Records fair. East Fork Kaweah River No. 1 conduit diverts up to 30 cfs from left bank of river near diversion dam. Flow from this conduit passes through Hammond powerhouse of Southern California Edison Co.; water is returned to Middle Fork Kaweah River in sec.8, T.17 S., R.29 E., 1.9 miles downstream from mouth of East Fork. For records of combined discharge of river and conduit, see following page. Records of chemical analyses, water temperatures, and suspended-sediment loads for the water year 1970 are published in Part 2 of this report.

COOPERATION.--Records for East Fork Kaweah River No. 1 conduit near Three Rivers, water temperature records, and 13 discharge measurements were furnished by Southern California Edison Co.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	8.5	5.9	27	65	86	82	121	585	90	10	4.3
2	24	8.0	6.7	26	60	112	86	150	533	90	8.8	.96
3	19	7.7	6.1	26	55	77	99	177	480	86	8.0	1.1
4	13	7.9	5.7	26	53	72	105	184	410	82	7.4	1.1
5	11	7.2	4.7	32	50	74	120	208	363	81	6.9	1.1
6	9.6	21	5.5	34	48	72	144	229	355	78	6.4	1.1
7	8.7	27	5.5	16	48	74	152	208	372	74	5.8	1.2
8	8.3	14	5.1	13	48	72	160	218	354	68	4.9	1.2
9	8.2	12	4.8	34	48	69	176	249	435	66	4.5	1.1
10	8.4	11	4.2	82	50	79	196	315	344	64	4.1	1.1
11	13	12	4.9	52	57	69	208	307	302	57	4.1	1.1
12	14	13	4.5	39	55	67	200	293	282	52	4.1	1.0
13	11	12	4.3	29	57	74	156	327	246	49	4.0	1.0
14	11	11	3.8	113	57	82	112	446	220	46	4.0	1.0
15	16	13	3.4	95	50	86	120	569	208	43	3.5	1.0
16	60	17	3.6	1,510	48	86	144	652	209	39	3.0	1.0
17	56	11	3.7	430	65	92	132	696	219	37	2.2	1.0
18	38	9.6	5.3	236	52	89	128	661	240	34	1.1	1.0
19	27	9.5	48	168	48	79	120	654	255	32	.87	1.0
20	36	9.0	107	140	47	74	112	581	257	30	1.3	.98
21	54	7.8	91	120	47	77	112	567	250	27	1.2	.98
22	54	7.0	86	112	45	79	99	602	221	25	1.1	.98
23	52	6.1	48	99	43	86	94	682	196	23	.98	.98
24	27	4.7	39	184	43	99	97	709	181	21	.93	.98
25	14	5.7	156	124	45	109	109	648	171	19	.89	.96
26	12	7.5	96	102	45	120	120	567	165	18	1.1	.95
27	11	7.6	58	102	45	109	119	611	161	19	1.7	.95
28	11	6.6	38	82	67	102	107	588	138	16	1.6	.95
29	9.7	5.9	36	74	-----	99	108	581	119	14	1.6	.95
30	9.2	6.6	31	69	-----	92	109	588	99	13	3.8	.95
31	8.8	-----	34	65	-----	86	-----	599	-----	12	4.7	-----
TOTAL	694.9	306.9	955.7	4,261	1,441	2,643	3,826	13,987	8,370	1,405	114.57	33.97
MEAN	22.4	10.2	30.8	137	51.5	85.3	128	451	279	45.3	3.70	1.13
MAX	60	27	156	1,510	67	120	208	709	585	90	10	4.3
MIN	8.2	4.7	3.4	13	43	67	82	121	99	12	.87	.95
AC-FT	1,380	609	1,900	8,450	2,860	5,240	7,590	27,740	16,600	2,790	227	67

CAL YR 1969 TOTAL 110,576.0 MEAN 303 MAX 2,840 MIN 3.4 AC-FT 219,300  
WTR YR 1970 TOTAL 38,039.04 MEAN 104 MAX 1,510 MIN .87 AC-FT 75,450

## TULARE LAKE BASIN

## 11208730 EAST FORK KAWEAH RIVER NEAR THREE RIVERS, CALIF.--Continued

COMBINED DISCHARGE, IN CUBIC FEET PER SECOND, OF EAST FORK KAWEAH RIVER AND EAST FORK KAWEAH RIVER NO. 1 CONDUIT NEAR THREE RIVERS, CALIF., WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	32	27	33	88	107	104	144	605	116	34	22
2	38	32	28	31	83	133	108	174	553	114	33	18
3	36	31	27	30	80	97	120	201	500	110	32	18
4	34	31	26	30	78	92	125	208	430	106	31	18
5	33	31	26	32	75	94	138	232	383	105	31	18
6	32	46	27	34	73	92	159	252	375	102	30	18
7	32	52	28	32	73	94	165	231	392	98	29	18
8	32	38	28	31	73	92	172	241	374	92	28	17
9	31	36	27	54	73	89	187	272	455	90	28	17
10	31	35	26	104	75	99	207	338	364	88	26	16
11	36	36	28	74	82	89	219	329	322	81	26	16
12	37	37	28	60	80	87	211	314	302	76	26	15
13	34	36	28	50	82	94	190	348	266	72	26	15
14	34	35	27	133	82	102	180	467	240	70	26	16
15	39	37	26	114	75	106	170	590	227	66	25	16
16	84	41	26	1,520	73	106	157	673	227	58	24	16
17	79	35	26	430	89	112	147	717	237	60	24	15
18	61	34	26	246	75	109	143	682	257	58	24	15
19	50	34	66	189	71	99	135	675	272	56	24	15
20	51	34	123	161	70	94	127	602	275	54	23	15
21	57	32	109	141	70	97	127	588	268	51	23	15
22	57	32	103	133	68	99	117	623	241	49	22	15
23	55	30	66	120	66	106	114	703	217	47	21	15
24	45	29	57	205	65	119	117	730	203	45	21	15
25	38	30	172	145	66	132	129	669	193	43	20	15
26	36	29	111	125	66	144	140	588	188	42	20	14
27	35	29	76	125	66	133	139	632	184	43	20	14
28	35	27	53	105	88	126	127	609	161	40	21	13
29	34	27	45	97	-----	123	128	602	144	38	21	13
30	33	28	34	92	-----	115	131	609	125	37	23	13
31	32	-----	36	88	-----	108	-----	620	-----	36	23	-----
TOTAL	1,307	1,016	1,536	4,764	2,105	3,289	4,433	14,663	8,980	2,143	785	476
MEAN	42.2	33.9	49.5	154	75.2	106	148	473	299	69.1	25.3	15.9
MAX	84	52	172	1,520	89	144	219	730	605	116	34	22
MIN	31	27	26	30	65	87	104	144	125	36	20	13
AC-FT	2,590	2,020	3,050	9,450	4,180	6,520	8,790	29,080	17,810	4,250	1,560	944
CAL YR 1969	TOTAL	117,118	MEAN	321	MAX	2,840	MIN	26	ACFT	232,300		
WAT YR 1970	TOTAL	45,497	MEAN	125	MAX	1,520	MIN	13	ACFT	90,240		



## 11209900 KAWEAH RIVER AT THREE RIVERS, CALIF.

LOCATION.--Lat 36°26'38", long 118°54'09", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.13, T.17 S., R.28 E., Tulare County, on right bank opposite schoolhouse in Three Rivers, 0.2 mile downstream from North Fork Kaweah River.

DRAINAGE AREA.--418 sq mi.

PERIOD OF RECORD.--October 1958 to current year.

GAGE.--Water-stage recorder. Datum of gage is 809.62 ft above mean sea level.

AVERAGE DISCHARGE.--12 years, 525 cfs (380,400 acre-ft per year); median of yearly mean discharges, 350 cfs (254,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 13,400 cfs Jan. 16 (gage height, 10.32 ft); minimum daily, 30 cfs Sept. 29.

Period of record: Maximum discharge, 73,000 cfs Dec. 5, 1966 (gage height, 16.69 ft in gage well, 19.0 ft, from floodmarks), from rating curve extended above 13,000 cfs on basis of slope-area measurements at gage heights 13.68 and 16.69 ft; minimum, 14 cfs Sept. 9, 10, 1959, Oct. 16, 1961.  
Flood of Dec. 23, 1955, reached a stage of 17.9 ft, from floodmarks.

REMARKS.--Records good. Diversions of 200 acres above station. Power is developed on the Middle and East Fork Kaweah River. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	116	121	104	168	410	625	478	574	1,700	316	96	46
2	116	119	106	158	390	970	490	653	1,600	309	91	44
3	112	114	108	150	381	637	546	761	1,440	300	85	42
4	112	119	108	141	375	499	570	826	1,280	293	82	41
5	106	115	108	133	364	642	605	874	1,110	293	80	42
6	106	139	109	138	359	558	701	1,010	1,050	289	79	44
7	103	212	109	146	361	558	701	868	1,080	262	79	44
8	101	166	109	141	366	540	721	922	1,030	260	76	40
9	100	152	112	151	359	512	795	966	1,280	246	72	40
10	100	146	108	707	359	552	874	1,150	974	278	70	39
11	107	147	109	362	405	484	936	1,100	810	264	68	37
12	108	147	111	310	392	459	894	958	766	228	67	36
13	101	146	111	272	400	473	844	1,060	661	216	65	35
14	100	142	108	533	420	543	748	1,460	588	200	63	36
15	102	141	107	633	372	564	665	1,810	532	188	62	35
16	226	154	106	7,000	361	577	625	2,020	523	182	62	37
17	248	144	104	2,930	440	594	594	2,130	570	177	61	36
18	228	133	104	1,240	381	577	561	2,110	641	166	62	35
19	184	128	108	874	364	523	546	1,930	693	161	61	35
20	175	125	385	725	333	490	512	1,760	717	155	61	35
21	162	123	234	628	337	490	518	1,740	709	152	59	37
22	155	121	552	603	324	515	484	1,820	681	144	56	38
23	146	118	256	558	318	546	481	1,890	653	136	55	38
24	160	115	206	1,010	314	594	473	1,990	588	130	53	37
25	150	112	558	735	310	665	509	1,820	555	123	50	36
26	141	109	545	599	316	717	555	1,640	512	117	49	35
27	135	108	290	599	318	665	570	1,690	555	116	48	34
28	133	107	216	544	410	629	512	1,700	453	112	50	31
29	132	104	188	474	-----	598	487	1,680	395	107	51	30
30	126	103	186	440	-----	558	512	1,690	343	102	48	32
31	123	-----	181	412	-----	512	-----	1,680	-----	98	47	-----
TOTAL	4,214	3,930	5,846	23,514	10,239	17,866	18,507	44,282	24,489	6,120	2,008	1,127
MEAN	136	131	189	759	366	576	617	1,428	816	197	64.8	37.6
MAX	248	212	558	7,000	440	970	936	2,130	1,700	316	96	46
MIN	100	103	104	133	310	459	473	574	343	98	47	30
AC-FT	8,360	7,800	11,600	46,640	20,310	35,440	36,710	87,830	48,570	12,140	3,980	2,240

CAL YR 1969 TOTAL 554,036 MEAN 1,518 MAX 17,100 MIN 100 ACFT 1,099,000  
WAT YR 1970 TOTAL 162,142 MEAN 444 MAX 7,000 MIN 30 ACFT 321,600

## PEAK DISCHARGE (BASE, 1,800 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-25	1930	6.32	1,850	1-16	1300	10.32	13,400
1-14	2100	6.33	1,860	5-17	2300	6.88	2,650

## TULARE LAKE BASIN

## 11210100 SOUTH FORK KAWEAH RIVER AT THREE RIVERS, CALIF.

LOCATION.--Lat 36°25'00", long 118°54'48", in SE $\frac{1}{4}$  sec.26, T.17 S., R.28 E., Tulare County, on right bank 200 ft upstream from unnamed tributary, 0.5 mile upstream from mouth, and 1.8 miles southwest of Three Rivers.

DRAINAGE AREA.--86.7 sq mi.

PERIOD OF RECORD.--October 1958 to current year.

GAGE.--Water-stage recorder. Datum of gage is 807.22 ft above mean sea level.

AVERAGE DISCHARGE.--12 years, 68.7 cfs (49,770 acre-ft per year); median of yearly mean discharges, 49 cfs (35,500 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 2,820 cfs Jan. 16 (gage height, 5.56 ft); minimum daily, 0.75 cfs Sept. 9, 10.

Period of record: Maximum discharge, 11,600 cfs Dec. 6, 1966 (gage height, 9.30 ft in gage well, 10.4 ft, from floodmarks), from rating curve extended above 2,600 cfs on basis of slope-area measurement of maximum flow; no flow at times in 1960-62.

Flood of December 23, 1955, reached a stage of 9.5 ft, from floodmarks (discharge, 10,000 cfs).

REMARKS.--Records good. Several small diversions above station for irrigation.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.5	12	11	25	57	112	57	68	264	24	4.1	2.2
2	7.5	12	11	25	54	263	57	85	240	22	4.0	2.0
3	8.0	12	12	22	52	130	59	111	216	20	4.0	1.5
4	8.0	12	12	21	52	110	62	121	190	18	3.3	1.3
5	8.5	12	12	20	51	112	65	126	164	17	2.9	1.1
6	8.5	17	12	20	48	95	77	156	148	16	3.1	1.7
7	9.0	28	12	19	47	92	83	133	144	15	2.9	1.3
8	9.0	19	12	20	46	85	82	145	132	13	2.9	1.2
9	9.5	17	12	21	45	78	92	161	205	14	2.9	.75
10	9.5	16	12	76	47	93	101	214	155	14	2.8	.75
11	9.5	15	12	49	52	82	112	194	120	13	2.2	.76
12	9.5	16	12	43	49	75	110	177	107	12	1.7	.76
13	10	16	12	42	51	75	102	187	98	11	1.4	.78
14	9.5	16	12	69	61	80	90	257	89	10	1.6	1.1
15	10	16	12	88	52	85	74	333	81	9.5	1.9	1.2
16	13	20	12	1,360	48	82	69	370	77	8.9	1.9	1.1
17	22	18	12	415	69	80	65	382	74	8.7	2.0	1.1
18	18	16	12	197	56	80	61	368	67	8.0	1.6	1.0
19	15	14	14	134	52	72	59	333	64	6.6	1.4	.87
20	14	14	78	105	49	66	57	317	59	6.1	1.5	.90
21	14	14	46	88	48	64	58	306	55	5.2	1.5	1.5
22	14	14	61	85	46	62	54	332	49	5.1	1.3	1.6
23	14	14	39	80	46	65	53	363	44	5.0	1.4	1.8
24	14	13	31	127	45	68	51	384	40	4.8	1.4	1.8
25	15	14	61	101	43	75	57	361	37	4.2	1.2	1.6
26	14	14	73	85	42	83	69	297	34	4.0	.98	1.2
27	14	12	46	87	41	80	77	320	33	4.3	1.4	1.1
28	14	12	34	77	69	72	65	314	30	4.5	1.9	1.1
29	14	12	30	67	-----	69	58	288	29	4.3	1.7	.93
30	12	11	29	63	-----	65	61	279	26	4.3	2.0	.97
31	12	-----	26	60	-----	59	-----	277	-----	4.5	2.4	-----
TOTAL	366.5	448	782	3,691	1,418	2,709	2,137	7,759	3,071	317.0	67.28	36.97
MEAN	11.8	14.9	25.2	119	50.6	87.4	71.2	250	102	10.2	2.17	1.23
MAX	22	28	78	1,360	69	263	112	384	264	24	4.1	2.2
MIN	7.5	11	11	19	41	59	51	68	26	4.0	.98	.75
AC-FT	727	889	1,550	7,320	2,810	5,370	4,240	15,390	6,090	629	133	73

CAL YR 1969 TOTAL 80,210.50 MEAN 220 MAX 3,640 MIN 7.0 ACFT 159,100  
WAT YR 1970 TOTAL 22,802.75 MEAN 62.5 MAX 1,360 MIN .75 ACFT 45,230

PEAK DISCHARGE (BASE, 500 CFS).--Jan. 16 (1200) 2,820 cfs (5.56 ft); May 17 (2230) 550 cfs (3.57 ft).

## 11210850 LEMONCOVE DITCH BELOW TERMINUS DAM, CALIF.

LOCATION.--Lat 36°24'55", long 119°00'22", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.25, T.17 S., R.27 E., Tulare County, on left bank 250 ft downstream from outlet tunnel of Terminus Dam and 2.4 miles northeast of Lemoncove.

PERIOD OF RECORD.--June 1962 to current year.

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 546.3 ft above mean sea level (levels by Corps of Engineers).

AVERAGE DISCHARGE.--8 years, 4.96 cfs (3,590 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 8.8 cfs May 5, 1970; no flow many days in 1962, 1969.

REMARKS.- Records excellent. Ditch receives water from Lake Kaweah (see sta 11210900) which is used for irrigation. At times, up to 3 cfs is diverted 200 ft upstream into Doffelmyer ditch for irrigation.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.4	8.1	5.4	1.0	.80	1.0	3.2	8.2	8.1	8.0	8.1	8.1
2	8.4	8.1	6.0	1.0	.80	1.0	3.2	8.2	8.0	8.0	8.1	8.1
3	8.4	8.1	6.0	1.0	.90	1.0	3.2	8.3	8.1	8.0	8.1	8.1
4	8.4	8.1	6.0	1.0	.90	1.0	3.2	8.3	8.1	8.0	8.1	8.1
5	8.4	7.2	6.0	1.0	.90	1.0	3.2	8.8	8.1	8.0	8.2	8.1
6	8.4	5.9	6.0	1.0	.90	.90	4.6	8.4	8.1	8.1	8.1	8.1
7	8.5	2.6	6.0	1.0	.90	.80	5.3	8.3	8.1	8.2	8.1	8.1
8	8.4	1.0	6.0	.80	.90	.80	5.1	8.3	8.1	8.1	8.2	8.1
9	8.4	1.0	5.8	.80	1.0	.90	6.4	8.3	8.1	8.1	8.1	8.1
10	8.4	1.0	5.7	.80	1.0	.90	7.7	8.3	8.1	8.1	8.1	8.1
11	6.8	1.0	5.7	.80	1.0	1.0	8.0	8.3	8.1	8.1	8.1	8.1
12	6.0	1.1	5.7	.80	1.0	1.0	8.0	8.3	8.0	8.1	8.1	8.1
13	6.0	1.2	5.7	.70	1.0	.90	8.1	8.3	8.0	8.1	8.1	8.1
14	5.9	1.3	5.7	.80	1.0	.90	8.2	8.2	8.0	8.2	8.1	8.1
15	6.6	1.3	5.7	.90	1.0	.90	8.2	8.2	8.0	8.2	8.1	8.1
16	7.0	1.4	5.7	.80	1.0	.90	8.2	8.2	8.0	8.1	8.1	8.1
17	7.4	1.3	5.7	.80	1.0	.80	8.2	8.2	8.0	8.1	8.2	8.1
18	8.1	1.2	5.8	.90	1.0	.90	8.2	8.2	8.1	8.1	8.1	8.1
19	8.1	1.2	5.2	.80	1.0	1.0	8.2	8.2	8.1	8.1	8.1	8.2
20	8.1	1.2	5.6	.80	1.0	1.0	8.2	8.2	8.1	8.1	8.1	8.1
21	8.1	1.2	3.1	.80	1.0	1.0	8.2	8.2	8.1	8.1	8.1	8.1
22	8.1	1.2	2.0	.80	1.0	1.0	8.2	8.2	8.1	8.1	8.2	8.1
23	8.1	1.2	.90	.80	1.0	1.7	8.2	8.2	8.1	8.1	8.1	8.1
24	8.1	2.4	.90	.80	1.0	2.0	8.2	8.2	8.1	8.1	8.1	8.1
25	8.1	3.1	.90	.90	1.0	2.0	8.2	8.2	8.1	8.1	8.1	8.1
26	8.1	3.1	.80	1.0	1.0	2.0	8.2	8.2	8.1	8.1	8.1	8.1
27	8.1	3.1	.90	.90	1.0	2.0	8.2	8.2	8.1	8.1	8.1	8.1
28	8.1	3.8	.90	.90	1.0	2.2	8.2	8.2	8.0	8.1	8.1	8.1
29	8.1	4.3	1.0	.80	-----	2.8	8.2	8.2	8.0	8.1	8.1	8.1
30	8.1	4.3	1.0	.80	-----	3.2	8.3	8.2	8.0	8.1	8.1	8.1
31	8.1	-----	1.0	.80	-----	3.2	-----	8.2	-----	8.1	8.1	-----
TOTAL	243.2	91.0	126.80	26.80	27.00	41.70	208.7	255.9	242.0	250.9	251.5	243.1
MEAN	7.85	3.03	4.09	.86	.96	1.35	6.96	8.25	8.07	8.09	8.11	8.10
MAX	8.5	8.1	6.0	1.0	1.0	3.2	8.3	8.8	8.1	8.2	8.2	8.2
MIN	5.9	1.0	.80	.70	.80	.80	3.2	8.2	8.0	8.0	8.1	8.1
AC-FT	482	180	252	53	54	83	414	508	480	498	499	482
CAL YR 1969	TOTAL 1,589.10		MEAN 4.35		MAX 8.5		MIN 0		AC-FT 3,150			
WTR YR 1970	TOTAL 2,008.60		MEAN 5.50		MAX 8.8		MIN .70		AC-FT 3,980			

## TULARE LAKE BASIN

## 11210900 LAKE KAWEAH NEAR LEMONCOVE, CALIF.

LOCATION.--Lat 36°24'53", long 119°00'07", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.25, T.17 S., R.27 E., Tulare County, in control tower near left abutment of Terminus Dam on Kaweah River, 2.1 miles northeast of Lemoncove.

DRAINAGE.--560 sq mi.

PERIOD OF RECORD.--October 1961 to current year. Fragmentary prior to March 1962. Prior to October 1962, published as Terminus Reservoir near Lemoncove.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers). Prior to May 22, 1962, nonrecording gage at same site and datum.

EXTREMES.--Current year: Maximum contents, 130,433 acre-ft June 7 (elevation, 683.86 ft); minimum, 7,648 acre-ft Sept. 30 (elevation, 568.65 ft).

Period of record: Maximum contents, 160,200 acre-ft July 3, 4, 1967 (elevation, 699.39 ft), storage increased by a temporary sandbag dam in the ungated spillway; minimum since reservoir first filled, 7,648 acre-ft Sept. 30, 1970 (elevation, 568.65 ft).

REMARKS.--Reservoir is formed by earthfill dam and earthfill auxiliary dam; completed and storage began in February 1962. Usable capacity, 149,433 acre-ft between elevations 520.0 ft (invert of outlet structure) and 694.0 ft (spillway crest). Dead storage, 166 acre-ft. Spillway design flood pool elevation, 745.1 ft (capacity, 266,000 acre-ft). Records, including extremes, represent total contents at 2400 hours.

COOPERATION.--Records furnished by Corps of Engineers.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

520	166	580	11,996
525	343	600	22,767
530	598	620	39,354
535	954	640	61,695
540	1,464	660	89,818
550	2,937	680	123,423
560	5,093	700	161,476
570	8,105	720	204,327

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	81,800	19,216	7,988	8,850	35,032	10,273	15,342	45,998	125,874	89,289	31,112	7,958
2	79,851	17,287	7,998	8,760	34,216	12,131	16,099	47,055	127,398	87,233	30,070	7,856
3	77,572	15,890	7,995	8,649	33,386	12,044	16,977	48,412	128,564	85,383	29,073	7,883
4	75,323	14,728	7,992	8,510	32,526	11,135	17,878	49,813	129,332	83,612	28,100	7,890
5	72,978	13,936	7,992	8,348	31,622	10,841	18,875	51,281	129,790	81,875	27,182	7,890
6	70,802	13,451	7,992	8,195	30,668	10,115	20,070	53,149	130,047	80,012	26,285	7,890
7	68,680	13,036	7,998	8,046	29,704	9,506	21,273	54,614	130,433	77,975	25,450	7,886
8	66,506	12,458	8,002	8,019	28,799	8,908	22,461	56,252	130,176	75,747	24,722	7,880
9	64,374	11,835	8,005	8,070	27,850	8,334	23,813	57,940	130,249	73,380	23,983	7,866
10	62,233	11,214	8,005	9,513	26,925	8,386	25,329	60,109	129,680	71,100	23,229	7,856
11	60,170	10,768	7,995	10,218	26,087	8,250	27,015	62,158	128,729	68,813	22,377	7,832
12	58,145	10,480	8,002	10,269	25,265	8,163	28,622	63,864	127,689	66,454	21,479	7,809
13	56,122	10,233	8,012	9,846	24,479	8,174	30,095	65,752	126,435	64,055	20,693	7,778
14	54,053	9,955	8,016	10,088	23,759	8,351	31,345	68,388	124,988	61,595	19,909	7,768
15	52,056	9,658	8,002	10,957	22,898	8,595	32,358	71,728	123,064	59,263	19,077	7,768
16	50,387	9,404	7,998	27,975	21,953	8,595	33,332	75,506	121,062	57,003	18,237	7,765
17	48,743	9,195	7,998	34,308	21,323	8,506	34,281	79,354	119,002	54,707	17,463	7,765
18	47,055	8,978	8,002	36,197	20,504	8,376	35,153	83,236	116,992	52,676	16,713	7,752
19	45,284	8,745	8,029	37,006	19,596	8,098	35,970	86,696	114,994	50,782	15,927	7,741
20	43,478	8,439	8,857	37,294	18,646	7,988	36,767	89,818	113,097	48,865	15,105	7,735
21	41,652	8,274	9,277	37,303	17,689	8,005	37,582	92,849	111,164	46,882	14,314	7,728
22	39,689	8,181	10,099	37,246	16,659	8,084	38,327	96,135	109,145	45,146	13,549	7,725
23	37,592	8,060	10,041	37,063	15,633	8,132	39,118	99,702	107,076	43,634	12,763	7,725
24	35,509	8,043	9,827	37,842	14,561	8,666	39,947	103,376	104,725	42,130	11,970	7,711
25	33,350	8,053	10,349	38,055	13,220	9,605	40,805	106,806	102,530	40,644	11,323	7,705
26	31,112	8,050	10,772	37,920	11,642	10,756	41,764	109,674	100,192	39,128	10,691	7,691
27	28,960	8,029	10,265	37,775	10,002	11,727	42,693	112,751	98,041	37,582	10,033	7,671
28	26,902	8,019	9,627	37,495	9,605	12,588	43,489	115,746	95,782	36,018	9,385	7,668
29	24,919	7,998	9,162	37,054	-----	13,368	44,219	118,401	93,579	34,391	8,945	7,655
30	23,122	7,978	8,981	36,453	-----	14,074	45,072	120,973	91,414	33,161	8,624	7,648
31	21,167	-----	8,912	35,744	-----	14,703	-----	123,602	-----	32,120	8,302	-----
MAX	81,800	19,216	10,772	38,055	35,032	14,703	45,072	123,602	130,433	89,289	31,112	7,958
MIN	21,167	7,978	7,988	8,019	9,605	7,988	15,342	45,998	91,414	32,120	8,302	7,648
(a)	597.49	569.63	572.28	616.25	574.14	585.85	625.60	680.10	661.02	612.28	570.57	568.65
(b)	-61,889	-13,189	+934	+26,832	-26,139	+5,098	+30,369	+78,530	-32,188	-59,294	-23,818	-654
(c)	569	126	52	86	99	101	300	941	1,326	1,136	551	278
CAL YR 1969	MAX 158,800	MIN 7,910	b +822									
WAT YR 1970	MAX 130,433	MIN 7,648	b-75,452									

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

c Evaporation, in acre-feet.

## 11210930 FOOTHILL DITCH BELOW TERMINUS DAM, CALIF.

LOCATION --Lat 36°24'48", long 119°00'47", in NE $\frac{1}{4}$  sec.35, T.17 S., R.27 E, Tulare County, on left bank 0.7 mile downstream from Terminus Dam and 2.1 miles northeast of Lemnecove.

PERIOD OF RECORD.--October 1961 to current year.

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 492.8 ft above mean sea level (levels by Corps of Engineers).

AVERAGE DISCHARGE.--9 years, 17.6 cfs (12,750 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 50 cfs Feb. 10, 1962; minimum daily, 1.0 cfs Feb. 1-2, 1962.

REMARKS.--Records excellent. Ditch receives water from Lake Kaweah (see sta 11210900) which is used for irrigation.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	17	12	13	17	16	16	19	22	27	25	22
2	20	17	12	13	17	17	15	19	24	27	25	20
3	19	16	12	13	17	18	15	19	24	27	24	18
4	19	16	12	13	17	18	15	19	24	27	24	19
5	18	15	12	13	17	18	14	19	24	27	24	18
6	18	15	12	13	17	18	14	19	24	27	24	18
7	18	15	12	13	17	18	17	19	25	27	24	18
8	18	16	12	13	17	18	21	19	26	27	24	18
9	18	16	11	13	18	17	21	19	26	28	24	18
10	17	16	11	13	18	17	21	19	26	27	23	18
11	16	15	11	13	18	17	21	19	26	27	23	18
12	16	15	11	14	18	17	20	19	27	27	23	18
13	16	14	11	16	18	17	21	19	27	27	22	18
14	16	14	11	15	18	17	20	19	27	27	22	18
15	16	14	11	15	18	17	20	20	27	27	22	17
16	16	14	11	13	18	18	20	20	27	27	23	17
17	16	14	11	14	18	18	20	20	27	27	22	17
18	17	14	11	16	18	18	20	20	27	27	22	18
19	17	14	11	16	18	18	20	20	27	27	22	18
20	17	14	11	16	18	17	20	20	27	27	23	17
21	17	14	11	16	18	17	19	20	27	27	22	17
22	17	14	12	16	18	17	19	20	27	26	22	17
23	17	13	13	16	18	17	19	20	27	26	22	17
24	17	13	13	16	18	17	18	20	27	26	22	17
25	17	12	13	16	18	16	19	20	27	26	22	17
26	17	13	14	16	18	16	19	20	27	26	22	17
27	17	13	14	17	18	16	19	20	27	26	22	17
28	17	13	14	17	17	16	19	20	27	26	22	17
29	17	12	14	17	-----	16	19	21	27	26	21	17
30	16	12	13	17	-----	16	19	22	27	25	20	17
31	16	-----	13	17	-----	16	-----	22	-----	25	20	-----
TOTAL	532	430	372	459	495	529	560	611	784	826	702	533
MEAN	17.2	14.3	12.0	14.8	17.7	17.1	18.7	19.7	26.1	26.6	22.6	17.8
MAX	20	17	14	17	18	18	21	22	27	28	25	22
MIN	16	12	11	13	17	16	14	19	22	25	20	17
AC-FT	1,060	853	738	910	982	1,050	1,110	1,210	1,560	1,640	1,390	1,060

CAL YR 1969 TOTAL 5,299.8

MEAN 14.5

MAX 23

MIN 5.9

AC-FT 10,510

WTR YR 1970 TOTAL 6,833

MEAN 18.7

MAX 28

MIN 11

AC-FT 13,550

## TULARE LAKE BASIN

## 11210950 KAWEAH RIVER BELOW TERMINUS DAM, CALIF.

LOCATION.--Lat 36°24'51", long 119°00'42", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.26, T.17 S., R.27 E., Tulare County, on left bank 0.6 mile downstream from Terminus Dam and 2.2 miles northeast of Lemoncove.

DRAINAGE AREA.--561 sq mi.

PERIOD OF RECORD.--October 1961 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 495.90 ft above mean sea level (levels by Corps of Engineers).

AVERAGE DISCHARGE (adjusted for change in contents, evaporation and diversion).--9 years, 724 cfs (524,500 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,700 cfs June 24 (gage height, 5.74 ft); minimum daily, 6.6 cfs Sept. 29.

Period of record: Maximum discharge, 5,610 cfs June 3, 1969 (gage height, 8.77 ft; no flow at times in most years).

REMARKS.--Records excellent. Flow regulated by Lake Kaweah (see sta 11210900). Lemoncove ditch (see sta 11210850) diverts water from Lake Kaweah for irrigation. Foothill ditch (see sta 11210930) diverts water from the gage pool for irrigation. Doffelmyer ditch diverts up to 3 cfs above the station for irrigation. At times some of this water is returned to the river above the station. Records of chemical analyses for the water year 1970 are published in Part 2 of this report.

REVISIONS (WATER YEARS).--WRD Calif. 1969: 1967(M). Typographical error for March 1963, adjusted acre-feet published in WRD Calif. 1963 and WSP 1931 as 47,560 acre-feet is revised to 27,560 acre-feet.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER, 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	701	1,050	87	199	800	482	208	110	616	1,360	551	140
2	1,050	1,050	83	199	814	536	165	132	902	1,340	538	73
3	1,220	784	89	198	824	802	151	139	938	1,240	534	10
4	1,220	644	87	197	820	1,100	161	172	951	1,180	517	13
5	1,220	488	85	195	831	964	158	186	945	1,170	490	17
6	1,170	381	87	194	839	969	151	187	978	1,220	481	17
7	1,140	420	87	196	833	904	164	192	994	1,300	443	18
8	1,140	440	90	154	832	873	172	189	1,200	1,370	414	20
9	1,140	431	92	126	840	820	173	188	1,350	1,420	408	19
10	1,140	426	92	128	836	646	178	191	1,360	1,420	400	19
11	1,130	356	91	120	831	602	188	209	1,350	1,420	440	19
12	1,110	278	88	315	826	570	191	211	1,340	1,420	467	19
13	1,110	255	86	478	831	524	195	198	1,330	1,420	421	19
14	1,090	261	86	417	834	525	192	204	1,330	1,410	410	14
15	1,070	267	90	405	833	527	186	231	1,460	1,370	428	9.2
16	1,060	266	88	197	838	624	168	264	1,580	1,320	430	9.0
17	1,070	237	82	273	835	689	146	278	1,630	1,320	398	11
18	1,070	216	80	544	833	689	153	286	1,650	1,180	385	12
19	1,060	215	82	609	834	689	154	300	1,670	1,110	401	13
20	1,060	239	85	655	834	577	124	290	1,680	1,110	410	12
21	1,070	195	82	679	834	523	114	271	1,700	1,130	392	12
22	1,110	153	219	691	835	521	113	264	1,700	1,010	382	12
23	1,160	155	313	695	833	564	87	265	1,700	879	376	13
24	1,170	121	313	697	832	429	76	276	1,700	859	376	14
25	1,170	96	310	714	943	318	80	280	1,670	854	312	13
26	1,170	99	458	736	1,040	286	80	265	1,640	851	285	12
27	1,160	103	554	746	1,050	279	120	252	1,620	860	286	12
28	1,110	99	510	747	659	276	137	248	1,550	862	284	7.3
29	1,070	96	407	744	-----	273	116	366	1,480	857	210	6.6
30	990	97	282	776	-----	263	101	455	1,420	693	146	7.7
31	1,660	-----	215	800	-----	249	-----	468	-----	567	139	-----
TOTAL	34,211	9,917	5,406	13,824	23,624	18,093	4,402	7,567	41,434	35,922	12,154	592.8
MEAN	1,104	331	174	446	844	584	147	244	1,381	1,146	392	19.8
MAX	1,220	1,050	554	900	1,050	1,100	208	468	1,700	1,420	551	140
MIN	701	96	80	120	659	249	76	110	616	567	139	6.6
AC-FT	67,860	19,670	10,720	27,420	46,860	35,890	8,730	15,010	82,180	70,460	24,110	1,180
MEAN a	131	128	207	899	394	687	688	1,564	897	235	44.4	39.5
AC-FT a	8,080	7,640	12,700	55,300	21,860	42,220	40,920	36,200	53,360	14,440	2,730	2,350

CAL YR 1969 TOTAL 631,560 MEAN 1,730 MAX 5,560 MIN 43 AC-FT 1,253,000 MEAN a 1,762 AC-FT a 1,276,000  
WTR YR 1970 TOTAL 206,746.8 MEAN 566 MAX 1,700 MIN 6.6 AC-FT 410,100 MEAN a 494 AC-FT a 357,800

a Adjusted for diversion to Lemoncove ditch, Foothill ditch, and change in contents and evaporation from Lake Kaweah.

## 11211300 DRY CREEK NEAR LEMONCOVE, CALIF.

LOCATION.--Lat 36°26'51", long 119°01'38", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.15, T.17 S., R.27 E., Tulare County, on right bank 0.5 mile downstream from Bequette Canyon, 2.9 miles upstream from mouth, and 4.4 miles north of Lemoncove.

DRAINAGE AREA.--75.6 sq mi.

PERIOD OF RECORD.--October 1959 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 570 ft (from topographic map). Prior to Mar. 8, 1969, 1.6 miles downstream at different datum.

AVERAGE DISCHARGE.--11 years, 22.4 cfs (16,230 acre-ft per year); median of yearly mean discharges, 8.0 cfs (5,800 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,990 cfs Jan. 16 (gage height, 6.18 ft); no flow for several months.

Period of record: Maximum discharge, 14,500 cfs Dec. 6, 1966 (gage height, 7.30 ft in gage well, 8.94 ft, from floodmarks); no flow for several months in each year.

REMARKS.--Records good. Small diversions above station for irrigation.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.07	1.9	3.5	6.2	20	124	16	11	1.4	.65		
2	.07	1.9	4.0	6.8	19	338	15	10	1.4	.55		
3	.20	1.4	4.0	6.2	18	121	15	9.7	1.4	.45		
4	.25	1.4	4.0	6.2	18	105	14	8.8	1.4	.35		
5	.35	1.4	4.6	5.7	17	185	14	8.4	1.2	.25		
6	.55	7.9	4.6	5.7	16	104	14	7.9	1.2	.20		
7	.45	17	4.6	5.7	16	81	13	8.4	1.0	.20		
8	.35	11	5.7	5.7	16	66	13	8.4	.80	.10		
9	.30	5.7	6.2	5.7	15	53	12	8.4	1.2	.10		
10	.45	4.0	6.2	34	16	55	12	8.4	1.4	.20		
11	.55	3.0	5.7	21	17	42	12	7.9	1.4	.20		
12	.65	2.4	5.2	19	16	37	12	7.9	1.4	.15		
13	.65	1.9	5.2	14	16	33	12	7.4	1.4	.10		
14	.80	1.4	4.6	32	21	31	14	7.4	1.4	.10		
15	1.0	1.9	4.6	72	17	30	13	7.0	1.2	.07		
16	2.4	3.0	4.6	928	16	28	12	6.6	1.4	.07		
17	6.2	3.5	4.6	376	25	27	12	5.6	1.6	.04		
18	7.9	3.5	4.0	135	20	25	12	5.2	1.6	.04		
19	5.7	3.5	5.2	91	17	24	12	4.8	1.4	.02		
20	5.2	3.5	11	63	16	22	12	4.8	1.4	.02		
21	3.5	3.5	12	47	15	21	12	4.8	1.4	0		
22	2.4	3.5	20	36	13	21	13	4.8	1.2	0		
23	1.9	3.5	12	34	13	20	12	4.3	.80	0		
24	1.4	3.5	7.4	72	13	20	12	3.4	.80	0		
25	1.9	3.5	25	57	12	19	11	2.0	.80	0		
26	2.4	3.5	45	32	12	18	11	2.5	.80	0		
27	3.0	4.0	13	28	11	18	14	3.0	.65	0		
28	3.0	4.0	11	28	21	17	13	2.0	.65	0		
29	3.0	3.5	8.4	25	-----	17	12	2.0	.80	0		
30	3.0	3.5	6.8	23	-----	17	12	1.6	.80	0		
31	2.4	-----	6.2	21	-----	16	-----	1.6	-----	0		
TOTAL	61.99	117.2	268.9	2,241.9	462	1,735	383	186.0	35.30	3.86	0	0
MEAN	2.00	3.91	8.67	72.3	16.5	56.0	12.8	6.00	1.18	.12	0	0
MAX	7.9	17	45	928	25	338	16	11	1.6	.65	0	0
MIN	.07	1.4	3.5	5.7	11	16	11	1.6	.65	0	0	0
AC-FT	123	232	533	4,450	916	3,440	760	369	70	7.7	0	0

CAL YR 1969 TOTAL 40,105.98 MEAN 110 MAX 3,150 MIN 0 ACFT 79,550  
WAT YR 1970 TOTAL 5,495.15 MEAN 15.1 MAX 928 MIN 0 ACFT 10,900

PEAK DISCHARGE (BASE, 50 CFS)							
DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-26	0100	2.73	98	1-24	1630	2.88	141
1-10	1500	2.44	62	3- 2	0400	4.38	708
1-15	0100	3.18	205	3- 5	0200	3.74	330
1-16	1230	6.18	1,990				

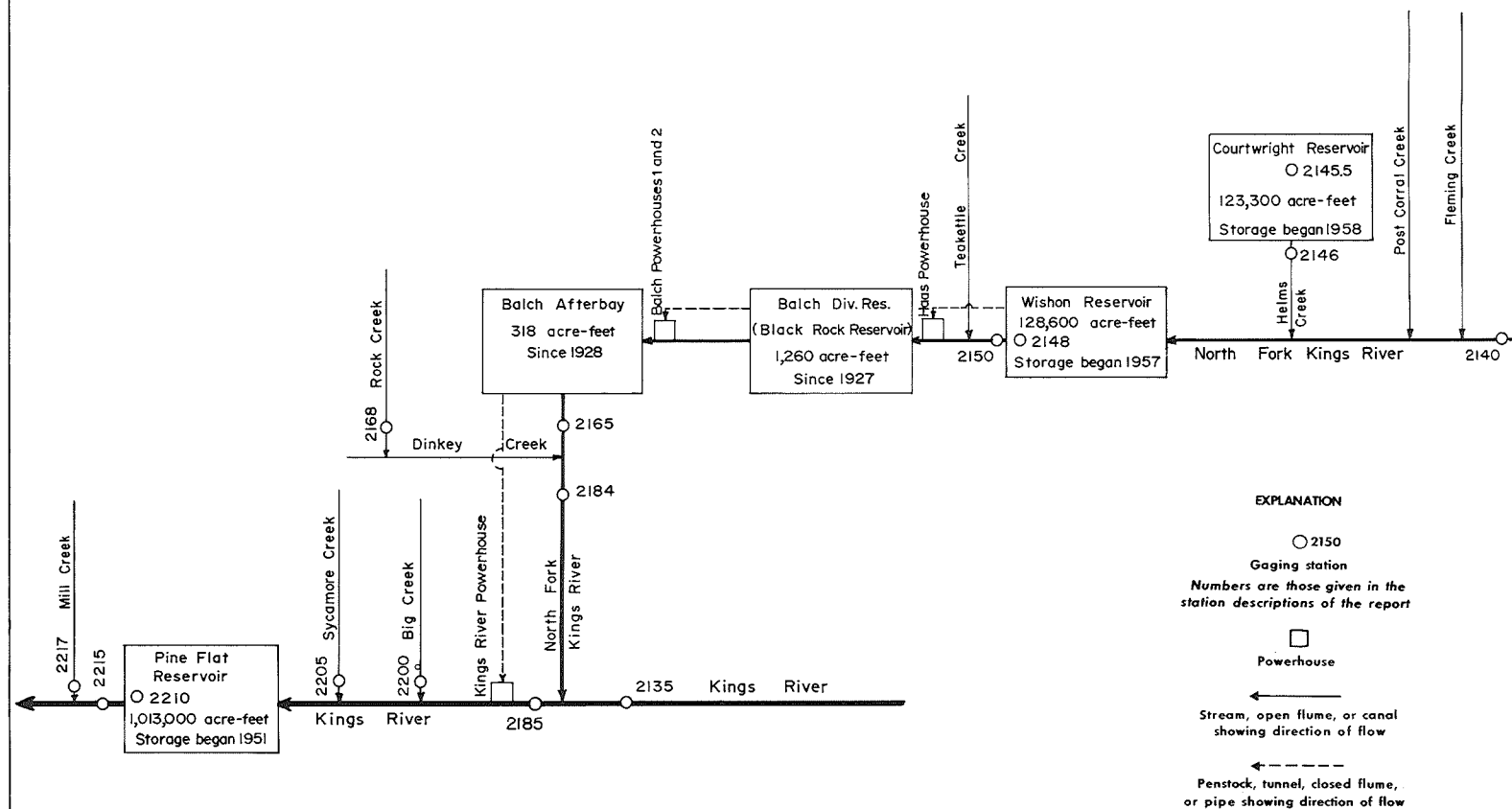


FIGURE 5.--Schematic diagram showing diversions and storage in Kings River basin.



## TULARE LAKE BASIN

601

11213500 KINGS RIVER ABOVE NORTH FORK, NEAR TRIMMER, CALIF.

LOCATION.--Lat 36°51'48", long 119°07'24", in NE¼ sec.27, T.12 S., R.26 E., Fresno County, on right bank at Rogers Crossing, 0.9 mile upstream from North Fork, 2.9 miles south of Balch Camp, and 9.6 miles southeast of Trimmer.

DRAINAGE AREA.--952 sq mi.

PERIOD OF RECORD.--October 1926 to December 1928, October 1931 to current year. Prior to September 1965, published as Kings River above North Fork. Monthly figures only for some periods published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is 1,001.5 ft above mean sea level (river-profile survey). March 1927 to December 1928, at site 0.5 mile downstream at different datum. October 1931 to September 1965, on left bank at datum 2.00 ft higher.

AVERAGE DISCHARGE.--41 years, 1,446 cfs (1,048,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 6,980 cfs Jan. 16 (gage height, 7.70 ft); minimum daily, 193 cfs Sept. 23.

Period of record: Maximum discharge, 59,100 cfs Dec. 23, 1955 (gage height, 18.26 ft, present datum), from rating curve extended above 19,000 cfs on basis of slope-area measurement of maximum flow; minimum daily, 70 cfs Jan. 14, 1963.

REMARKS.--Records good. No diversion or regulation above station. See schematic diagram of Kings River basin. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	444	340	245	298	617	790	869	1,100	6,120	1,590	732	340
2	430	340	245	283	581	1,050	882	1,270	5,730	1,590	661	322
3	422	336	245	264	558	804	930	1,620	5,400	1,650	619	305
4	404	336	230	230	553	732	965	1,980	5,070	1,630	593	287
5	386	329	220	204	548	765	1,040	2,130	4,380	1,690	587	278
6	374	400	230	208	542	746	1,220	2,640	4,120	1,840	575	272
7	367	515	234	227	536	765	1,330	2,210	4,050	1,800	564	257
8	352	439	220	238	548	765	1,380	2,310	4,120	1,920	536	245
9	344	404	227	255	542	726	1,510	2,320	4,170	2,160	515	235
10	333	400	208	732	542	720	1,760	2,970	3,700	2,540	490	230
11	333	404	204	485	536	674	1,910	2,830	3,060	2,040	475	225
12	321	400	217	466	542	642	1,900	2,200	2,970	1,670	475	225
13	310	391	217	435	570	642	1,730	2,180	2,380	1,540	475	222
14	298	391	217	744	593	706	1,510	3,120	2,050	1,470	480	220
15	302	382	211	852	542	732	1,340	4,220	1,790	1,400	470	215
16	702	391	201	4,680	526	739	1,270	4,940	1,780	1,370	457	210
17	810	374	204	2,750	635	765	1,160	5,640	2,130	1,280	452	200
18	593	329	201	1,610	558	791	1,090	5,920	2,540	1,240	448	195
19	495	333	224	1,250	520	739	1,080	5,400	2,970	1,200	439	235
20	452	333	452	1,040	495	700	1,020	4,830	3,400	1,200	430	205
21	422	325	424	930	485	700	1,030	4,600	3,590	1,200	417	200
22	400	314	680	916	480	732	951	5,090	3,640	1,120	400	198
23	391	302	413	862	461	778	916	5,640	3,570	1,010	378	193
24	400	302	371	1,320	452	869	909	5,800	3,200	937	363	195
25	382	298	677	1,030	448	980	951	5,460	3,160	902	350	263
26	363	294	658	909	439	1,170	1,080	5,070	2,920	889	340	263
27	359	283	457	895	444	1,170	1,080	5,460	3,320	921	340	257
28	371	268	363	810	538	1,090	1,020	5,640	2,640	995	347	245
29	400	249	333	739	-----	1,060	980	5,550	2,170	965	368	240
30	355	249	329	694	-----	1,030	1,020	5,700	1,720	889	375	235
31	340	-----	314	629	-----	923	-----	5,990	-----	810	354	-----
TOTAL	12,655	10,451	9,671	26,985	14,831	25,495	35,833	121,830	101,860	43,458	14,505	7,212
MEAN	408	348	312	870	530	822	1,194	3,930	3,395	1,402	468	240
MAX	810	515	680	4,680	635	1,170	1,910	5,990	6,120	2,540	732	340
MIN	298	249	201	204	439	642	869	1,100	1,720	810	340	193
AC-FT	25,100	20,730	19,180	53,520	29,420	50,570	71,070	241,600	202,000	86,200	28,770	14,310
CAL YR 1969	TOTAL	1,301,145	MEAN	3,565	MAX	18,800	MIN	201	ACFT	2,581,000		
WAT YR 1970	TOTAL	424,786	MEAN	1,164	MAX	6,120	MIN	193	ACFT	842,600		

## PEAK DISCHARGE (BASE, 6,300 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-16	1200	7.70	6,980	6- 1	0300	7.65	6,840
5-18	0330	7.62	7,040				

## 11214000 NORTH FORK KINGS RIVER BELOW MEADOW BROOK, CALIF.

LOCATION.--Lat 37°04'53", long 118°51'43", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.12, T.10 S., R.28 E., Fresno County, Sierra National Forest, on left bank 800 ft downstream from Nichols Canyon, 0.6 mile downstream from Meadow Brook, 3.9 miles west of Blackcap Mountain, 5.9 miles east of Courtright Dam, and 23 miles southeast of town of Huntington Lake.

DRAINAGE AREA.--37.7 sq mi.

PERIOD OF RECORD.--October 1921 to September 1935, October 1956 to current year. Monthly discharge only for some periods and yearly estimates for some incomplete years, published in WSP 1315-A. Records for Jan. 1-23, and Dec. 1-21, 1934, published in WSP 551 and 766, respectively, have been found to be unreliable and should not be used.

GAGE.--Water-stage recorder. Datum of gage is 8,144.66 ft above mean sea level, unadjusted (levels by Pacific Gas and Electric Co.).

AVERAGE DISCHARGE.--28 years, 71.3 cfs (51,660 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 747 cfs May 17 (gage height, 4.54 ft); minimum daily, 0.86 cfs Sept. 27-30.

Period of record: Maximum discharge, 2,040 cfs June 2, 1969 (gage height, 5.65 ft), from rating curve extended above 800 cfs; minimum recorded, 0.3 cfs Sept. 12-14, 1924.

Flood of Dec. 23, 1955, reached a stage of 5.85 ft, from floodmarks (discharge, 2,000 cfs).

REMARKS.--No regulation or diversion above station. See schematic diagram of Kings River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

REVISIONS (WATER YEARS).--WSP 1315-A: 1922(M). WSP 1515: Drainage area. See also PERIOD OF RECORD.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.7	14	4.3	5.5	13	17	44	71	497	60	14	2.0
2	5.4	14	4.7	5.2	12	20	51	112	469	58	12	1.9
3	5.0	14	4.3	5.0	12	18	64	148	401	58	11	1.8
4	5.0	14	3.7	4.8	12	16	69	160	336	57	9.9	1.7
5	4.7	13	4.0	4.5	13	17	86	192	336	57	9.1	1.6
6	4.3	13	4.7	4.5	13	16	101	180	306	59	8.7	1.6
7	4.3	24	4.3	5.0	14	17	99	173	282	54	7.9	1.4
8	4.0	27	3.7	5.0	16	17	117	182	279	50	7.5	1.3
9	3.7	23	3.5	6.5	16	16	146	232	306	53	6.8	1.2
10	3.5	25	3.5	9.1	15	15	169	243	235	53	6.1	1.2
11	3.3	25	3.5	8.0	14	15	167	199	206	45	5.7	1.1
12	3.3	23	4.0	7.0	16	14	148	162	194	39	5.4	1.1
13	3.1	22	4.3	7.0	15	17	125	237	171	35	5.0	1.1
14	3.3	20	4.0	10	15	24	94	349	148	33	5.0	1.1
15	8.6	19	3.7	23	14	25	77	436	125	32	4.7	1.1
16	24	17	3.5	44	14	29	67	515	126	30	4.7	1.1
17	24	11	3.3	30	15	35	63	564	148	28	4.3	1.1
18	18	12	3.1	25	15	35	58	533	178	26	5.4	1.1
19	16	13	3.3	21	14	30	54	463	209	26	5.7	1.0
20	17	12	6.4	18	14	28	49	406	222	27	5.4	1.1
21	17	11	10	21	12	31	47	431	222	24	4.7	1.1
22	18	9.1	9.0	23	12	39	45	486	206	22	4.3	1.1
23	21	7.5	8.0	20	12	46	43	527	182	20	3.7	1.0
24	20	7.9	7.0	17	12	61	45	527	169	17	3.1	.96
25	15	7.5	12	16	12	76	66	486	156	16	2.9	.96
26	15	6.8	9.5	16	13	87	64	458	152	20	2.7	.91
27	14	6.1	8.0	15	14	75	51	455	162	26	2.7	.86
28	13	5.7	7.0	14	14	66	44	447	114	26	2.9	.86
29	14	5.7	6.5	14	-----	64	44	458	88	24	2.9	.86
30	13	5.4	6.2	14	-----	58	48	463	70	20	2.5	.86
31	14	-----	5.8	14	-----	47	-----	480	-----	16	2.2	-----
TOTAL	340.2	427.7	168.8	432.1	383	1,071	2,345	10,775	6,695	1,111	178.9	36.07
MEAN	11.0	14.3	5.45	13.9	13.7	34.5	78.2	348	223	35.8	5.77	1.20
MAX	24	27	12	44	16	87	169	564	497	60	14	2.0
MIN	3.1	5.4	3.1	4.5	12	14	43	71	70	16	2.2	.86
AC-FT	675	848	335	857	760	2,120	4,650	21,370	13,280	2,200	355	72

CAL YR 1969 TOTAL 69,743.40 MEAN 191 MAX 1,500 MIN 3.1 AC-FT 138,300  
WTR YR 1970 TOTAL 23,963.77 MEAN 65.7 MAX 564 MIN .86 AC-FT 47,530

PEAK DISCHARGE (BASE, 400 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
5-17	1900	4.54	747	5-31	1930	4.43	665
5-23	2030	4.45	679				

## RESERVOIRS IN TULARE LAKE BASIN, CALIF.

**11214550 COURTRIGHT RESERVOIR.**--Lat 37°04'40", long 118°58'05", in NW¼ sec.7, T.10 S., R.28 E., Fresno County, Sierra National Forest, at left end of dam on Helms Creek, 2.5 miles upstream from mouth, 4.6 miles east of Nelson Mountain, and 9.7 miles west of Blackcap Mountain. Drainage area, 39.7 sq mi. Period of record, October 1958 to current year. Water-stage recorder. Datum of gage is at mean sea level (levels by Pacific Gas and Electric Co.). Extremes for current year: Maximum contents, 34,000 acre-ft Oct. 1 (elevation, 8,103.98 ft); no contents June 10 to Sept. 30. Extremes for period of record: Maximum contents, 124,200 acre-ft July 13, 1967 (elevation, 8,184.55 ft); no contents in 1961-62, 1968, 1970. Reservoir is formed by rockfill dam completed in 1958. Usable capacity, 123,300 acre-ft between elevations 7,902 ft (invert of tunnel) and 8,184 ft (elevation of spillway). Dead storage negligible. See schematic diagram of Kings River basin. Record of contents furnished by Pacific Gas and Electric Co. in connection with a Federal Power Commission project.

**11214800 WISHON RESERVOIR.**--Lat 37°00'20", long 118°58'00", in NW¼ sec.6, T.11 S., R.28 E., Fresno County, Sierra National Forest, on right end of dam on North Fork Kings River, 1.2 miles north of Cliff Camp, 1.3 miles upstream from Cliff Camp gaging station, and 20 miles southeast of town of Big Creek. Drainage area, 177 sq mi. Period of record, December 1957 to current year. Water-stage recorder. Datum of gage is at mean sea level (levels by Pacific Gas and Electric Co.). Extremes for current year: Maximum contents, 127,100 acre-ft June 11 (elevation, 6,548.57 ft); minimum, 15,800 acre-ft Apr. 3 (elevation, 6,394.41 ft). Extremes for period of record: Maximum contents, 129,700 acre-ft July 29, 1958 (elevation, 6,551.1 ft); no contents in 1960. Reservoir is formed by rockfill dam completed in 1957. Capacity, 128,600 acre-ft between elevations 6,317 ft (bottom of slide gates) and 6,550 ft (operating crest of spillway gates). Dead storage negligible. Water is diverted to Haas powerhouse for power. See schematic diagram of Kings River basin. Record of contents furnished by Pacific Gas and Electric Co. in connection with a Federal Power Commission project.

## MONTHEND ELEVATION AND CONTENTS, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Courtright Reservoir				Wishon Reservoir		
Sept. 30.....	8,106.5	35,800	-	6,534.2	112,900	-
Oct. 31.....	8,082.4	21,300	-14,500	6,508.6	89,700	-23,200
Nov. 30.....	8,074.3	17,500	-3,800	6,474.2	61,800	-27,900
Dec. 31.....	8,065.1	14,000	-3,500	6,421.1	29,000	-32,800
CAL YR 1969.....	-	-	+13,320	-	-	-9,900
Jan. 31.....	8,055.3	10,900	-3,100	6,413.0	24,700	-4,300
Feb. 28.....	8,044.1	8,110	-2,790	6,411.8	24,100	-600
Mar. 31.....	8,035.8	6,420	-1,690	6,400.0	18,400	-5,700
Apr. 30.....	8,015.3	3,650	-2,770	6,417.6	27,100	+8,700
May 31.....	7,993.7	1,840	-1,810	6,538.2	116,800	+89,700
June 30.....	7,902.2	0	-1,840	6,547.2	125,800	+9,000
July 31.....	7,902.2	0	0	6,531.6	110,500	-15,300
Aug. 31.....	7,902.2	0	0	6,496.5	79,500	-31,000
Sept. 30.....	7,902.2	0	0	6,467.2	56,800	-22,700
WTR YR 1970.....	-	-	-35,800	-	-	-56,100

## TULARE LAKE BASIN

## 11214600 HELMS CREEK BELOW COURTRIGHT DAM, CALIF.

LOCATION.--Lat 37°04'35", long 118°58'04", in SW $\frac{1}{4}$  NW $\frac{1}{4}$  Sec.7, T.10 S., R.28 E., Fresno County, Sierra National Forest, on left bank 500 ft downstream from Courtright Dam, 2.5 miles upstream from North Fork Kings River, and 17 miles southeast of town of Huntington Lake.

DRAINAGE AREA.--39.7 sq mi.

PERIOD OF RECORD.--October 1958 to current year.

GAGE.--Water-stage recorder and broad-crested weir with V-notch. Altitude of gage is 7,840 ft (from Pacific Gas and Electric Co. survey).

AVERAGE DISCHARGE (adjusted for storage).--12 years, 77.8 cfs (56,370 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 870 cfs Oct. 1 (gage height, 5.29 ft); minimum daily, 2.4 cfs Aug. 27, Aug. 30 to Sept. 1.

Period of record: Maximum discharge, 1,340 cfs Aug. 29, 1969 (gage height, 5.81 ft); maximum gage height, 6.52 ft June 2, 1961; minimum daily discharge, 0.70 cfs Nov. 8, 1968.

REMARKS.--Flow regulated by Courtright Reservoir 500 ft upstream since October 1958 (see sta 11214550). No diversion above station. See schematic diagram of Kings River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

REVISIONS (WATER YEARS).--WSP 1715: 1959.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	840	77	70	63	63	60	58	47	320	20	4.7	2.4
2	832	76	69	63	63	59	58	47	24	19	4.5	2.5
3	825	76	69	63	63	59	58	49	29	17	4.4	2.5
4	825	76	69	63	63	59	58	51	31	16	4.3	2.5
5	818	76	69	64	63	60	58	214	324	15	4.1	2.6
6	818	76	69	64	63	59	58	349	496	14	4.0	2.6
7	413	76	69	64	63	59	58	349	431	13	3.7	2.6
8	81	76	69	64	62	59	364	349	280	12	3.6	2.6
9	81	75	68	64	62	59	361	349	310	12	3.4	2.7
10	80	75	68	63	63	59	353	349	134	24	3.1	2.7
11	80	75	68	63	63	58	349	349	88	19	2.9	2.7
12	80	75	68	63	63	58	349	349	80	15	2.8	2.7
13	80	74	66	63	63	58	349	361	79	12	2.7	2.7
14	80	74	66	63	62	58	345	361	79	12	2.7	2.7
15	80	74	66	64	61	58	342	368	77	11	2.6	2.7
16	80	75	66	64	61	58	331	372	71	10	2.6	2.7
17	80	74	65	64	61	58	331	372	64	9.6	2.5	2.7
18	80	73	65	64	61	58	320	380	61	8.8	2.8	2.7
19	80	73	64	64	61	58	310	380	58	8.8	2.9	2.7
20	80	73	64	64	61	58	163	384	54	9.1	2.8	2.7
21	80	73	65	64	61	58	40	384	49	8.0	2.8	2.7
22	79	73	64	64	61	58	41	548	44	7.4	2.7	2.7
23	79	72	64	64	60	58	42	644	40	6.6	2.6	2.7
24	79	72	64	64	60	58	43	644	43	5.4	2.5	2.7
25	77	72	64	64	60	58	44	701	34	5.0	2.5	2.7
26	79	72	64	64	60	58	45	740	32	6.6	2.5	2.7
27	79	72	64	64	60	58	46	720	33	8.8	2.4	2.7
28	77	72	64	63	60	58	46	707	27	8.8	2.5	2.7
29	77	72	63	63	-----	58	46	688	24	8.0	2.5	2.7
30	77	72	63	63	-----	58	47	638	23	6.6	2.4	2.7
31	77	-----	63	63	-----	58	-----	621	-----	4.8	2.4	-----
TOTAL	7,273	2,221	2,049	1,971	1,727	1,810	5,113	12,864	3,439	353.3	94.9	79.7
MEAN	235	74.0	66.1	63.6	61.7	58.4	170	415	115	11.4	3.06	2.66
MAX	840	77	70	64	63	60	364	740	496	24	4.7	2.7
MIN	77	72	63	63	60	58	40	47	23	4.8	2.4	2.4
AC-FT	14,430	4,410	4,060	3,910	3,430	3,590	10,140	25,520	6,820	701	188	158

CAL YR 1969 TOTAL 58,247.0 MEAN 160 MAX 986 MIN 10 AC-FT 115,500  
WTR YR 1970 TOTAL 38,994.9 MEAN 107 MAX 840 MIN 2.4 AC-FT 77,350

NOTE.--No gage-height record July 14 to Sept. 30.

## 11215000 NORTH FORK KINGS RIVER NEAR CLIFF CAMP, CALIF.

LOCATION.--Lat 36°59'38", long 118°58'49", in NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.12, T.11 S., R.27 E., Fresno County, Sierra National Forest, on right bank at Cliff Camp Bridge, 1 mile northwest of Cliff Camp, 1.2 miles downstream from Wishon Dam, and 2 miles downstream from Woodchuck Creek.

DRAINAGE AREA.--181 sq mi.

PERIOD OF RECORD.--August 1921 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is 6,143.95 ft above mean sea level, adjustment of 1912 (levels by San Joaquin Light and Power Corp.). Prior to Nov. 24, 1922, at site 1 mile upstream at different datum.

AVERAGE DISCHARGE (adjusted for storage and diversion).--49 years, 363 cfs (263,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 330 cfs Jan. 16 (gage height, 4.97 ft); minimum daily, 7.1 cfs Jan. 5-7.

Period of record (prior to regulation by Wishon Reservoir): Maximum discharge, 14,000 cfs Dec. 11, 1937 (gage height, 18.0 ft, from floodmarks), from rating curve extended above 4,200 cfs on basis of velocity-area studies; minimum, 0.6 cfs Dec. 30, 1930.

1957 to current year: Maximum discharge, 4,880 cfs May 28, 1958 (gage height, 11.75 ft); minimum daily, 0.8 cfs Dec. 14, 1957.

REMARKS.--Flow regulated by Wishon Reservoir 1.2 miles upstream since Dec. 5, 1957 (see sta 11214800) and Courtright Reservoir since Oct. 17, 1958 (see sta 11214550). Water diverted for power from Wishon Reservoir by tunnel to Haas powerhouse since Dec. 10, 1958. See schematic diagram of Kings River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

REVISIONS (WATER YEARS).--WSP 1715: 1951, drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	14	13	8.5	13	15	13	17	17	18	16	16
2	15	14	11	8.3	13	15	13	16	17	18	16	15
3	15	14	11	7.8	12	14	13	15	18	18	16	15
4	15	14	11	7.6	13	14	13	14	18	18	16	15
5	15	14	11	7.1	13	14	13	14	18	18	16	15
6	15	16	11	7.1	13	15	14	14	18	18	16	15
7	15	16	10	7.1	13	17	13	14	18	18	16	15
8	15	15	10	7.6	13	16	13	13	19	18	16	16
9	15	15	10	21	13	15	13	14	21	18	16	16
10	15	15	10	33	14	15	13	14	20	18	16	16
11	15	14	10	16	16	14	13	14	19	18	16	16
12	15	14	9.8	13	20	14	13	13	19	18	17	16
13	15	14	9.8	12	17	20	13	14	19	18	19	16
14	15	14	9.5	24	16	22	14	14	19	18	18	16
15	17	14	9.5	23	15	22	14	14	19	18	18	16
16	20	14	9.5	185	14	22	13	14	19	18	18	16
17	19	15	9.2	37	16	21	13	15	18	18	18	16
18	17	15	9.0	24	14	18	15	15	18	18	17	16
19	16	15	14	20	13	16	14	15	18	18	17	15
20	15	15	13	20	12	15	13	15	18	17	17	15
21	15	15	38	30	12	15	14	15	18	17	17	15
22	15	15	16	24	12	16	15	15	18	17	16	15
23	15	15	12	20	12	16	14	15	18	17	16	15
24	15	15	11	67	12	17	13	16	18	17	16	15
25	15	15	45	23	12	19	13	16	18	17	16	15
26	15	15	16	19	12	19	14	16	18	17	16	15
27	15	15	12	20	12	17	15	16	18	17	16	15
28	15	14	10	17	15	15	15	17	18	17	16	15
29	14	14	9.8	15	-----	15	15	17	18	17	16	15
30	14	14	9.2	14	-----	14	18	17	18	17	16	15
31	14	-----	8.7	13	-----	14	-----	17	-----	16	16	-----
TOTAL	476	438	399.0	751.1	382	511	412	465	550	545	512	462
MEAN	15.4	14.6	12.9	24.2	13.6	16.5	13.7	15.0	18.3	17.6	16.5	15.4
MAX	20	16	45	185	20	22	18	17	21	18	19	16
MIN	14	14	8.7	7.1	12	14	13	13	17	16	16	15
AC-FT	944	869	791	1,490	758	1,010	817	922	1,090	1,080	1,020	916

CAL YR 1969 TOTAL 98,192.2 MEAN 242 MAX 2,340 MIN 8.0 AC-FT 174,900  
WTR YR 1970 TOTAL 5,903.1 MEAN 16.2 MAX 185 MIN 7.1 AC-FT 11,710

LOCATION.--Lat 36°54'12", long 119°07'14", in SE<sup>1</sup>NE<sup>1</sup> sec.10, T.12 S., R.26 E., Fresno County, Sierra National Forest, on left bank 100 ft downstream from bridge at Balch Camp, 200 ft upstream from Dinkey Creek, and 9.3 miles east of Trimmer.

PERIOD OF RECORD.--October 1919 to September 1930 (published as "above Dinkey Creek"), March 1960 to current year. Records for water year 1920 incomplete, yearly estimate and monthly discharge only for some months, published in WSP 1315-A.

AVERAGE DISCHARGE (prior to storage and diversion).--11 years (1919-30), 387 cfs (280,200 acre-ft per year).

Period of record (prior to regulation by Wishon and Courtright Reservoirs): Maximum discharge, 6,080 cfs June 4, 1922 (gage height, 12.18 ft, site and datum then in use); minimum, 4 cfs Aug. 29 to Sept. 1, 1924. 1960 to current year: Maximum discharge, 14,000 cfs Feb. 1, 1963 (gage height, 13.24 ft, site and datum then in use, backwater from Dinkey Creek), from rating curve extended above 890 cfs; minimum daily, 0.30 cfs Nov. 3, 1964.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	JCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	14	12	8.3	7.0	219	11	10	9.5	14	15	16
2	17	12	7.2	8.3	7.0	234	11	10	11	14	14	16
3	17	13	7.2	8.1	6.8	181	11	10	13	14	14	16
4	17	13	7.0	7.9	7.0	102	10	10	15	14	14	16
5	17	14	6.8	7.9	8.1	130	10	10	15	13	11	16
6	17	18	6.6	7.9	8.3	12	10	10	15	14	8.3	16
7	16	17	7.0	8.1	8.1	14	11	9.5	15	15	13	16
8	16	16	6.4	7.9	7.9	14	11	7.9	15	15	14	16
9	16	16	6.6	7.2	7.4	14	11	7.9	15	15	15	16
10	16	16	7.0	8.3	7.7	13	11	7.7	15	15	15	16
11	15	16	7.2	8.5	7.9	13	11	7.4	15	15	16	19
12	15	16	7.4	9.0	7.9	13	11	7.4	15	15	16	21
13	15	16	7.4	7.9	8.8	12	11	7.4	15	15	16	21
14	15	16	7.4	6.2	9.0	12	11	7.4	15	15	16	20
15	17	15	6.8	6.8	8.3	12	11	7.4	15	15	16	20
16	22	15	7.4	49	7.9	12	10	7.4	15	15	16	19
17	18	14	7.4	32	11	11	10	7.2	15	15	16	19
18	17	13	7.4	19	9.0	11	10	7.2	15	15	16	21
19	16	14	6.8	14	8.5	11	10	7.4	15	15	16	19
20	16	13	7.4	15	8.3	11	10	7.9	15	16	16	21
21	15	13	9.7	14	8.1	11	11	8.1	15	16	16	21
22	15	13	8.8	11	8.1	11	11	8.1	15	16	16	21
23	15	14	8.1	10	58	11	11	8.1	15	16	16	21
24	14	14	7.9	13	128	11	10	8.1	15	16	16	21
25	15	14	9.0	11	123	10	10	8.1	14	16	16	21
26	16	14	9.0	9.7	123	10	11	7.9	14	16	16	21
27	16	14	8.8	9.5	120	10	11	7.7	14	16	16	20
28	16	14	8.3	8.3	128	10	11	7.2	14	16	15	21
29	15	15	8.3	7.7	-----	10	11	8.3	14	15	14	21
30	15	12	8.3	7.2	-----	11	10	8.3	14	15	14	21
31	15	-----	8.3	7.2	-----	11	-----	8.3	-----	15	15	-----
TOTAL	499	434	240.9	355.9	858.1	1,167	319	255.3	432.5	467	463.3	569
MEAN	16.1	14.5	7.77	11.5	30.6	37.6	10.6	8.24	14.4	15.1	14.9	19.0
MAX	22	18	12	49	128	234	11	10	15	16	16	21
MIN	14	12	6.4	6.2	6.8	10	10	7.2	9.5	13	8.3	16
AC-FT	990	861	478	706	1,700	2,310	633	506	858	926	919	1,130
WAL YR 1969	TOTAL	146,617.9	MEAN	402	MAX	4,950	MIN	6.4	AC-FT	290,800		
CTR YR 1970	TOTAL	6,061.0	MEAN	16.6	MAX	234	MIN	6.2	AC-FT	12,020		

## 11216800 ROCK CREEK AT DINKEY CREEK, CALIF.

LOCATION.--Lat 37°05'24", long 119°09'39", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.5, T.10 S., R.26 E., Fresno County, on right bank 0.4 mile northwest of town of Dinkey Creek and 0.5 mile upstream from mouth.

DRAINAGE AREA.--7.60 sq mi.

PERIOD OF RECORD.--July 1960 to September 1970 (discontinued as a continuous record station; converted to a crest-stage partial-record station).

GAGE.--Water-stage recorder and low-flow concrete control. Altitude of gage is 6,150 ft (from topographic map).

AVERAGE DISCHARGE.--10 years, 19.5 cfs (14,130 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 498 cfs Jan. 16 (gage height, 5.92 ft); minimum daily, 0.01 cfs many days.

Period of record: Maximum discharge, 2,850 cfs Feb. 1, 1963 (gage height, 8.68 ft), from rating curve extended above 400 cfs on basis of slope-area measurement of maximum flow; no flow at times in 1961-62, 1964-67.

REMARKS.--Records good. No diversions or regulation above station. See schematic diagram of Kings River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.45	.85	1.2	5.7	13	14	26	40	8.0	2.9	.40	.02
2	.26	.85	1.4	4.9	11	14	30	53	7.5	2.7	.38	.02
3	.09	.80	1.2	4.5	12	12	37	65	7.1	2.5	.36	.02
4	.40	.75	1.2	3.6	12	11	43	63	6.7	2.5	.34	.02
5	.40	.95	1.2	3.3	12	12	50	67	6.3	2.3	.34	.04
6	.40	1.9	1.4	3.5	12	13	58	57	6.1	2.0	.32	.06
7	.34	2.1	1.0	3.9	13	14	57	48	5.9	1.9	.30	.06
8	.18	2.7	1.2	4.0	14	15	57	46	6.6	1.8	.26	.05
9	.07	2.7	.90	5.3	14	14	65	48	13	1.8	.24	.04
10	.01	3.9	1.1	10	13	13	74	47	7.8	2.0	.22	.03
11	.01	4.9	1.2	7.6	20	12	71	39	6.7	1.7	.20	.01
12	.10	5.3	1.2	6.4	24	12	63	34	6.4	1.5	.18	.01
13	.36	5.4	1.3	5.9	19	17	50	37	6.4	1.4	.18	.01
14	.38	5.4	1.2	6.7	17	21	39	41	6.4	1.3	.14	.01
15	3.1	5.6	1.0	7.3	14	26	33	41	5.9	1.2	.12	.03
16	12	6.1	1.0	230	13	28	28	38	5.6	1.0	.10	.04
17	8.2	4.7	.95	86	13	33	22	35	5.2	1.0	.12	.03
18	3.8	3.4	1.1	48	13	30	25	30	4.6	.90	.12	.01
19	2.9	3.3	4.8	34	12	24	28	26	4.3	.90	.10	.01
20	2.2	3.1	8.6	27	11	22	30	22	4.0	.85	.12	.01
21	1.8	3.0	50	42	9.6	26	26	21	3.6	.80	.09	.04
22	1.6	2.7	24	43	9.6	30	25	19	3.3	.70	.06	.05
23	1.4	2.4	12	30	9.6	34	25	18	3.6	.70	.06	.05
24	1.3	2.2	11	79	9.6	43	28	16	3.6	.61	.05	.04
25	1.2	2.1	73	39	9.8	54	39	14	3.5	.57	.04	.03
26	1.0	1.8	25	28	11	54	39	13	3.5	.57	.04	.02
27	1.0	1.8	11	24	12	48	28	12	4.3	.61	.05	.02
28	1.0	1.4	8.2	19	11	43	25	11	3.5	.51	.05	.01
29	1.0	1.4	7.5	18	-----	40	26	12	3.4	.45	.05	.01
30	.95	1.4	6.4	16	-----	32	31	9.6	3.3	.42	.03	.01
31	.90	-----	6.0	14	-----	26	-----	8.8	-----	.42	.02	-----
TOTAL	48.80	84.90	268.25	859.6	364.2	787	1,178	1,031.4	166.1	40.51	5.08	.81
MEAN	1.57	2.83	8.65	27.7	13.0	25.4	39.3	33.3	5.54	1.31	.16	.027
MAX	12	6.1	73	230	24	54	74	67	13	2.9	.40	.06
MIN	.01	.75	.90	3.3	9.6	11	22	8.8	3.3	.42	.02	.01
AC-FT	97	168	532	1,710	722	1,560	2,340	2,050	329	80	10	1.6
CAL YR 1969	TOTAL	17,472.52	MEAN	47.9	MAX	452	MIN	.01	ACFT	34,660		
WAT YR 1970	TOTAL	4,834.65	MEAN	13.2	MAX	230	MIN	.01	ACFT	9,590		

PEAK DISCHARGE (BASE, 70 CFS)							
DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1700	4.92	234	3-25	1800	3.80	80
12-25	1400	4.94	238	4-10	1800	4.09	112
1-16	1300	5.92	498	5- 3	1800	3.98	100
1-24	0600	4.13	116				

## TULARE LAKE BASIN

11218400 NORTH FORK KINGS RIVER BELOW DINKEY CREEK, NEAR BALCH CAMP, CALIF.

LOCATION.--Lat 36°52'47", long 119°07'40", in NW¼ sec.22, T.12 S., R.26 E., Fresno County, Sierra National Forest, on right bank 1.1 miles upstream from mouth, 1.7 miles south of Balch Camp, 2.1 miles downstream from Dinkey Creek, and 9 miles east of Trimmer.

DRAINAGE AREA.--387 sq mi.

PERIOD OF RECORD.--March 1960 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,035 ft (from river-profile map).

EXTREMES.--Current year: Maximum discharge, 5,740 cfs Jan. 16 (gage height, 9.89 ft); minimum daily, 25 cfs Sept. 9.

Period of record: Maximum discharge, 27,400 cfs Feb. 1, 1963 (gage height, 19.20 ft), from rating curve extended above 4,900 cfs; minimum daily, 14 cfs Aug. 26-30, 1964, Sept. 1-4, 6-23, Sept. 26 to Oct. 6, 1968.

REMARKS.--Flow regulated by Courtright Reservoir (see sta 11214550), Wishon Reservoir (see sta 11214800), Black Rock Reservoir (capacity, 1,000 acre-ft), Balch afterbay (capacity, 125 acre-ft), and Haas and Balch powerplants. Diversion from Balch afterbay to Kings River powerhouse began Mar. 1, 1962. See schematic diagram of Kings River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

REVISIONS (WATER YEARS).--WRD Calif. 1967: 1963.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	49	49	84	193	483	252	331	404	80	34	28
2	39	45	41	78	183	488	271	398	371	76	34	28
3	39	46	42	71	183	389	314	470	331	72	33	28
4	39	45	41	64	185	296	331	503	290	70	33	28
5	39	46	40	61	187	319	371	550	271	65	33	27
6	39	100	42	64	181	221	430	567	254	64	31	27
7	39	112	41	70	187	235	424	503	232	62	31	26
8	39	91	41	70	196	237	430	503	218	61	31	26
9	38	83	41	124	190	216	477	523	439	58	31	25
10	39	83	39	430	184	214	540	574	271	71	31	27
11	40	89	41	196	198	196	556	513	223	65	31	26
12	39	89	42	151	244	193	517	424	201	58	31	27
13	38	87	41	136	236	225	464	517	187	55	31	27
14	38	84	40	287	213	268	385	672	194	53	30	27
15	44	81	39	223	205	281	341	769	185	50	30	27
16	243	102	39	2,970	196	292	319	843	165	47	30	27
17	230	84	39	1,010	238	307	294	852	154	46	30	27
18	114	70	40	496	194	285	287	803	144	44	30	28
19	85	68	48	358	182	251	287	720	138	43	30	27
20	81	66	158	304	173	234	273	635	130	42	30	27
21	74	65	371	351	169	243	279	605	125	41	29	28
22	70	62	296	383	163	271	262	616	117	40	29	28
23	65	59	157	303	206	285	256	631	111	39	29	28
24	63	56	125	704	263	324	262	616	104	39	29	28
25	61	56	486	382	252	377	301	553	98	38	29	28
26	57	55	251	303	258	410	338	506	97	37	29	28
27	55	53	142	298	263	374	301	506	101	37	29	27
28	55	52	104	250	324	343	266	464	94	37	29	27
29	53	50	99	225	-----	331	262	445	92	37	28	27
30	52	50	92	210	-----	307	283	430	88	35	28	27
31	50	-----	87	197	-----	268	-----	418	-----	35	28	-----
TOTAL	1,996	2,078	3,154	10,853	5,846	9,163	10,373	17,460	5,829	1,597	941	816
MEAN	64.4	69.3	102	350	209	296	346	563	194	51.5	30.4	27.2
MAX	243	112	486	2,970	324	488	556	852	439	80	34	28
MIN	38	45	39	61	163	193	252	331	88	35	28	25
AC-FT	3,960	4,120	6,260	21,530	11,600	18,170	20,570	34,630	11,560	3,170	1,870	1,620
CAL YR 1969	TOTAL	372,999	MEAN	1,022	MAX 7,820	MIN 38	AC-FT 739,800					
WTR YR 1970	TOTAL	70,106	MEAN	192	MAX 2,970	MIN 25	AC-FT 139,100					



## 11218500 KINGS RIVER BELOW NORTH FORK, NEAR TRIMMER, CALIF.

LOCATION.--Lat 36°52'29", long 119°08'27", in NE¼ sec.21, T.12 S., R.26 E., Fresno County, on right bank 0.8 mile downstream from North Fork, 2.4 miles southwest of Balch Camp, and 8.5 miles southeast of Trimmer.

DRAINAGE AREA.--1,342 sq mi.

PERIOD OF RECORD - October 1951 to current year. Prior to January 1952 monthly discharge only, published in WSP 1735. Published as Kings River below North Fork October 1951 to September 1965.

GAGE.--Water-stage recorder. Datum of gage is 942.42 ft above mean sea level (levels by Corps of Engineers).

AVERAGE DISCHARGE (adjusted for change in contents in Wishon and Courtright Reservoirs).--19 years, 2,211 cfs (1,602,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 13,600 cfs Jan. 16; minimum daily, 261 cfs Sept. 20.

Period of record: Maximum discharge, 85,200 cfs Dec. 23, 1955 (gage height, 23.08 ft), from rating curve extended above 22,000 cfs on basis of slope-area measurement of maximum flow; minimum daily, 97 cfs Jan. 13, 1963.

Flood of Nov. 19, 1950, reached a stage of 21.6 ft, from floodmarks (discharge, 74,200 cfs).

REMARKS.--Records good. Flow regulated by Courtright and Wishon Reservoirs (see sta 11214550, 11214800). Records include flow diverted to Kings River powerplant since Mar. 1, 1962. This station measures inflow to Pine Flat Reservoir. See schematic diagram of Kings River basin. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

COOPERATION.--Records of diversion to Kings River powerplant furnished by Pacific Gas and Electric Co.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,210	717	935	1,170	1,030	1,420	1,980	1,730	7,230	2,120	1,140	888
2	1,270	582	1,080	1,100	1,000	1,580	1,820	1,910	7,060	1,860	1,060	812
3	1,150	890	1,060	1,030	955	1,210	2,070	2,250	6,610	1,810	1,160	968
4	1,010	1,100	1,060	1,040	1,090	1,040	1,520	2,800	6,260	1,910	1,220	927
5	949	1,060	1,040	756	1,260	1,120	1,620	3,080	5,280	1,770	1,190	349
6	991	1,160	690	581	1,210	975	2,320	3,530	5,010	1,960	1,280	414
7	891	1,420	646	663	1,010	1,000	2,440	3,100	4,890	2,020	1,190	480
8	1,040	1,240	994	483	849	1,020	2,530	3,210	4,950	2,230	898	762
9	1,020	1,110	1,010	665	1,080	1,230	2,810	3,060	5,460	2,310	886	796
10	1,120	1,050	1,050	1,790	1,080	1,380	3,190	3,710	4,520	2,780	1,110	744
11	1,080	1,060	957	1,500	1,190	1,300	2,900	3,690	4,030	2,140	1,180	725
12	862	1,200	992	842	1,130	1,280	2,670	2,980	3,920	1,740	1,150	429
13	1,020	1,150	884	1,000	1,240	1,400	2,840	3,020	3,250	1,890	1,180	275
14	1,010	1,140	616	1,500	1,010	1,460	2,480	4,070	3,100	1,800	1,190	687
15	878	1,060	894	1,470	885	1,560	2,230	5,460	2,760	1,620	975	653
16	1,490	747	1,070	8,660	1,220	1,560	2,130	6,040	2,630	1,660	869	610
17	1,680	1,060	982	4,640	1,600	1,610	2,020	6,800	2,870	1,640	973	656
18	1,190	836	1,000	2,430	1,400	1,720	1,680	7,080	3,170	1,780	1,060	668
19	1,210	1,230	1,070	1,960	1,370	1,610	1,600	6,530	3,580	1,520	1,100	320
20	1,100	1,220	1,160	1,730	1,300	1,460	1,720	5,920	3,600	1,780	1,130	275
21	1,080	1,030	1,340	1,530	1,150	1,480	1,740	5,460	3,660	1,720	1,280	728
22	1,290	982	1,830	1,720	1,040	1,540	1,670	6,190	4,200	1,690	669	650
23	1,400	888	1,470	1,520	951	1,590	1,480	6,560	4,010	1,560	663	682
24	1,410	877	1,370	2,570	835	1,650	1,700	6,860	3,950	1,410	1,090	619
25	1,330	934	1,910	1,600	800	1,920	1,460	6,770	3,640	1,230	1,220	805
26	1,250	966	1,330	1,540	800	2,280	1,620	6,040	3,340	1,100	1,030	223
27	1,280	907	1,060	1,420	800	2,480	1,780	6,620	3,550	1,470	1,200	284
28	1,250	957	1,180	1,460	970	1,950	1,780	6,660	2,880	1,690	1,050	704
29	1,270	950	1,230	1,340	-----	1,590	1,680	7,000	2,650	1,620	421	549
30	1,220	783	1,200	1,320	-----	2,100	1,890	6,920	2,260	1,550	550	502
31	1,080	-----	1,280	1,060	-----	2,050	-----	6,900	-----	1,420	842	-----
TOTAL	36,031	30,306	34,390	52,090	30,155	47,565	61,430	151,950	124,320	54,800	31,956	18,254
MEAN	1,162	1,010	1,109	1,680	1,077	1,534	2,048	4,902	4,119	1,761	1,031	608
MAX	1,680	1,420	1,910	8,660	1,600	2,480	3,190	7,080	7,230	2,780	1,280	968
MIN	862	582	616	483	800	975	1,460	1,730	2,260	1,100	421	275
AC-FT	71,470	60,110	68,210	103,300	59,810	94,350	121,800	301,400	246,600	108,700	63,380	36,210
MEAN a	549	477	519	1,560	1,016	1,414	2,146	6,331	4,265	1,524	527	227
AC-FT a	33,770	28,410	31,910	95,900	56,420	86,960	127,700	389,300	253,800	93,700	32,380	13,510

CAL YR 1969 TOTAL 1,941,290 MEAN 5,319 MAX 26,600 MIN 511 ACFT 3,851,000 MEAN a 5,322 AC-FT a3,853,000  
WAT YR 1970 TOTAL 673,247 MEAN 1,845 MAX 8,660 MIN 275 ACFT 1,335,000 MEAN a 1,718 AC-FT a1,244,000

a Adjusted for change in contents in Wishon and Courtright Reservoirs.

## TULARE LAKE BASIN

11220000 BIG CREEK ABOVE PINE FLAT RESERVOIR, NEAR TRIMMER, CALIF.

LOCATION.--Lat 36°54'59", long 119°14'37", in NE $\frac{1}{4}$  sec.4, T.12 S., R.25 E., Fresno County, on right bank 2.4 miles upstream from mouth and 2.7 miles northeast of Trimmer.

DRAINAGE AREA.--70.0 sq mi (revised).

PERIOD OF RECORD.--October 1953 to current year. Prior to September 1965, published as Big Creek above Pine Flat Reservoir.

GAGE.--Water-stage recorder. Datum of gage is 962.04 ft above mean sea level (levels by Corps of Engineers).

AVERAGE DISCHARGE.--17 years, 52.8 cfs (38,250 acre-ft per year); median of yearly mean discharges, 32 cfs (23,200 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 3,560 cfs Jan. 16 (gage height, 6.83 ft); minimum daily, 0.07 cfs Sept. 14, 15.

Period of record: Maximum discharge, 16,400 cfs Jan. 25, 1969 (gage height, 10.43 ft), from rating curve extended above 4,400 cfs on basis of slope-area measurement at gage-height 9.21 ft; no flow at times in most years.

REMARKS.--Records excellent. This station measures inflow to Pine Flat Reservoir. No regulation or diversion above station. See schematic diagram of Kings River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.6	9.4	11	19	58	273	47	38	14	6.9	1.3	.15
2	4.4	8.7	11	19	54	288	46	35	13	5.9	1.3	.14
3	4.4	8.7	11	18	52	159	45	33	12	5.3	1.3	.14
4	4.6	8.7	11	17	50	141	44	32	11	5.4	1.2	.12
5	4.6	8.7	11	16	47	160	43	30	11	5.1	1.1	.15
6	4.6	36	11	16	45	125	44	30	11	4.5	1.0	.21
7	4.6	54	11	18	44	116	42	30	11	4.1	.99	.27
8	4.6	24	12	17	42	107	41	30	11	3.9	.94	.33
9	4.6	18	12	22	40	95	40	29	21	3.9	.83	.32
10	4.7	15	12	340	40	98	40	29	20	4.5	.69	.27
11	5.0	15	12	91	42	86	40	27	17	4.5	.51	.18
12	4.9	14	12	63	44	80	39	26	15	4.0	.32	.11
13	4.9	13	12	53	64	78	40	26	15	3.7	.28	.09
14	4.7	12	11	237	88	81	48	25	15	3.5	.25	.07
15	5.0	12	11	183	60	82	42	24	17	3.2	.23	.07
16	39	16	11	1,710	53	78	42	23	14	3.0	.21	.15
17	48	14	11	459	102	78	39	21	13	2.9	.19	.28
18	18	13	11	208	70	74	38	21	12	2.8	.19	.32
19	14	12	12	125	59	66	37	20	11	2.5	.21	.27
20	12	12	30	96	54	63	36	20	10	2.3	.23	.22
21	11	12	39	88	50	61	38	20	9.4	2.1	.22	.23
22	10	12	85	83	48	61	40	20	8.6	2.0	.22	.26
23	9.4	12	29	70	46	60	38	19	7.7	1.9	.21	.36
24	9.4	11	22	246	44	59	36	18	7.1	1.9	.20	.37
25	9.4	11	155	117	42	59	34	17	6.8	1.8	.19	.34
26	9.4	12	87	87	41	59	34	16	6.9	1.8	.18	.35
27	9.4	11	40	95	40	57	43	16	7.5	1.8	.15	.31
28	9.4	11	29	86	107	53	40	16	7.6	1.6	.13	.28
29	9.8	11	24	71	-----	52	37	16	7.4	1.5	.13	.27
30	9.4	11	21	64	-----	51	38	16	7.7	1.4	.12	.24
31	9.1	-----	20	60	-----	49	-----	15	-----	1.4	.14	-----
TOTAL	306.9	438.2	797	4,794	1,526	2,949	1,211	738	350.7	101.1	15.16	6.87
MEAN	9.90	14.6	25.7	155	54.5	95.1	40.4	23.8	11.7	3.26	.49	.23
MAX	48	54	155	1,710	107	288	48	38	21	6.9	1.3	.37
MIN	4.4	8.7	11	16	40	49	34	15	6.8	1.4	.12	.07
AC-FT	609	869	1,580	9,510	3,030	5,850	2,400	1,460	696	201	30	14

CAL YR 1969 TOTAL 68,242.80 MEAN 187 MAX 5,300 MIN 4.4 ACFT 135,400  
WAT YR 1970 TOTAL 13,233.93 MEAN 36.3 MAX 1,710 MIN .07 ACFT 26,250

## PEAK DISCHARGE (BASE, 500 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-10	0600	4.50	790	1-24	0900	4.07	555
1-14	1900	4.44	754	3- 1	2400	4.02	530
1-16	1100	6.83	3,560				

## 11220500 SYCAMORE CREEK ABOVE PINE FLAT RESERVOIR, NEAR TRIMMER, CALIF.

LOCATION.--Lat 36°55'13", long 119°18'32", in NW¼ sec.1, T.12 S., R.24 E., Fresno County, on right bank 0.1 mile downstream from Little Dry Creek, 1.7 miles northwest of Trimmer, and 4.8 miles upstream from mouth.

DRAINAGE AREA.--56.1 sq mi.

PERIOD OF RECORD.--April 1953 to current year. Prior to October 1965, published as Sycamore Creek above Pine Flat Reservoir.

GAGE.--Water-stage recorder. Datum of gage is 1,141.96 ft above mean sea level (levels by Corps of Engineers).

AVERAGE DISCHARGE.--17 years, 23.0 cfs (16,660 acre-ft per year); median of yearly mean discharges, 10 cfs (7,200 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 2,960 cfs Jan. 16 (gage height, 6.66 ft); no flow July 28 to Sept. 30.

Period of record: Maximum discharge, 16,800 cfs Jan. 25, 1969 (gage height, 13.83 ft in gage well, 15.32 ft, from floodmarks), from rating curve extended above 5,200 cfs on basis of slope-area measurements at gage heights 9.78 and 13.83 ft; no flow for several months in each year.

REMARKS.--Records good. This station measures inflow to Pine Flat Reservoir. No regulation or diversion above station. See schematic diagram of Kings River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.45	2.0	3.2	6.1	.4	214	9.6	8.2	2.0	.23		
2	.53	2.0	3.2	5.6	14	169	9.6	7.6	1.5	.17		
3	.62	2.0	3.6	5.0	14	57	9.6	7.2	1.3	.14		
4	.72	2.0	3.2	5.0	13	128	9.0	7.0	1.1	.18		
5	.53	2.0	3.2	5.0	12	147	9.0	6.5	1.0	.18		
6	.53	12	3.2	5.0	11	66	9.0	6.4	.89	.14		
7	.62	20	3.6	5.0	11	50	8.4	6.7	.76	.10		
8	.62	6.6	3.6	5.0	10	39	8.4	6.6	.73	.08		
9	.62	4.6	4.1	6.6	9.6	34	8.4	6.3	3.0	.08		
10	.72	4.1	4.1	79	9.6	36	8.4	6.0	4.6	.16		
11	.72	3.6	4.1	26	10	29	8.4	5.7	3.4	.19		
12	.72	3.2	4.1	19	9.6	27	8.4	6.0	2.8	.16		
13	.72	3.2	4.1	13	17	25	9.6	6.0	2.3	.10		
14	.72	3.2	4.1	161	32	23	12	5.9	1.9	.07		
15	1.3	3.2	3.6	71	18	22	10	5.5	1.5	.06		
16	2.5	3.6	3.6	1,360	14	21	9.6	5.2	1.3	.06		
17	4.6	3.2	3.6	192	50	20	9.0	4.6	1.1	.06		
18	2.5	3.2	3.6	68	23	19	9.0	4.4	.91	.06		
19	2.0	3.6	4.6	39	18	18	8.4	4.3	.84	.05		
20	1.7	3.6	9.0	29	17	17	8.4	4.3	.67	.05		
21	1.7	3.6	11	25	14	16	9.0	4.5	.52	.05		
22	1.7	3.6	22	21	14	15	9.0	4.3	.36	.04		
23	1.7	3.6	8.4	19	14	15	9.0	4.0	.20	.03		
24	1.7	3.6	6.1	34	12	14	8.4	3.5	.14	.03		
25	1.7	3.6	74	24	11	14	7.8	3.1	.14	.02		
26	2.0	3.6	25	18	11	14	7.8	2.8	.14	.02		
27	2.0	3.6	11	27	11	12	10	2.7	.14	.01		
28	2.0	3.2	8.4	24	64	12	9.1	2.5	.14	0		
29	2.0	3.2	7.2	18	-----	12	9.3	2.4	.15	0		
30	2.0	3.2	6.6	16	-----	12	8.7	2.6	.16	0		
31	2.0	-----	6.1	15	-----	10	-----	2.7	-----	0		-----
TOTAL	43.94	175.7	265.2	2,346.3	477.8	1,307	270.3	155.5	35.69	2.52	0	0
MEAN	1.42	4.19	8.55	75.7	17.1	42.2	9.01	5.02	1.19	.081	0	0
MAX	4.6	20	74	1,360	64	214	12	8.2	4.6	.23	0	0
MIN	.45	2.0	3.2	5.0	9.6	10	7.8	2.4	.14	0	0	0
AC-FT	87	249	526	4,650	948	2,590	536	308	71	5.0	0	0
CAL YR 1969	TOTAL	32,812.27	MEAN	89.9	MAX	3,330	MIN	.16	ACFT	65,080		
WAT YR 1970	TOTAL	5,029.95	MEAN	13.8	MAX	1,360	MIN	0	ACFT	9,980		

## PEAK DISCHARGE (BASE, 300 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-14	1600	3.62	645	3- 1	2200	3.85	768
1-16	1030	6.66	2,960	3- 4	2130	3.45	570

## TULARE LAKE BASIN

## 11221000 PINE FLAT RESERVOIR NEAR PIEDRA, CALIF.

LOCATION --Lat 36°49'58", long 119°19'29", in NE¼ sec.2, T.13 S., R.24 E., Fresno County, near center of Pine Flat Dam on Kings River, 1.9 miles upstream from Mill Creek, 3.5 miles northeast of Piedra, and 16 miles northeast of Sanger.

DRAINAGE AREA.--1,545 sq mi.

PERIOD OF RECORD.--October 1951 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers). Prior to Apr. 8, 1952, nonrecording mercury gage on dam at same datum.

EXTREMES.--Current year: Maximum contents, 933,316 acre-ft June 4 (elevation, 939.81 ft); minimum, 498,940 acre-ft Sept. 30 (elevation, 850.38 ft).

Period of record: Maximum contents, 1,009,000 acre-ft July 15, 1967 (elevation, 952.76 ft); minimum since gross pool elevation first obtained, 305,900 acre-ft Sept. 29, 1968 (elevation, 796.77 ft).

REMARKS.--Reservoir is formed by gravity-type concrete dam; regulation of discharge from reservoir began Dec. 4, 1951. Total capacity, 1,001,500 acre-ft between elevations 565.5 ft (bottom of lower tier of river outlets) and 951.5 ft (gross pool elevation). No dead storage. Reservoir is used for flood control and conservation storage. Water is released down Kings River for diversion by the Kings River Water Association. Records, including extremes, represent contents at 2400 hours. See schematic diagram of Kings River basin.

COOPERATION.--Records furnished by Corps of Engineers, not rounded to Geological Survey standards.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

715	104,400	840	457,750
720	113,400	860	538,750
740	154,000	890	673,401
760	201,424	920	824,151
780	255,450	950	992,551
800	316,150	960	1,053,000
820	383,550		

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	710,431	665,587	669,370	690,516	722,883	770,825	803,398	814,343	927,222	822,875	612,503	521,093
2	708,480	664,124	669,701	690,660	723,179	774,052	803,084	815,083	930,580	816,194	608,664	520,385
3	706,483	663,039	669,606	690,708	723,474	775,181	802,979	816,617	932,575	809,649	605,018	519,891
4	704,295	662,333	669,370	690,756	724,411	776,722	801,774	819,053	933,316	803,241	601,563	519,311
5	702,061	661,626	669,275	690,853	726,780	779,396	800,728	821,759	932,518	796,340	598,030	517,490
6	699,735	661,956	668,423	691,286	729,302	781,045	800,989	825,428	931,264	789,527	594,686	515,591
7	697,170	662,992	667,666	691,719	731,284	782,696	801,774	828,093	929,156	782,438	591,707	514,024
8	694,803	663,935	667,619	692,201	732,921	784,452	802,927	830,762	927,109	775,643	588,249	512,913
9	692,585	664,737	667,619	692,923	735,108	786,417	804,657	833,062	926,483	768,832	584,670	511,926
10	690,323	665,398	667,382	696,542	737,249	788,541	806,967	835,686	925,064	763,022	581,718	511,022
11	688,113	665,917	666,957	699,057	739,692	790,461	809,228	837,188	922,568	756,782	579,213	510,078
12	685,714	666,248	667,335	699,250	742,091	792,227	810,966	837,510	919,623	749,667	576,495	508,479
13	683,462	666,484	668,234	698,863	744,745	794,152	813,287	837,564	915,611	742,892	573,872	506,801
14	681,070	666,815	668,612	700,849	746,952	796,027	814,766	839,766	910,877	735,904	571,211	505,902
15	678,732	666,862	669,512	702,255	748,862	797,854	815,612	844,234	905,428	728,362	568,079	505,044
16	678,064	666,626	670,649	727,027	751,379	799,630	816,246	849,635	899,886	720,816	564,914	504,799
17	677,826	666,909	671,739	734,660	755,012	800,832	816,670	856,033	894,364	713,216	561,800	504,881
18	676,635	667,146	672,831	735,655	757,896	802,036	816,088	863,275	889,195	705,753	559,041	504,881
19	675,350	667,571	674,399	735,357	760,634	803,031	815,400	868,743	884,706	697,944	556,289	503,902
20	673,971	667,950	676,825	734,263	763,225	803,398	814,872	873,020	880,010	690,516	553,545	502,842
21	672,926	668,139	679,829	732,772	765,516	803,293	814,290	876,429	875,384	682,935	551,149	502,516
22	671,834	668,139	682,648	731,730	767,657	803,241	813,974	881,004	871,538	674,827	547,609	502,109
23	670,933	668,044	683,606	730,144	769,393	803,293	813,445	886,035	867,483	666,248	544,209	501,784
24	670,412	667,902	684,324	731,234	770,774	803,084	813,287	891,694	863,330	657,537	541,666	501,418
25	669,891	667,902	686,625	729,995	771,388	803,031	812,812	896,426	858,425	648,510	539,299	501,459
26	669,322	668,092	687,921	728,560	771,132	803,608	812,865	900,333	852,831	640,705	536,684	500,605
27	668,801	668,234	688,209	726,977	769,751	804,447	813,234	905,204	848,013	635,068	534,454	499,468
28	668,328	668,470	688,689	725,200	769,496	804,237	813,498	910,539	842,025	629,639	532,187	499,468
29	668,044	668,849	689,218	723,622	-----	803,293	813,657	915,498	835,901	624,462	527,877	499,265
30	667,524	668,849	689,650	722,883	-----	803,346	814,185	919,793	829,320	619,627	524,292	498,940
31	666,862	-----	690,179	722,637	-----	803,555	-----	923,135	-----	616,309	522,131	-----
MAX	710,431	668,849	690,179	735,655	771,388	804,447	816,670	923,135	933,316	822,875	612,503	521,093
MIN	666,862	661,626	666,957	690,516	722,883	770,825	800,728	814,343	829,320	616,309	522,131	498,940
(a)	888.62	889.04	893.51	900.18	909.52	916.10	918.12	938.02	920.97	877.71	856.03	850.38
(b)	-45,669	+1,987	+21,330	+32,458	+46,859	+34,059	+10,630	+108,950	-93,815	-213,011	-94,178	-23,191
(c)	1,519	863	435	332	528	1,088	1,626	2,990	3,408	3,445	3,341	2,592

CAL YR 1969 MAX 999,500 MIN 421,700 (b) +269,279  
WAT YR 1970 MAX 933,316 MIN 498,940 (b) -213,560

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

c Evaporation, in acre-feet.

## TULARE LAKE BASIN

613

## 11221500 KINGS RIVER BELOW PINE FLAT DAM, CALIF.

LOCATION.--Lat 36°49'50", long 119°20'07", in NW¼ sec.2, T.13 S., R.24 E., Fresno County, on right bank 3,200 ft downstream from Pine Flat Dam and 2.9 miles northeast of Piedra.

DRAINAGE AREA.--1,545 sq mi.

PERIOD OF RECORD.--October 1953 to current year. Monthly and yearly discharges only and adjusted flow for some periods published in WSP 1735.

GAGE.--Water-stage recorder and concrete control since Sept. 1, 1956. Datum of gage is 556.97 ft above mean sea level (levels by Corps of Engineers). Prior to Oct. 1, 1956, at site 0.2 mile downstream at datum 3.48 ft lower.

AVERAGE DISCHARGE (adjusted for change in storage and evaporation).--17 years, 2,279 cfs (1,651,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 6,480 cfs June 26 (gage height, 7.33 ft); minimum daily, 34 cfs Feb. 18.

Period of record: Maximum discharge, 17,100 cfs June 3, 4, 8, 9, 1969 (gage height, 10.73 ft); minimum, 1.1 cfs Feb. 26, 27, 1962.

REMARKS --Records excellent. Flow regulated by Pine Flat Reservoir 0.6 mile upstream (see sta 11221000) and Wishon and Courtright Reservoirs (see sta 11214550 and 11214800). See schematic diagram of Kings River basin. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

COOPERATION.--Five discharge measurements furnished by Kings River Water Association.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2,190	1,380	618	1,000	968	1,410	2,100	1,620	5,020	5,480	2,930	1,310
2	2,190	1,360	866	1,000	968	540	2,120	1,580	5,270	5,340	2,920	1,140
3	2,140	1,380	1,080	1,000	820	987	2,210	1,540	5,470	5,290	2,860	1,100
4	2,080	1,420	1,100	1,000	661	859	2,160	1,590	5,670	5,290	2,810	1,100
5	2,050	1,400	1,060	717	100	301	2,170	1,730	5,690	5,340	2,880	1,240
6	2,130	1,240	1,060	403	56	505	2,160	1,720	5,710	5,480	2,860	1,280
7	2,200	1,010	1,030	403	56	453	2,120	1,790	5,990	5,680	2,580	1,240
8	2,190	792	1,000	403	56	417	2,090	1,930	6,090	5,770	2,590	1,240
9	2,190	739	1,020	403	56	520	2,040	1,950	5,780	5,850	2,590	1,200
10	2,200	764	1,130	403	56	546	2,010	2,450	5,510	5,810	2,480	1,160
11	2,180	898	1,110	383	56	533	1,890	2,890	5,290	5,410	2,330	1,170
12	2,170	1,020	784	870	56	573	1,850	2,870	5,280	5,450	2,390	1,120
13	2,120	1,000	434	1,200	56	618	1,850	3,050	5,250	5,400	2,400	1,110
14	2,150	994	442	1,200	56	716	1,800	3,090	5,310	5,400	2,410	1,080
15	2,190	994	451	1,200	56	794	1,860	3,200	5,340	5,480	2,430	1,010
16	2,090	971	451	929	55	863	1,870	3,590	5,310	5,500	2,400	712
17	2,000	928	451	1,680	46	1,130	1,860	3,700	5,530	5,530	2,390	626
18	1,870	932	451	2,300	34	1,240	1,980	3,870	5,620	5,530	2,400	600
19	1,340	868	404	2,400	41	1,250	1,980	4,000	5,730	5,510	2,400	789
20	1,820	887	308	2,420	45	1,400	1,990	4,010	5,850	5,510	2,400	828
21	1,810	901	292	2,440	44	1,610	2,060	4,010	5,880	5,610	2,330	851
22	1,820	915	610	2,450	58	1,650	1,940	4,090	5,900	5,740	2,320	818
23	1,680	915	1,000	2,450	53	1,670	1,780	4,170	5,840	5,790	2,320	804
24	1,550	915	1,000	2,400	162	1,800	1,780	4,240	5,960	5,770	2,280	788
25	1,500	915	1,000	2,420	513	1,980	1,700	4,300	6,090	5,720	2,260	788
26	1,500	845	1,000	2,430	909	2,010	1,720	4,260	6,280	5,020	2,240	756
27	1,480	843	1,000	2,460	1,470	2,080	1,650	4,200	6,200	4,310	2,220	749
28	1,430	814	1,000	2,440	1,550	2,090	1,640	4,190	6,050	4,320	2,180	655
29	1,430	790	1,000	2,230	-----	2,130	1,620	4,270	5,900	4,070	2,500	657
30	1,420	772	1,000	1,710	-----	2,080	1,590	4,520	5,640	3,860	2,270	655
31	1,390	-----	1,000	1,210	-----	1,980	-----	4,920	-----	2,930	1,870	-----
TOTAL	59,000	29,602	25,152	45,954	9,057	36,735	57,590	99,340	170,450	163,190	76,240	28,576
MEAN	1,903	987	811	1,482	323	1,185	1,920	3,205	5,682	5,264	2,459	953
MAX	2,200	1,420	1,130	2,460	1,550	2,130	2,210	4,920	6,280	5,850	2,930	1,310
MIN	1,390	739	292	383	34	301	1,590	1,540	5,020	2,930	1,870	600
AC-FT	117,000	58,720	49,890	91,150	17,960	72,860	114,200	197,000	338,100	323,700	151,200	56,680
MEAN a	572	502	575	1,895	1,116	1,636	2,225	6,453	4,284	1,607	477	225
AC-FT a	35,150	29,870	35,360	116,500	61,960	100,600	132,400	396,800	254,900	98,830	29,360	13,380

CAL YR 1969 TOTAL 1,976,262 MEAN 5,414 MAX 17,000 MIN 33 AC-FT 3,920,000 MEAN a 5,819 AC-FT a 4,213,000  
WTR YR 1970 TOTAL 800,886 MEAN 2,194 MAX 6,280 MIN 34 AC-FT 1,589,000 MEAN a 1,803 AC-FT a 1,305,000

a Adjusted for change in contents in Wishon, Courtright, and Pine Flat Reservoirs, and evaporation from Pine Flat Reservoir.

## TULARE LAKE BASIN

11221700 MILL CREEK NEAR PIEDRA, CALIF.

LOCATION.--Lat 36°49'07", long 119°20'27", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.10, T.13 S., R.24 E., Fresno County, on left bank 150 ft upstream from road bridge, 0.7 mile upstream from mouth, and 2.3 miles east of Piedra.

DRAINAGE AREA.--127 sq mi (revised).

PERIOD OF RECORD.--October 1957 to current year in reports of Geological Survey. November 1938 to September 1957 in reports of Kings River Water Association.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 550 ft (from topographic map). Prior to July 14, 1958, at site 150 ft upstream at same datum.

AVERAGE DISCHARGE.--13 years, 44.5 cfs (32,240 acre-ft per year); median of yearly mean discharges, 18 cfs (13,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 4,000 cfs Jan. 16 (gage height, 6.17 ft); no flow for several months.

Period of record: Maximum discharge, 11,000 cfs Dec. 6, 1966 (gage height, 9.53 ft in gage well, 10.2 ft, from floodmarks); maximum gage height, 9.65 ft in gage well Jan. 19, 1969 (backwater from debris); no flow for several months in most years.

REMARKS.--Records good. Some small diversions above station for irrigation. See schematic diagram of Kings River basin.

COOPERATION.--Three discharge measurements furnished by Kings River Water Association.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	6.1	8.8	13	41	178	28	17	3.6			
2	1.1	6.6	8.8	13	39	487	27	17	3.2			
3	1.2	6.6	8.8	12	38	186	27	15	2.1			
4	1.2	6.6	9.4	12	36	189	27	15	1.2			
5	1.2	6.6	9.4	11	35	427	26	14	1.0			
6	1.3	11	9.4	11	31	186	26	14	.80			
7	1.3	21	9.4	11	30	148	24	14	.60			
8	1.3	17	8.8	12	28	129	24	14	.80			
9	1.3	11	8.2	12	28	116	23	14	2.8			
10	1.3	11	8.8	35	28	106	23	14	5.1			
11	.90	10	9.4	48	30	90	21	13	5.6			
12	.80	10	9.4	50	28	81	21	12	5.1			
13	.80	9.4	9.4	33	31	74	23	11	4.1			
14	.60	9.4	9.4	55	48	68	27	11	3.6			
15	.60	9.4	9.4	134	36	66	26	11	3.6			
16	3.0	9.4	9.4	1,950	31	62	24	10	3.2			
17	7.4	9.4	9.4	584	62	58	23	8.2	2.8			
18	8.4	9.4	8.8	196	54	56	21	7.6	2.4			
19	7.6	8.8	11	116	43	52	21	8.2	1.8			
20	6.5	9.4	15	88	38	48	20	8.2	1.8			
21	6.5	9.4	17	70	35	44	21	7.6	1.2			
22	6.0	9.4	33	60	31	41	21	7.6	1.0			
23	5.5	8.8	23	54	30	39	20	7.6	.20			
24	6.5	8.8	15	92	30	38	19	7.1	.10			
25	6.5	8.8	26	88	28	38	17	6.6	.04			
26	6.0	8.8	56	64	27	36	17	6.1	0			
27	6.5	8.8	28	64	27	35	20	6.1	0			
28	6.5	8.8	21	62	49	33	20	5.6	0			
29	6.5	8.8	17	52	-----	31	20	5.6	0			
30	7.0	8.8	15	46	-----	31	19	5.1	0			
31	7.0	-----	14	43	-----	30	-----	4.6	-----			-----
TOTAL	119.40	287.3	455.4	4,091	992	3,203	676	317.8	57.74	0	0	0
MEAN	3.85	9.58	14.7	132	35.4	103	22.5	10.3	1.92	0	0	0
MAX	8.4	21	56	1,950	62	487	28	17	5.6	0	0	0
MIN	.60	6.1	8.2	11	27	30	17	4.6	0	0	0	0
AC-FT	237	570	903	8,110	1,970	6,350	1,340	630	115	0	0	0

CAL YR 1969 TOTAL 76,733.26 MEAN 210 MAX 7,400 MIN 0 ACFT 152,200  
WAT YR 1970 TOTAL 10,199.64 MEAN 27.9 MAX 1,950 MIN 0 ACFT 20,230

PEAK DISCHARGE (BASE, 250 CFS)  
DATE TIME G.H. DISCHARGE DATE TIME G.H. DISCHARGE  
1-16 1930 6.17 4,000 3- 5 0200 4.37 791  
3- 2 0200 4.61 1,050

## 11224500 LOS GATOS CREEK ABOVE NUNEZ CANYON, NEAR COALINGA, CALIF.

LOCATION.--Lat 36°12'53", long 120°28'11", in NW¼SE¼ sec.5, T.20 S., R.14 E., Fresno County, on right bank 50 ft downstream from highway bridge, 1.1 miles upstream from Nunez Canyon, 3.0 miles downstream from White Creek, and 8.1 miles northwest of Coalinga.

DRAINAGE AREA.--95.8 sq mi.

PERIOD OF RECORD.--May 1945 to current year. Prior to October 1949 monthly discharge only, published in WSP 1315-A.

GAGE.--Water-stage recorder. Altitude of gage is 1,100 ft (from topographic map). Prior to Aug. 2, 1959, at site 100 ft downstream at same datum.

AVERAGE DISCHARGE.--25 years, 4.29 cfs (3,110 acre-ft per year); median of yearly mean discharges, 1.0 cfs (720 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 536 cfs Mar. 4 (gage height, 4.37 ft), from rating curve extended above 40 cfs; no flow for several months.

1949 to current year: Maximum discharge, 4,360 cfs Feb. 24, 1969 (gage height, 10.34 ft); no flow for several months in each year.

REMARKS --Records good except those for period of no gage-height record and those above 40 cfs, which are poor. Minor diversion for irrigation and stock ponds.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.20	.52	.80	.40	1.9	235	2.2	1.2	0	0	.05	
2	.20	.52	.80	.40	1.6	62	1.9	.80	0	0	.05	
3	.20	.52	.80	.40	1.6	9.0	1.9	.60	0	.05	.05	
4	.30	.52	.80	.40	1.6	95	1.6	.60	0	.05	.05	
5	.30	.52	.80	.40	1.6	56	1.6	.60	0	.05	.05	
6	.30	.66	.80	.40	1.2	24	1.4	.60	0	.05	.05	
7	.40	.80	.80	.40	1.4	17	1.4	.80	0	.10	.05	
8	.40	.80	.80	.40	1.2	15	1.4	.80	0	.05	0	
9	.40	.80	.80	.80	1.6	12	1.4	.80	.05	.10	0	
10	.52	.80	.80	4.0	3.7	11	1.2	.60	.10	.10	0	
11	.40	.80	.60	4.0	3.4	9.6	1.2	.50	.10	.05	0	
12	.40	.77	.60	4.8	2.5	8.5	1.2	.40	.10	.05	0	
13	.40	.80	.40	3.1	2.8	7.0	1.6	.40	.10	.05	0	
14	.40	.66	.40	7.0	3.7	6.0	1.9	.40	.20	0	0	
15	.52	.66	.60	9.6	2.8	6.0	1.9	.40	.20	0	0	
16	.80	.66	.60	56	1.9	5.6	1.9	.30	.10	0	0	
17	.66	.58	.80	13	1.9	5.2	2.2	.30	.05	0	0	
18	.80	.60	1.0	6.5	1.9	4.8	1.6	.10	.05	0	0	
19	.66	.60	1.0	5.2	1.9	4.8	1.2	.10	0	0	0	
20	.66	.60	1.0	5.6	1.6	4.8	1.0	.10	0	0	0	
21	.66	.60	.80	4.0	1.4	4.4	1.6	.30	0	0	0	
22	.57	.60	1.0	3.4	1.4	4.0	1.6	.10	0	0	0	
23	.52	.60	.80	2.8	1.2	4.0	1.6	.10	0	0	0	
24	.52	.60	.80	3.1	1.2	3.7	1.4	.05	0	0	0	
25	.52	.60	.80	3.1	1.0	3.4	1.0	.05	0	0	0	
26	.52	.60	.60	2.8	1.0	3.1	1.4	.05	0	0	0	
27	.52	.60	.60	2.5	1.0	2.5	1.9	.05	0	0	0	
28	.52	.60	.60	2.2	14	2.5	1.9	.10	0	0	0	
29	.52	.70	.60	2.2	-----	2.5	1.9	.05	0	.05	0	
30	.52	.70	.60	2.2	-----	2.8	1.4	0	0	.05	0	
31	.52	-----	.60	2.2	-----	2.5	-----	0	-----	.05	0	-----
TOTAL	14.83	19.39	22.80	153.30	64.0	633.7	47.4	11.25	1.05	.85	.35	0
MEAN	.48	.65	.74	4.95	2.29	20.4	1.58	.36	.035	.027	.011	0
MAX	.80	.80	1.0	56	14	235	2.2	1.2	.20	.10	.05	0
MIN	.20	.52	.40	.40	1.0	2.5	1.0	0	0	0	0	0
AC-FT	29	38	45	304	127	1,260	94	22	2.1	1.7	.7	0
CAL YR 1969	TOTAL	13,980.49	MEAN	38.3	MAX	2,190	MIN	0	ACFT	27,730		
WAT YR 1970	TOTAL	968.92	MEAN	2.65	MAX	235	MIN	0	ACFT	1,920		

## PEAK DISCHARGE (BASE, 40 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	NOTE
1-16	1230	3.98	186	3- 4	2000	4.37	536	NOTE.--No gage-height record Oct. 31 to Dec. 2.
3- 1	1700	4.16	314					

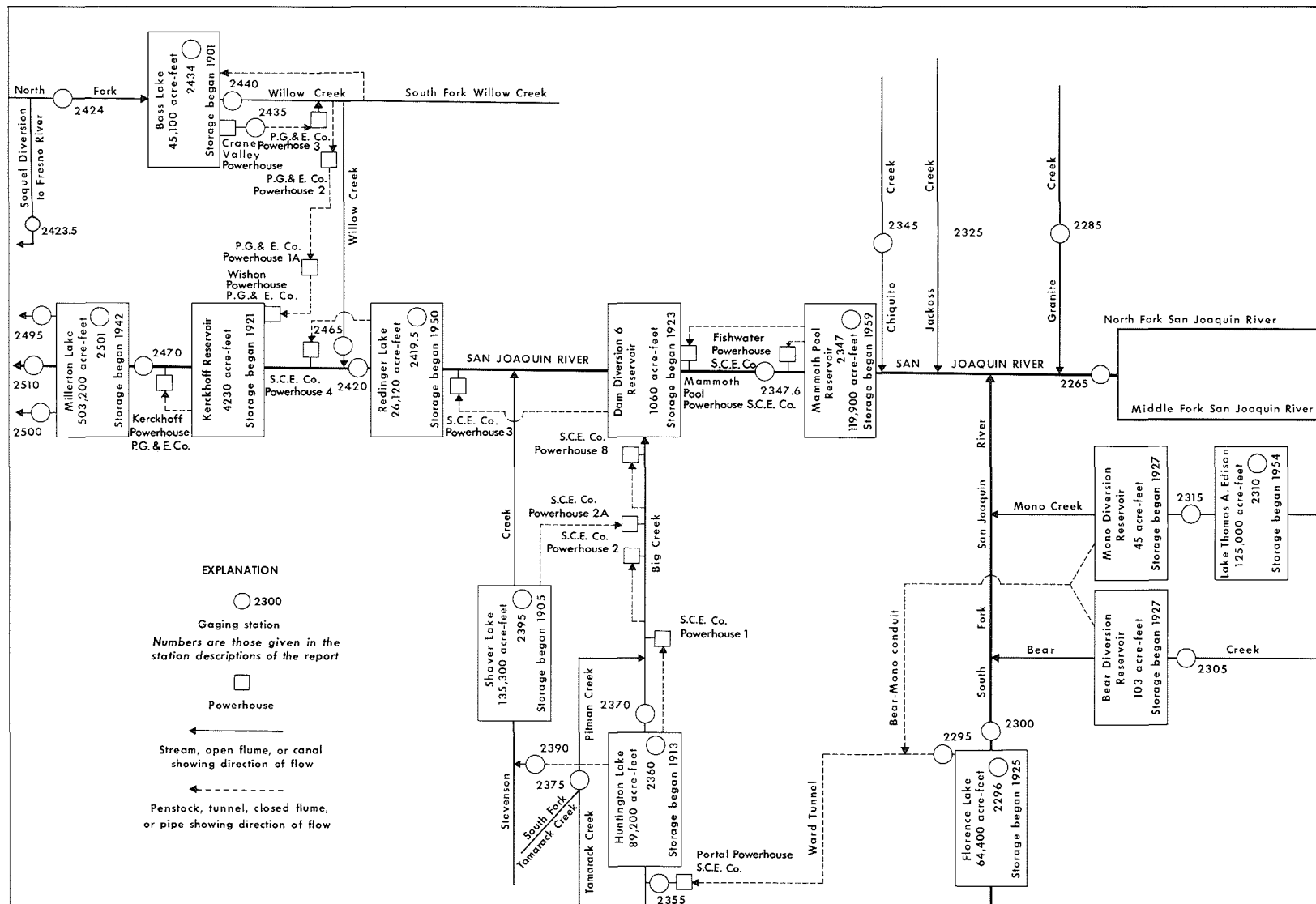


FIGURE 6.-- Schematic diagram showing diversions and storage in San Joaquin River basin.



## 11226500 SAN JOAQUIN RIVER AT MILLER CROSSING, CALIF.

LOCATION.--Lat 37°30'38", long 119°11'47", in SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.11, T.5 S., R.25 E., Madera County, Sierra National Forest, on right bank at Miller Crossing, 2.4 miles downstream from North Fork San Joaquin River, 4.6 miles east of Clover Meadow Ranger Station, and 23 miles northeast of town of Bass Lake.

DRAINAGE AREA.--249 sq mi.

PERIOD OF RECORD.--October 1921 to September 1928, October 1951 to current year. Monthly discharge only for some periods, published in WSP 1315-A. Prior to October 1954, published as Middle Fork San Joaquin River at Miller Bridge.

GAGE.--Water-stage recorder. Altitude of gage is 4,570 ft (from topographic map). Prior to Mar. 24, 1922, nonrecording gage at same site and datum.

AVERAGE DISCHARGE.--26 years, 599 cfs (434,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 3,830 cfs May 17 (gage height, 15.80 ft); minimum daily, 52 cfs Sept. 28-30.

Period of record: Maximum discharge, 16,600 cfs Dec. 23, 1955 (gage height, 21.28 ft), from rating curve extended above 5,200 cfs on basis of contracted-opening measurement of maximum flow; minimum, 19 cfs Nov. 17, 1961.

REMARKS.--Records good. No regulation or diversion above station. See schematic diagram of San Joaquin River basin.

COOPERATION.--Gage-height record and seven discharge measurements furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

REVISIONS.--WSP 1930: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	141	148	86	157	228	316	370	536	2,400	775	256	117
2	138	151	89	139	214	319	403	705	2,460	820	236	108
3	131	151	86	127	216	298	451	1,000	2,410	865	224	101
4	121	146	85	102	232	265	480	1,230	2,100	810	224	97
5	117	138	84	98	234	285	596	1,440	1,930	885	228	93
6	111	175	88	93	230	278	755	1,360	1,920	956	218	87
7	107	202	85	85	244	295	775	1,100	1,850	925	214	85
8	102	196	83	80	250	290	770	1,150	1,890	850	208	84
9	100	184	82	226	248	263	880	1,170	2,020	810	191	82
10	97	193	85	308	236	256	1,080	1,340	1,490	688	177	82
11	93	204	88	220	246	242	1,110	1,120	1,300	680	172	85
12	90	204	88	216	288	242	980	890	1,250	632	189	85
13	90	212	88	206	283	288	825	1,080	1,100	640	195	85
14	88	204	86	283	278	343	668	1,580	930	648	195	81
15	151	196	83	248	268	349	564	2,000	820	656	191	78
16	572	184	83	956	256	370	508	2,400	860	636	186	74
17	325	141	77	592	268	427	460	2,840	1,050	556	179	70
18	212	130	82	415	246	394	448	2,860	1,250	552	172	66
19	196	135	98	349	228	325	472	2,520	1,520	552	170	63
20	184	135	468	325	218	300	448	2,090	1,670	556	170	63
21	160	131	775	616	210	334	427	2,070	1,720	556	163	62
22	170	121	457	684	208	385	385	2,290	1,660	524	152	60
23	186	111	285	488	208	433	367	2,550	1,570	451	142	58
24	182	109	244	640	212	516	388	2,470	1,510	409	134	57
25	163	108	464	391	212	608	484	2,380	1,430	376	126	55
26	159	100	278	334	230	644	552	2,400	1,420	388	127	54
27	146	98	224	349	246	572	484	2,340	1,680	382	134	53
28	139	91	187	290	288	528	421	2,160	1,270	334	138	52
29	145	92	182	265	-----	548	418	2,240	940	313	139	52
30	145	89	180	254	-----	500	442	2,410	795	322	134	52
31	148	-----	163	238	-----	415	-----	2,450	-----	290	126	-----
TOTAL	4,909	4,479	5,533	9,774	6,725	11,628	17,411	56,171	46,215	18,837	5,510	2,241
MEAN	158	149	178	315	240	375	580	1,812	1,541	608	178	74.7
MAX	572	212	775	956	288	644	1,110	2,860	2,460	956	256	117
MIN	88	89	77	80	208	242	367	536	795	290	126	52
AC-FT	9,740	8,880	10,970	19,390	13,340	23,060	34,530	111,400	91,670	37,360	10,930	4,450
CAL YR 1969	TOTAL 426,033		MEAN 1,167		MAX 6,940		MIN 77		AC-FT 845,000			
WTR YR 1970	TOTAL 189,433		MEAN 519		MAX 2,860		MIN 52		AC-FT 375,700			

## PEAK DISCHARGE (BASE, 2,000 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1730	14.17	2,010	6-2	2230	15.14	3,010
5-17	2130	15.80	3,830	6-21	2200	14.16	2,000
5-22	2200	15.27	3,160				

## SAN JOAQUIN RIVER BASIN

## 11228500 GRANITE CREEK NEAR CATTLE MOUNTAIN, CALIF.

LOCATION.--Lat 37°31'36", long 119°15'28", in NE¼ sec.5, T.5 S., R.25 E., Madera County, Sierra National Forest, on right bank 0.7 mile downstream from confluence of East and West Forks of Granite Creek, 1.6 miles northwest of Cattle Mountain, and 21 miles northeast of town of Bass Lake.

DRAINAGE AREA.--47.8 sq mi.

PERIOD OF RECORD.--October 1921 to September 1928, May 1952 to current year (no winter records). Monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Altitude of gage is 6,800 ft (from topographic map). Prior to May 14, 1922, nonrecording gage at same site at different datum.

AVERAGE DISCHARGE.--7 years (1921-28), 110 cfs (79,640 acre-ft per year).

EXTREMES.--Current year: Maximum discharge recorded, 1,460 cfs May 16 (gage height, 8.24 ft); minimum daily, 0.14 cfs Sept. 17-21, 28-30.

Period of record: Maximum discharge recorded, 3,140 cfs Dec. 23, 1964 (gage height, 9.49 ft), from rating curve extended above 1,100 cfs; no flow at times in 1924, 1926.

REMARKS.--Records good. No regulation or diversion above station. See schematic diagram of San Joaquin River basin.

COOPERATION.--Gage-height record and four discharge measurements furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	25						-	612	54	7.5	.42
2	1.1	26						-	584	54	7.1	.35
3	1.1	25						-	516	55	6.4	.29
4	.92	23						-	476	50	6.1	.29
5	1.1	19						-	468	52	5.8	.29
6	1.1	19						-	408	55	5.8	.24
7	1.1	22						-	384	47	5.4	.24
8	1.1	25						-	354	41	5.1	.20
9	.92	25						-	468	35	4.8	.20
10	.92	28						-	280	33	4.5	.20
11	.79	-						-	218	28	4.2	.17
12	.79	-						-	218	23	3.9	.17
13	.79	-						-	169	22	3.9	.17
14	.79	-						638	123	20	3.6	.17
15	6.6	-						814	86	18	3.6	.17
16	148	-						947	125	17	3.3	.17
17	54	-						974	190	15	3.0	.14
18	28	-						875	220	12	2.7	.14
19	20	-						662	265	10	2.7	.14
20	16	-						560	265	9.8	2.4	.14
21	15	-						612	255	9.0	2.4	.14
22	16	-						743	220	8.2	2.1	.17
23	25	-						766	186	7.5	2.1	.17
24	27	-						694	161	6.1	1.6	.17
25	23	-						600	142	5.1	1.4	.17
26	22	-						612	134	4.8	1.2	.17
27	18	-						568	195	15	1.2	.17
28	16	-						564	112	9.0	1.1	.14
29	18	-						592	77	6.7	.79	.14
30	20	-						662	60	6.1	.68	.14
31	23	-----					-----	674	-----	7.8	.59	-----
TOTAL	509.32	-						-	7,971	736.1	106.96	5.88
MEAN	16.4	-						-	266	23.7	3.45	.20
MAX	148	-						-	612	55	7.5	.42
MIN	.79	-						-	60	4.8	.59	.14
AC-FT	1,010	-						-	15,810	1,460	212	12

## 619

LOCATION.--Lat 37°16'27", long 118°58'23", in NW $\frac{1}{4}$  sec.1, T.8 S., R.27 E., Fresno County, Sierra National Forest, in gatehouse at entrance to tunnel.

GAGE.--Water-stage recorder, concrete control, and Venturi meter. Datum of gage is 7,213.89 ft above mean sea level (levels by Southern California Edison Co.).

EXTREMES.--Period of record: Maximum daily discharge, 1,990 cfs Apr. 30, 1926; no flow at times.

REMARKS.--Records good. Ward tunnel diverts from Florence Lake, a reservoir on South Fork San Joaquin River, to Huntington Lake for use in Big Creek powerplants. See schematic diagram of San Joaquin River basin.

COOPERATION.--Gage-height record, one discharge measurement, and rating table for Venturi meter furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

REVISIONS (WATER YEARS).--WSP 1515: 1931. WRD Calif. 1967: 1966.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	493	552	.32	48	82	82	109	134	1,120	529	486	113
2	493	540	.30	44	76	88	117	169	1,120	527	482	95
3	495	525	.30	40	75	88	127	239	1,130	473	482	87
4	493	527	.30	36	78	87	136	285	1,140	504	479	86
5	489	546	.30	27	80	90	156	318	926	497	540	75
6	486	546	.30	36	81	91	196	376	796	375	578	68
7	460	525	.30	39	84	98	216	414	802	404	574	67
8	477	534	.30	39	89	100	218	371	653	489	572	80
9	473	538	.30	41	88	90	239	319	498	615	381	88
10	473	536	.39	47	82	87	274	355	504	718	187	88
11	473	475	.39	53	81	82	292	376	506	682	558	428
12	480	376	.39	60	84	81	288	375	468	664	554	644
13	491	225	.39	68	81	83	273	366	446	544	562	646
14	488	97	.39	75	75	97	236	390	517	268	566	646
15	499	80	179	72	74	100	178	312	552	340	513	637
16	510	74	208	158	74	105	162	251	552	428	470	631
17	508	58	59	180	76	116	140	190	506	477	470	626
18	506	49	34	143	72	115	130	130	434	477	468	622
19	502	57	33	139	71	102	135	124	297	477	462	644
20	497	66	43	139	68	96	135	255	234	477	356	650
21	489	55	53	131	68	102	131	307	218	475	179	646
22	486	52	64	142	66	112	120	181	237	475	179	664
23	498	44	60	131	65	127	115	143	239	475	156	678
24	504	40	57	118	66	151	120	146	637	515	142	673
25	497	40	71	106	66	182	130	370	999	609	142	661
26	491	40	65	105	72	212	155	721	1,000	624	142	655
27	495	38	54	104	74	201	145	806	1,000	620	133	639
28	504	32	46	92	77	173	131	905	1,010	572	119	633
29	508	32	47	89	-----	166	123	913	797	513	124	650
30	506	15	53	88	-----	152	126	921	604	482	123	655
31	529	-----	51	82	-----	123	-----	1,010	-----	482	123	-----
TOTAL	15,311	7,398	1,181.67	2,672	2,125	3,579	5,053	12,172	19,942	15,807	11,302	13,575
MEAN	494	244	38.1	86.2	75.9	115	168	393	665	510	365	453
MAX	529	552	208	180	89	212	292	1,010	1,140	718	578	678
MIN	470	15	.30	27	65	81	109	124	218	268	119	67
AC-FT	30,370	14,500	2,340	5,300	4,210	7,100	10,020	24,140	39,550	31,350	22,420	26,930
CAL Y-3 1969	TOTAL	126,502.78	MEAN	347	MAX	1,190	MIN	.30	AC-FT	250,900		
WTR Y-3 1970	TOTAL	110,027.67	MEAN	301	MAX	1,140	MIN	.30	AC-FT	218,200		

## SAN JOAQUIN RIVER BASIN

## 11229600 FLORENCE LAKE NEAR BIG CREEK, CALIF.

LOCATION.--Lat 37°16'26", long 118°58'23", in NW $\frac{1}{4}$  sec.1, T.8 S., R.27 E., Fresno County, Sierra National Forest, in gatehouse of Ward tunnel intake, near dam on South Fork San Joaquin River, 16 miles northeast of town of Big Creek.

DRAINAGE AREA.--171 sq mi.

PERIOD OF RECORD.--November 1925 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Southern California Edison Co.).

EXTREMES.--Current year: Maximum contents, 63,400 acre-ft July 16 (elevation, 7,326.40 ft); minimum, 282 acre-ft Nov. 29 (elevation, 7,225.01 ft).

Period of record: Maximum contents, 66,000 acre-ft July 3, 1932 (elevation, 7,329.14 ft); no available contents Oct. 2-4, 1926, Nov. 30 to Dec. 2, 1927.

NOTE.--Prior to 1960 maximum and minimum daily contents were published.

REMARKS.--Lake is formed by multiple-arch concrete dam; storage began in April 1925. Usable capacity, 64,400 acre-ft between elevations 7,220.9 ft (throat of Venturi tube in Ward tunnel intake) and 7,327.5 ft (top of spillway drum gates) above mean sea level. Additional storage of 168 acre-ft is not available for diversion. Water is diverted through Ward tunnel to Huntington Lake and used for power development in Big Creek plants. See schematic diagram of San Joaquin River basin. Figures given herein represent usable contents.

COOPERATION.--Record of contents furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

7,220.9	0	7,235	1,770	7,280	11,600	7,290	32,000
7,222	63	7,240	2,980	7,265	14,600	7,300	39,900
7,224	201	7,245	4,670	7,270	17,800	7,310	48,300
7,227	495	7,250	6,650	7,275	21,100	7,320	57,300
7,230	887	7,255	8,950	7,280	24,600	7,330	66,800

CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37,727	10,775	388	318	363	368	424	471	35,625	60,574	57,871	43,869
2	36,898	9,813	455	312	361	378	427	541	36,906	60,706	57,312	43,793
3	36,035	8,857	504	306	358	379	435	660	37,936	60,971	56,719	43,726
4	35,178	7,920	549	302	360	372	449	815	38,668	61,188	56,119	43,651
5	34,341	6,929	601	300	360	380	485	991	39,559	61,492	55,418	43,575
6	33,503	6,004	666	304	365	385	526	1,130	40,709	62,109	54,629	43,533
7	32,655	5,088	712	305	369	388	529	1,023	41,674	62,624	53,833	43,483
8	31,806	4,070	765	305	370	382	552	1,061	42,947	62,967	53,042	43,390
9	30,949	3,020	797	314	367	374	613	1,269	44,359	63,101	52,518	43,298
10	30,112	2,091	838	319	360	372	719	1,552	45,403	63,005	52,473	43,197
11	29,237	1,314	896	328	364	367	744	1,676	46,156	62,881	51,673	42,488
12	28,361	732	951	340	364	365	718	1,578	46,878	62,633	50,860	41,344
13	27,434	417	1,003	345	358	376	632	1,611	47,328	62,576	50,042	40,178
14	26,538	359	1,051	354	355	387	548	2,187	47,440	63,005	49,222	39,007
15	25,749	346	763	350	355	388	493	3,512	47,310	63,216	48,485	37,848
16	24,924	341	371	515	351	398	462	5,677	47,276	63,283	47,823	36,700
17	24,078	312	301	443	357	406	447	7,712	47,571	63,187	47,163	35,531
18	23,239	319	288	432	357	400	446	10,194	48,354	63,101	46,404	34,388
19	22,394	328	301	431	353	389	450	12,536	49,795	63,005	45,813	33,195
20	21,544	324	309	426	353	387	449	14,263	51,673	62,900	45,301	31,989
21	20,696	317	340	432	349	395	446	15,963	53,705	62,757	45,139	30,790
22	19,864	311	330	434	347	410	439	18,272	55,759	62,548	44,969	29,550
23	19,014	302	325	417	347	431	439	21,029	57,731	62,281	44,833	28,272
24	18,148	301	323	403	347	463	438	23,830	58,889	61,900	44,689	26,989
25	17,191	302	357	400	349	507	466	25,980	59,170	61,312	44,553	25,749
26	16,338	301	331	395	354	537	478	27,405	59,574	60,668	44,435	24,517
27	15,445	297	322	389	354	500	469	28,872	60,432	60,177	44,325	23,401
28	14,537	288	316	386	360	477	455	30,105	60,479	59,791	44,257	22,144
29	13,627	290	323	381	-----	467	451	31,358	60,441	59,538	44,173	20,893
30	12,713	326	324	376	-----	444	448	32,809	60,470	58,936	44,071	19,536
31	11,769	-----	321	373	-----	427	-----	34,217	-----	58,440	43,970	-----
MAX	37,727	10,775	1,051	515	370	537	744	34,217	60,479	63,283	57,871	43,869
MIN	11,769	288	288	300	347	365	424	471	35,625	58,440	43,970	19,596
(a)	7,260.28	7,225.45	7,225.40	7,225.93	7,225.80	7,226.41	7,226.59	7,292.92	7,323.37	7,321.21	7,304.97	7,272.78
(b)	-26,700	-11,470	-5	+52	-13	+67	+21	+33,750	+26,300	-2,100	-14,400	-24,400

CAL YR 1969 b -91

WTR YR 1970 b -18,900

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet, rounded to Geological Survey standards.

## 11230000 SOUTH FORK SAN JOAQUIN RIVER NEAR FLORENCE LAKE, CALIF.

LOCATION.--Lat 37°16'24", long 118°57'54", in SE $\frac{1}{4}$  sec.36, T.7 S., R.27 E., Fresno County, Sierra National Forest, on left bank 0.1 mile downstream from spillway of Florence Lake Dam, and 6 miles upstream from Bear Creek.

DRAINAGE AREA.--171 sq mi.

PERIOD OF RECORD.--October 1921 to current year. Monthly discharge only for some periods, published in WSP 1315-A. Prior to October 1925, published as "near Lake Florence."

GAGE.--Water-stage recorder, Parshall flume, and concrete control. Altitude of gage is 7,200 ft (from topographic map).

AVERAGE DISCHARGE (Combined flow of South Fork San Joaquin River and Ward tunnel at intake).--49 years, 317 cfs (229,700 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 21 cfs July 14 (gage height, 9.57 ft); minimum daily, 1.7 cfs Sept. 30.

Period of record: Maximum discharge, 4,320 cfs June 6, 1940 (gage height, 15.38 ft); no flow at times.

REMARKS.--Records excellent. Flow regulated by Florence Lake 0.1 mile upstream beginning in 1925 (see sta 11229600) and by diversion into Ward tunnel (see sta 11229500). See schematic diagram of San Joaquin River basin.

COOPERATION.--Gage-height record and two discharge measurements furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.2	3.8	3.4	3.4	3.4	3.5	3.4	3.4	6.6	8.8	8.4	12
2	6.2	2.9	3.4	3.4	3.4	3.5	3.4	3.4	6.7	8.8	8.4	12
3	6.1	2.9	3.5	3.4	3.4	3.5	3.4	3.4	6.7	8.7	8.4	12
4	6.1	3.0	3.5	3.4	3.4	3.5	3.4	3.5	6.8	8.7	8.3	12
5	6.0	2.9	3.5	3.4	3.4	3.5	3.4	3.5	6.8	8.8	8.3	12
6	6.0	3.2	3.5	3.4	3.4	3.5	3.4	3.6	6.8	8.8	8.2	12
7	5.9	2.9	3.5	3.4	3.4	3.5	3.4	3.6	6.8	9.0	8.2	12
8	5.9	3.4	3.6	3.4	3.4	3.5	3.4	3.6	7.1	9.1	8.1	12
9	5.8	3.7	3.7	3.6	3.4	3.5	3.4	3.6	7.2	9.0	7.8	11
10	5.8	3.5	3.7	3.6	3.4	3.4	3.5	3.7	7.3	9.0	7.7	11
11	5.8	3.4	3.7	3.5	3.5	3.4	3.5	3.7	7.3	9.0	7.7	8.7
12	5.8	3.3	3.7	3.4	3.5	3.4	3.5	3.7	7.4	9.0	7.6	2.5
13	5.8	3.1	3.7	3.4	3.4	3.5	3.6	3.7	7.4	8.8	7.6	2.4
14	5.8	3.0	3.7	3.7	3.4	3.5	3.6	3.8	7.4	9.2	7.4	2.4
15	6.0	3.3	3.7	3.6	3.4	3.4	3.4	4.2	7.4	9.0	7.3	2.4
16	5.8	3.4	3.6	4.8	3.4	3.5	3.4	4.8	7.4	9.0	7.3	2.3
17	5.8	3.4	3.4	3.7	3.5	3.5	3.4	5.0	7.4	8.8	7.3	2.3
18	5.7	3.4	3.4	3.6	3.4	3.4	3.4	5.2	7.4	8.8	7.3	2.3
19	5.6	3.4	3.6	3.5	3.4	3.4	3.4	5.4	7.5	8.8	14	2.2
20	5.6	3.4	3.5	3.5	3.4	3.4	3.4	5.6	7.9	8.7	13	2.2
21	5.5	3.4	3.7	3.7	3.4	3.5	3.6	5.7	8.2	8.7	11	2.1
22	5.5	3.4	3.6	3.6	3.4	3.6	3.4	5.8	8.8	8.7	13	2.1
23	5.4	3.4	3.5	3.5	3.4	3.6	3.4	5.9	8.8	8.7	13	2.1
24	5.4	3.4	3.5	3.6	3.4	3.6	3.4	6.1	8.8	8.7	13	2.0
25	5.3	3.4	4.0	3.5	3.4	3.7	3.4	6.2	9.0	8.6	13	1.9
26	5.2	3.4	3.5	3.5	3.5	3.7	3.5	6.3	8.8	8.6	13	1.9
27	5.2	3.4	3.5	3.5	3.5	3.4	3.6	6.3	8.8	8.6	13	1.9
28	5.1	3.4	3.5	3.4	3.5	3.4	3.5	6.4	9.0	8.5	13	1.8
29	5.1	3.4	3.5	3.4	-----	3.4	3.4	6.4	8.8	8.5	13	1.8
30	5.0	3.4	3.5	3.4	-----	3.4	3.4	6.5	8.8	8.5	12	1.7
31	4.9	-----	3.5	3.4	-----	3.4	-----	6.6	-----	8.4	12	-----
TOTAL	175.3	99.3	110.6	109.6	95.8	108.0	103.3	148.6	231.1	272.3	307.3	167.0
MEAN	5.65	3.31	3.57	3.54	3.42	3.48	3.44	4.79	7.70	8.78	9.91	5.57
MAX	6.2	3.8	4.0	4.8	3.5	3.7	3.6	6.6	9.0	9.2	14	12
MIN	4.9	2.9	3.4	3.4	3.4	3.4	3.4	3.4	6.6	8.4	7.3	1.7
AC-FT	348	197	219	217	190	214	205	295	458	540	610	331

CAL YR 1969 TOTAL 132,035.7 MEAN 362 MAX 3,310 MIN 2.9 AC-FT 261,900  
WTR YR 1970 TOTAL 1,928.2 MEAN 5.28 MAX 14 MIN 1.7 AC-FT 3,820

## SAN JOAQUIN RIVER BASIN

11230500 BEAR CREEK NEAR LAKE THOMAS A. EDISON, CALIF.

LOCATION.--Lat 37°20'18", long 118°58'23", in SW $\frac{1}{4}$  sec.12, T.7 S., R.27 E. (unsurveyed), Fresno County, Sierra National Forest, on right bank 0.2 mile upstream from diversion dam, 1.7 miles upstream from mouth, 2.1 miles south of Lake Thomas A. Edison, and 2.4 miles northeast of Mono Hot Springs.

DRAINAGE AREA.--52.5 sq mi.

PERIOD OF RECORD.--October 1921 to current year. Monthly discharge only for some periods, published in WSP 1315-A. Prior to October 1954, published as "near Vermilion Valley."

GAGE.--Water-stage recorder. Datum of gage is 7,366.94 ft above mean sea level (levels by Southern California Edison Co.).

AVERAGE DISCHARGE.--49 years, 89.5 cfs (64,840 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 650 cfs May 31 (gage height, 5.42 ft); minimum daily, 5.9 cfs Sept. 29, 30.

Period of record: Maximum discharge, 1,680 cfs July 26, 1956 (gage height, 7.12 ft); minimum recorded, 1.2 cfs Sept. 29 to Oct. 5, 1924.

REMARKS.--Records good except those for winter periods, which are fair. No storage or diversion above station. See schematic diagram of San Joaquin River basin.

COOPERATION.--Gage-height record and 10 discharge measurements furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

REVISIONS (WATER YEARS).--WSP 611: 1922(M). WSP 1345: 1931-35. WSP 1515: 1922-30. WSP 1930: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	19	12	12	19	22	33	37	500	187	68	18
2	27	19	13	10	21	26	35	57	475	205	59	17
3	26	19	12	10	19	25	41	94	465	217	56	16
4	24	19	14	10	19	24	47	109	410	208	55	15
5	24	16	15	10	20	24	56	128	370	238	54	13
6	23	18	12	15	19	27	69	130	378	298	51	15
7	22	25	11	20	24	25	66	101	378	250	50	12
8	21	26	10	25	24	24	69	111	370	220	48	12
9	20	25	9.2	45	22	22	80	113	358	214	44	12
10	19	26	9.2	64	19	20	97	130	298	211	42	12
11	18	24	9.2	78	19	20	88	115	256	199	40	12
12	17	23	9.5	115	21	19	75	81	247	172	39	11
13	15	22	10	155	19	21	61	113	214	166	39	11
14	16	21	10	160	21	26	52	212	175	166	38	10
15	27	20	10	148	21	27	43	277	139	152	37	9.9
16	38	21	10	337	19	31	37	346	142	155	36	9.5
17	34	14	10	244	19	38	33	395	193	142	34	9.0
18	31	14	11	180	19	34	32	420	259	139	33	9.0
19	29	14	12	162	19	29	35	382	307	137	32	8.6
20	27	15	20	117	19	28	31	334	410	132	31	8.1
21	25	15	19	73	19	32	30	338	425	125	29	7.7
22	25	15	22	60	18	40	29	400	435	116	26	7.7
23	25	14	17	39	17	48	28	445	405	100	25	7.2
24	24	15	19	28	18	57	28	435	400	94	24	7.2
25	24	14	24	29	18	69	38	410	386	85	22	7.2
26	24	14	25	26	20	70	39	415	386	82	22	6.9
27	21	14	20	24	21	56	33	415	495	119	22	6.5
28	21	12	17	23	20	49	29	405	322	150	23	6.2
29	19	13	16	22	-----	49	30	435	244	110	24	5.9
30	19	12	15	21	-----	43	28	470	193	94	21	5.9
31	19	-----	13	20	-----	34	-----	495	-----	78	20	-----
TOTAL	732	538	436.1	2,282	553	1,059	1,392	8,348	10,035	4,961	1,144	308.5
MEAN	23.6	17.9	14.1	73.6	19.8	34.2	46.4	269	335	160	36.9	10.3
MAX	38	26	25	337	24	70	97	495	500	298	68	18
MIN	15	12	9.2	10	17	19	28	37	139	78	20	5.9
AC-FT	1,450	1,070	865	4,530	1,100	2,100	2,760	16,560	19,900	9,840	2,270	612

CAL YR 1969 TOTAL 72,047.1 MEAN 197 MAX 1,090 MIN 9.2 AC-FT 142,900  
WAT YR 1970 TOTAL 31,788.6 MEAN 87.1 MAX 500 MIN 5.9 AC-FT 63,050

## PEAK DISCHARGE (BASE, 440 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
5-17	2030	5.26	570	5-31	2230	5.42	650
5-23	2130	5.25	565	6-27	0400	5.33	605

## 11231000 LAKE THOMAS A. EDISON NEAR BIG CREEK, CALIF.

LOCATION.--Lat 37°22'13", long 118°59'13", in sec.26, T.6 S., R.27 E. (unsurveyed), Fresno County, Sierra National Forest, in outlet works of dam on Mono Creek at lower end of Vermilion Valley, 18.1 miles northeast of town of Big Creek.

DRAINAGE AREA.--90.0 sq mi.

PERIOD OF RECORD.--October 1954 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Southern California Edison Co.).

EXTREMES.--Current year: Maximum contents, 113,200 acre-ft Oct. 1 (elevation, 7,636.04 ft); minimum, 24,600 acre-ft Mar. 9 (elevation, 7,576.44 ft).

Period of record: Maximum contents, 125,900 acre-ft Aug. 18, 1958 (elevation, 7,642.95 ft); minimum since appreciable storage was attained, 5,080 acre-ft Mar. 27, 1969 (elevation, 7,553.09 ft).

NOTE.--Prior to 1960, maximum and minimum daily contents were published.

REMARKS.--Lake is formed by earthfill dam; dam completed and storage began on Oct. 12, 1954. Usable capacity, 125,000 acre-ft between elevations 7,508.9 ft (invert of outlet works) and 7,642.5 ft (top of gates in service spillway) above mean sea level. Water is released for diversion to Ward tunnel via Mono Creek diversion works. See schematic diagram of San Joaquin River basin. Figures given herein represent usable contents.

COOPERATION.--Record of contents furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

REVISIONS.--WSP 1930: Drainage area.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

7,508.9	0	7,535	513	7,560	9,520	7,610	68,600
7,515	18	7,540	928	7,570	18,100	7,620	85,000
7,520	64	7,545	1,830	7,580	28,500	7,630	102,400
7,525	156	7,550	3,570	7,590	40,500	7,640	120,400
7,530	297	7,555	6,150	7,600	53,800	7,643	126,000

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	112,836	102,491	85,601	69,627	49,672	29,761	27,596	34,689	63,906	96,345	110,091	101,340
2	112,438	102,190	85,567	68,916	48,943	29,042	27,795	34,954	65,447	97,062	110,235	100,576
3	112,058	101,942	85,567	68,163	48,201	28,371	28,061	35,256	66,976	97,693	110,397	99,663
4	111,696	101,659	85,567	67,397	47,465	27,762	28,327	35,595	68,413	98,378	110,505	98,957
5	111,286	101,358	85,567	66,651	46,692	27,080	28,593	35,985	69,737	99,063	110,613	98,413
6	110,920	101,199	85,567	65,941	45,951	26,403	28,851	36,424	71,088	99,786	110,757	97,570
7	110,487	100,845	85,584	65,233	45,214	25,755	29,120	36,816	72,497	100,526	110,866	96,782
8	110,073	100,562	85,635	64,592	44,493	25,132	29,389	37,234	73,770	101,128	110,902	95,943
9	109,694	100,280	85,635	64,057	43,764	24,642	29,670	37,653	75,132	101,871	111,010	95,136
10	109,298	100,050	85,567	63,408	43,037	24,695	30,034	38,148	76,194	102,474	111,100	94,289
11	108,760	99,751	84,718	62,744	42,304	24,780	30,386	38,597	77,146	102,971	111,190	93,976
12	108,293	99,187	83,957	62,069	41,624	24,855	30,716	38,971	78,019	103,540	111,316	93,958
13	107,916	98,536	83,196	61,413	40,925	24,929	31,062	39,396	78,747	104,091	111,443	93,941
14	107,557	97,799	82,422	60,893	40,177	25,025	31,327	40,039	79,345	104,644	111,406	93,923
15	107,432	97,079	81,631	60,288	39,485	25,121	31,582	40,899	79,909	105,090	111,262	93,906
16	107,306	96,293	80,895	59,831	38,722	25,217	31,824	41,944	80,427	105,518	111,172	93,889
17	107,199	95,454	80,126	59,259	38,086	25,335	32,057	43,297	81,129	105,910	111,064	93,889
18	106,930	94,671	79,345	58,676	37,345	25,432	32,256	44,689	82,001	106,358	110,974	93,889
19	106,644	93,976	78,681	58,093	36,607	25,518	32,479	45,911	83,112	106,769	110,866	93,854
20	106,304	93,229	78,019	57,443	35,887	25,626	32,644	47,038	84,346	107,163	110,595	93,836
21	106,000	92,485	77,410	56,895	35,183	25,734	32,855	48,214	85,652	107,521	109,892	93,784
22	105,660	91,740	76,652	56,293	34,448	25,842	33,031	49,523	86,964	107,862	109,191	93,784
23	105,321	90,981	75,933	55,651	33,720	25,939	33,184	51,023	88,246	108,185	108,436	93,767
24	105,000	90,256	75,214	55,067	32,995	26,047	33,351	52,416	89,499	108,418	107,682	93,767
25	104,679	89,482	74,661	54,376	32,292	26,154	33,553	53,769	90,774	108,670	106,877	93,750
26	104,305	88,709	73,981	53,713	31,593	26,425	33,791	55,109	92,034	108,957	106,053	93,750
27	103,931	87,870	73,284	53,113	30,935	26,622	33,958	56,564	93,299	109,227	105,321	93,732
28	103,593	87,049	72,464	52,444	30,341	26,829	34,113	57,934	94,115	109,424	104,554	93,715
29	103,291	86,214	71,789	51,781	-----	27,026	34,339	59,332	94,845	109,622	103,753	93,680
30	102,971	85,652	71,088	51,105	-----	27,222	34,520	60,789	95,612	109,820	102,953	93,645
31	102,687	-----	70,354	50,436	-----	27,408	-----	62,383	-----	109,946	102,137	-----
MAX	112,836	102,491	85,635	69,627	49,672	29,761	34,520	62,383	95,612	109,946	111,443	101,340
MIN	102,687	85,652	70,354	50,436	30,341	24,642	27,596	34,689	63,906	96,345	102,137	93,645
(a)	7,636.04	7,630.18	7,620.38	7,611.10	7,597.59	7,581.62	7,585.19	7,605.94	7,626.15	7,634.24	7,635.13	7,629.87
(b)	-10,500	-17,000	-15,300	-20,000	-20,100	-2,900	+7,100	+27,900	+33,200	+14,300	-7,800	-8,500

CAL YR 1969 b +45,700

WTR YR 1970 b -19,600

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet, rounded to Geological Survey standards.

## SAN JOAQUIN RIVER BASIN

## 11231500 MONO CREEK BELOW LAKE THOMAS A. EDISON, CALIF.

LOCATION.--Lat 37°21'40", long 118°59'26", in SW $\frac{1}{4}$  sec.35, T.6 S., R.27 E. (unsurveyed), Fresno County, Sierra National Forest, on left bank 0.6 mile upstream from diversion dam, 1 mile downstream from Lake Thomas A. Edison, and 1.9 miles northeast of Mono Hot Springs.

DRAINAGE AREA.--92.5 sq mi.

PERIOD OF RECORD.--October 1921 to current year. Monthly discharge only for some periods, published in WSP 1315-A. Prior to October 1954, published as "near Vermilion Valley."

GAGE.--Water-stage recorder. Altitude of gage is 7,400 ft (from topographic map).

AVERAGE DISCHARGE (adjusted for storage).--49 years, 152 cfs (110,100 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 485 cfs Sept. 5 (gage height, 6.47 ft); minimum daily, 13 cfs Dec. 3-9, Apr. 13 to May 1.  
Period of record: Maximum discharge, 1,760 cfs June 2, 1938 (gage height, 8.62 ft); minimum daily, 0.3 cfs Nov. 11, 12, 1954.

REMARKS.--Records good. Flow regulated by Lake Thomas A. Edison 1 mile upstream beginning Oct. 12, 1954 (see sta 11231000). No diversion above station. See schematic diagram of San Joaquin River basin.

COOPERATION.--Gage-height record and nine discharge measurements furnished by Southern California Edison Co. in connection with Federal Power Commission project.

REVISIONS (WATER YEARS).--WSP 1011: 1943. WSP 1515: 1956. WSP 1930: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	208	139	50	352	375	356	15	13	14	16	18	470
2	212	160	34	352	385	361	15	14	14	16	18	480
3	181	163	13	348	385	356	15	15	14	16	18	480
4	208	169	13	348	380	352	15	15	14	16	18	375
5	219	153	13	356	380	352	15	15	14	16	18	293
6	223	103	13	356	380	352	15	15	14	16	18	480
7	253	192	13	352	380	348	15	15	14	16	18	480
8	238	169	13	352	380	348	15	15	15	16	18	480
9	226	150	13	356	380	254	15	15	15	16	17	480
10	238	160	97	356	375	15	15	15	15	16	17	480
11	245	188	361	352	375	15	15	15	15	16	17	195
12	249	313	361	352	370	15	15	14	15	16	16	20
13	219	370	361	352	370	15	13	14	15	16	15	20
14	230	395	361	356	366	15	13	14	15	16	70	20
15	215	405	361	361	366	15	13	15	15	17	122	20
16	134	405	356	356	366	15	13	15	15	16	107	20
17	142	405	356	356	361	15	13	15	15	16	107	20
18	175	405	356	356	366	15	13	15	15	16	107	20
19	182	400	356	356	366	15	13	14	15	16	105	20
20	195	400	356	356	366	15	13	14	15	16	201	20
21	195	400	356	352	366	15	13	14	15	17	435	20
22	195	343	356	352	361	15	13	14	15	17	435	20
23	208	370	356	352	361	15	13	14	15	17	435	20
24	185	390	356	352	361	15	13	14	15	17	435	20
25	188	395	356	348	356	15	13	14	15	17	455	20
26	201	405	356	348	356	15	13	14	15	17	465	20
27	195	410	356	348	352	15	13	14	16	17	465	20
28	188	415	356	348	352	15	13	14	16	17	465	20
29	178	415	356	348	-----	15	13	14	16	17	465	20
30	185	267	352	343	-----	15	13	14	16	17	465	20
31	172	-----	352	356	-----	15	-----	14	-----	18	470	-----
TOTAL	6,282	9,074	7,765	10,928	10,337	3,409	414	446	447	509	6,035	5,073
MEAN	203	302	250	353	369	110	13.8	14.4	14.9	16.4	195	169
MAX	253	415	361	361	385	361	15	15	16	18	470	480
MIN	134	103	13	343	352	15	13	13	14	16	15	20
AC-FT	12,460	18,000	15,400	21,680	20,500	6,760	821	885	887	1,010	11,970	10,060
CAL YR 1969	TOTAL 98,789		MEAN 271		MAX 822		MIN 13		AC-FT 195,900			
WTR YR 1970	TOTAL 60,719		MEAN 166		MAX 480		MIN 13		AC-FT 120,400			



## 11234500 CHIQUITO CREEK NEAR BASS LAKE, CALIF.

LOCATION.--Lat 37°24'47", long 119°22'52", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.18, T.6 S., R.24 E., Madera County, Sierra National Forest, on right bank 0.5 mile downstream from Beasore Creek, 0.6 mile southwest of Arnold Meadow, and 12 miles northeast of town of Bass Lake.

DRAINAGE AREA.--60.1 sq mi.

PERIOD OF RECORD.--September 1921 to September 1928, November 1951 to current year (discontinued). No winter records 1952-54, 1956. Monthly discharge only for some periods, published in WSP 1315-A. Prior to October 1962, published as "near Arnold Meadow."

GAGE.--Water-stage recorder. Altitude of gage is 4,800 ft (from topographic map). Prior to Apr. 30, 1922, nonrecording gage at same site and datum.

AVERAGE DISCHARGE.--22 years (1921-28, 1954-55, 1956-70), 91.3 cfs (66,150 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 760 cfs Jan. 16 (gage height, 7.61 ft); minimum daily, 4.6 cfs Sept. 26-30.  
Period of record: Maximum discharge, 8,630 cfs Dec. 23, 1955 (gage height, 16.38 ft), from rating curve extended above 1,100 cfs on basis of slope-area measurement of maximum flow; minimum, 1.2 cfs Sept. 7, 9, 1961.

REMARKS.--Records good. No regulation or diversion above station. See schematic diagram of San Joaquin River basin.

COOPERATION.--Gage-height record and six discharge measurements furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

REVISIONS.--WSP 1930: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	22	23	52	102	127	160	178	189	42	14	6.8
2	14	22	23	47	96	139	169	216	182	40	14	6.8
3	13	21	23	44	96	137	182	266	167	38	14	6.8
4	14	21	22	42	102	125	196	287	150	38	13	6.8
5	14	20	22	35	98	129	219	305	135	38	13	6.8
6	14	37	24	33	96	133	246	299	127	33	12	7.2
7	14	40	22	32	102	139	240	257	119	31	11	7.2
8	14	37	23	41	104	137	235	252	121	30	11	7.2
9	14	37	23	65	102	127	260	240	232	30	10	6.8
10	14	37	24	108	98	127	293	272	150	33	9.8	6.4
11	14	42	24	84	110	121	302	243	121	29	10	6.4
12	13	42	24	68	139	123	287	209	113	28	9.8	6.0
13	13	44	24	65	127	143	252	238	125	27	9.4	6.0
14	14	42	24	102	127	164	219	299	117	25	9.4	6.0
15	40	41	24	93	127	171	199	332	104	24	8.9	5.6
16	199	44	24	466	117	178	184	368	91	22	8.9	5.6
17	95	37	22	410	115	194	171	368	89	23	8.9	5.6
18	52	32	23	246	111	178	173	353	82	22	8.9	5.3
19	42	32	33	189	108	160	187	326	84	21	8.9	5.3
20	38	32	152	171	106	154	175	293	80	20	8.9	5.3
21	34	32	197	331	106	164	169	275	74	20	8.9	5.0
22	32	30	167	332	102	175	158	290	68	20	8.4	5.0
23	32	28	95	229	104	187	156	284	62	18	8.4	5.0
24	30	28	77	324	106	206	162	290	56	17	8.4	5.0
25	28	27	196	199	108	238	180	272	53	17	8.0	5.0
26	26	26	131	160	113	266	192	249	52	16	7.6	4.6
27	25	25	77	156	121	243	167	240	62	16	7.6	4.6
28	24	24	58	129	133	222	154	214	53	16	7.2	4.6
29	24	24	59	121	-----	216	152	206	49	15	7.6	4.6
30	23	24	58	111	-----	199	160	201	46	16	7.2	4.6
31	23	-----	53	104	-----	167	-----	204	-----	15	7.2	-----
TOTAL	960	950	1,771	4,589	3,076	5,189	5,999	8,326	3,153	780	300.3	173.9
MEAN	31.0	31.7	57.1	148	110	167	200	269	105	25.2	9.69	5.80
MAX	199	44	197	466	139	266	302	368	232	42	14	7.2
MIN	13	20	22	32	96	121	152	178	46	15	7.2	4.6
AC-FT	1,900	1,880	3,510	9,100	6,100	10,290	11,900	16,510	6,250	1,550	596	345
CAL YR 1969	TOTAL 90,735		MEAN 249		MAX 1,530		MIN 13		AC-FT 180,000			
WTR YR 1970	TOTAL 35,267.2		MEAN 96.6		MAX 466		MIN 4.6		AC-FT 69,950			

PEAK DISCHARGE (BASE, 500 CFS).--Dec. 21 (2000) 579 cfs (7.16 ft); Jan. 16 (1900) 760 cfs (7.61 ft).

## SAN JOAQUIN RIVER BASIN

## 11234700 MAMMOTH POOL RESERVOIR NEAR BIG CREEK, CALIF.

LOCATION.--Lat 37°19'45", long 119°19'40", in SW $\frac{1}{4}$  sec.10, T.7 S., R.24 E., Madera County, Sierra National Forest, in gatehouse of power tunnel intake near dam on San Joaquin River, 10 miles northwest of town of Big Creek.

DRAINAGE AREA.--995 sq mi.

PERIOD OF RECORD.--October 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Southern California Edison Co.).

EXTREMES.--Current year: Maximum contents, 113,300 acre-ft June 28 (elevation, 3,323.82 ft); minimum, 4,600 acre-ft Mar. 30, 31; minimum elevation, 3,139.96 ft Mar. 31.

Period of record: Maximum contents, 126,500 acre-ft June 2, 3, 1969; maximum elevation, 3,335.86 ft June 3, 1969; minimum contents since appreciable storage was attained, 4,600 acre-ft Mar. 30, 31, 1970; minimum elevation, 3,139.96 ft Mar. 31, 1970.

REMARKS.--Reservoir is formed by an earthfill dam; storage began Oct. 8, 1959. Usable capacity, 119,900 acre-ft between elevations 3,100.00 ft (invert of power tunnel) and 3,330.00 ft (crest of spillway) above mean sea level. Additional storage of 2,780 acre-ft is not available for release. Water is diverted through tunnel for power development; water is returned to river 8.5 miles downstream from dam. See schematic diagram of San Joaquin River basin. Figures given herein represent usable contents.

COOPERATION.--Records of contents furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

REVISIONS.--WSP 1930: Drainage area.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

3,100	0	3,130	3,110	3,180	14,100	3,260	56,400
3,105	417	3,140	4,600	3,190	17,400	3,280	72,100
3,110	861	3,150	6,400	3,200	21,400	3,300	89,800
3,115	1,360	3,160	8,620	3,220	31,100	3,320	109,300
3,120	1,900	3,170	11,200	3,240	42,800	3,335	125,500

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29,947	31,098	34,125	49,066	44,190	11,824	4,668	4,618	91,387	108,698	78,056	56,536
2	29,715	31,553	33,818	48,978	41,629	13,107	4,612	4,646	94,736	107,081	77,384	55,842
3	29,473	31,684	33,495	49,529	39,075	13,731	4,630	5,311	97,852	105,611	76,697	55,153
4	29,805	32,159	33,462	50,093	36,477	14,353	4,625	6,886	100,147	104,001	75,943	54,456
5	29,731	32,560	33,178	49,886	33,952	15,087	4,635	9,012	101,812	102,510	75,164	54,635
6	29,384	32,214	33,534	49,694	31,369	15,810	4,631	11,362	103,389	101,107	74,415	54,807
7	29,039	31,858	33,885	49,536	28,816	16,591	4,626	12,232	104,614	99,674	73,685	54,277
8	28,717	31,450	33,924	49,032	26,309	17,943	4,636	13,336	106,136	98,094	72,900	53,500
9	28,407	32,148	34,236	49,453	23,957	18,323	4,820	14,170	108,801	96,479	72,210	52,724
10	28,109	32,099	34,499	50,507	21,790	17,905	5,677	15,934	109,668	95,144	71,225	51,964
11	28,366	32,858	34,516	48,904	19,637	17,316	6,822	16,945	109,803	94,366	70,495	51,230
12	28,412	32,902	34,303	47,672	17,871	16,667	7,490	16,920	109,761	93,475	68,702	51,383
13	28,078	32,830	34,667	46,653	16,351	16,762	7,723	17,345	109,595	92,476	67,480	51,544
14	27,746	32,874	35,020	46,797	14,820	16,636	7,205	19,792	109,027	91,490	66,241	50,757
15	27,634	33,317	34,723	44,723	13,479	16,664	6,208	23,654	108,338	90,536	65,622	49,996
16	29,499	33,807	34,393	53,324	11,567	16,751	4,964	29,044	107,928	89,577	65,006	49,194
17	31,071	33,656	34,069	56,440	9,924	16,646	4,645	35,072	107,877	88,402	64,367	48,379
18	31,984	33,289	33,790	56,053	8,311	15,746	4,745	40,842	107,826	87,721	63,734	47,513
19	32,681	33,294	33,595	54,821	8,287	13,971	4,633	45,532	108,420	87,188	63,100	47,605
20	32,516	33,395	35,202	53,536	8,367	12,352	4,646	48,775	109,326	86,566	62,480	47,718
21	32,346	33,361	38,665	54,191	8,542	10,735	4,734	51,740	110,238	85,982	61,856	46,908
22	32,115	33,734	40,732	55,030	8,703	9,145	4,631	55,486	111,061	85,291	61,298	46,105
23	31,973	34,080	41,325	54,829	8,814	7,752	4,635	59,881	111,563	84,521	60,660	45,260
24	31,848	33,930	41,722	56,323	8,985	6,787	4,635	64,184	111,793	83,418	60,032	44,434
25	32,390	33,679	44,518	55,812	9,039	6,228	4,696	67,886	111,814	82,331	59,374	43,588
26	32,907	33,456	45,832	54,649	9,177	6,061	4,925	71,567	112,370	81,267	58,698	43,232
27	32,692	33,857	47,052	53,728	9,387	5,677	4,836	75,088	112,969	80,857	57,988	43,320
28	32,434	33,723	47,930	52,301	10,084	4,906	4,871	77,927	112,948	80,442	57,334	42,655
29	32,104	34,058	48,171	50,501	-----	4,602	4,804	81,000	111,825	79,922	57,572	41,984
30	31,788	34,426	48,372	48,325	-----	4,600	4,646	84,394	110,342	79,370	57,854	41,337
31	31,402	-----	48,379	46,555	-----	4,630	-----	88,006	-----	78,767	57,230	-----
MAX	32,907	34,426	48,379	56,440	44,190	18,323	7,723	88,006	112,969	108,698	78,056	56,536
MIN	27,634	31,098	33,178	44,723	8,287	4,600	4,612	4,618	91,387	78,767	57,230	41,337
(a)	3,220.54	3,226.02	3,248.61	3,245.85	3,165.90	3,140.15	3,140.25	3,298.08	3,320.97	3,287.80	3,261.15	3,237.68
(b)	+1,200	+3,000	+14,000	-1,800	-36,500	-5,470	+20	+83,350	+22,300	-31,500	-21,600	-15,900

CAL YR 1969 b +38,580  
WTR YR 1970 b +11,100

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet, rounded to Geological Survey standards.

## 11234760 SAN JOAQUIN RIVER ABOVE SHAKEFLAT CREEK, NEAR BIG CREEK, CALIF.

LOCATION.--Lat 37°19'00", long 119°19'37", in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.14, T.7 S., R.24 E., Madera County, Sierra National Forest, on right bank 1,500 ft upstream from Shakeflat Creek, 4,900 ft downstream from Mammoth Pool Dam, and 10 miles northwest of town of Big Creek.

DRAINAGE AREA.--1,003 sq mi.

PERIOD OF RECORD.--October 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,865.50 ft above mean sea level (levels by Southern California Edison Co.).

EXTREMES.--Current year: Maximum discharge, 92 cfs Jan. 16 (gage height, 3.48 ft); minimum daily, 11 cfs Mar. 23 to Apr. 10.

Period of record: Maximum discharge, 18,400 cfs June 3, 1969 (gage height, 18.38 ft); minimum daily, 0.3 cfs Oct. 14, Dec. 5, 1959.

REMARKS.--Records excellent. Flow regulated by Mammoth Pool Reservoir 4,900 ft upstream (see sta 11234700). Flow partly regulated by Florence Lake (see sta 11229600), Lake Thomas A. Edison (see sta 11231000) and diversions through Ward tunnel (see sta 11229500) and through Mono-Bear conduit to Ward tunnel. See schematic diagram of San Joaquin River basin.

COOPERATION.--Gage-height record and 14 discharge measurements furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	32	14	15	13	20	11	26	29	28	27	25
2	30	32	14	15	13	16	11	26	29	28	27	25
3	31	32	14	15	12	14	11	26	28	27	27	25
4	32	32	14	15	12	14	11	27	28	27	27	25
5	32	25	14	15	13	15	11	27	28	27	26	26
6	32	13	14	15	12	14	11	27	28	27	26	26
7	32	13	14	15	12	14	11	27	28	27	26	24
8	32	13	15	16	12	14	11	28	28	27	26	26
9	32	13	14	23	12	14	11	28	28	27	26	26
10	32	13	14	22	12	13	11	29	28	26	26	26
11	32	13	14	18	12	13	12	29	28	26	26	26
12	32	13	14	17	12	13	12	29	28	26	26	26
13	32	13	14	17	15	13	12	29	28	26	26	26
14	32	13	14	24	14	12	12	29	28	25	26	26
15	32	13	14	20	13	12	19	30	28	26	26	26
16	32	14	14	44	12	12	27	30	28	26	26	26
17	32	13	14	23	14	12	27	31	28	26	26	24
18	32	13	14	17	12	12	26	32	28	26	26	26
19	32	13	16	16	12	12	27	33	28	26	26	27
20	32	13	16	15	12	12	26	33	28	26	26	26
21	32	13	19	16	12	12	27	33	28	26	26	26
22	32	13	16	15	12	12	27	33	28	26	26	26
23	32	13	15	18	12	11	27	33	28	26	26	26
24	32	13	15	21	12	11	27	34	28	26	25	26
25	32	13	20	15	12	11	26	34	28	26	25	26
26	32	13	16	13	12	11	27	31	29	26	25	26
27	32	13	15	13	12	11	27	28	28	26	25	26
28	32	14	15	12	15	11	27	28	28	26	25	26
29	32	14	15	12	-----	11	27	28	28	26	25	25
30	32	14	15	13	-----	11	26	28	28	26	25	24
31	32	-----	15	13	-----	11	-----	28	-----	27	25	-----
TOTAL	988	482	461	538	350	394	578	914	843	817	802	770
MEAN	31.9	16.1	14.9	17.4	12.5	12.7	19.3	29.5	28.1	26.4	25.9	25.7
MAX	32	32	20	44	15	20	27	34	29	28	27	27
MIN	30	13	14	12	12	11	11	26	28	25	25	24
AC-FT	1,960	956	914	1,070	694	781	1,150	1,810	1,670	1,620	1,590	1,530
CAL Yr 1969	TOTAL 671,284		MEAN 1,839		MAX 16,400		MIN 12		AC-FT 1,331,000			
WTR Yr 1970	TOTAL 7,937		MEAN 21.7		MAX 44		MIN 11		AC-FT 15,740			

## SAN JOAQUIN RIVER BASIN

11235500 WARD TUNNEL OUTLET AT HUNTINGTON LAKE, CALIF.

LOCATION.--Lat 37°15'18", long 119°09'37", in SW<sub>1</sub>SW<sub>4</sub> sec.5, T.8 S., R.26 E., Fresno County, Sierra National Forest, at tunnel outlet at east end of Huntington Lake, 6 miles northeast of Big Creek.

PERIOD OF RECORD.--October 1927 to current year. Monthly discharge only for some periods, published in WSP 1315-A. Prior to October 1960, published as Ward tunnel at outlet.

GAGE.--Pressure differential recorder to record discharge through penstock. November 1927 to May 23, 1956, water-stage recorder at datum 6,999.00 ft above mean sea level (levels by Southern California Edison Co.). May 24, 1956, to Sept. 30, 1968, no recorder, see REMARKS below.

AVERAGE DISCHARGE.--43 years, 475 cfs (344,100 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 2,080 cfs June 21, 1935; no flow at times in 1961, 1964-65, 1968.

REMARKS.--Records good. For the period May 24, 1956, to Sept. 30, 1968, daily discharge computed as the sum of Ward tunnel at intake, Mono-Bear conduit, Camp Creek conduit, and corrected for change in contents of Portal Forebay. Tunnel diverts from Florence Lake to Huntington Lake, receives diversions from Bear and Mono Creeks and at times from several other small tributaries of South Fork San Joaquin River. See record for sta 11229500 Ward tunnel intake at Florence Lake.

COOPERATION.--Records furnished by Southern California Edison Co. and reviewed by Geological Survey in connection with a Federal Power Commission project.

REVISIONS (WATER YEARS).--WRD Calif. 1967: 1966.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	JCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	734	738	120	468	560	526	166	217	1,640	734	562	567
2	734	738	0	486	530	540	180	312	1,650	729	534	577
3	686	738	0	458	542	544	191	363	1,630	729	540	535
4	736	738	0	458	556	515	219	488	1,640	729	540	561
5	736	742	0	465	549	529	272	496	1,400	729	599	368
6	736	865	0	469	546	532	293	586	1,240	725	636	487
7	736	727	0	513	553	541	327	569	1,230	719	594	522
8	738	729	0	476	567	550	323	643	1,110	709	607	542
9	738	730	40	481	557	527	345	486	859	716	561	550
10	735	730	122	476	552	185	334	569	854	985	110	536
11	736	730	440	486	530	133	442	594	782	884	572	619
12	736	728	453	498	550	117	431	538	774	887	598	623
13	738	654	444	506	552	122	451	546	712	690	598	656
14	738	549	442	556	535	153	361	708	712	464	638	638
15	738	514	618	510	523	150	280	749	706	529	642	638
16	738	518	694	663	531	166	246	737	678	559	599	633
17	663	500	467	633	535	180	208	738	722	636	591	622
18	738	502	468	632	548	181	207	734	721	626	602	622
19	738	487	469	590	528	128	213	698	710	609	596	631
20	737	508	484	615	530	171	200	698	704	619	554	658
21	738	536	500	595	526	166	218	730	712	608	621	653
22	738	413	505	604	520	170	187	738	712	591	613	649
23	740	448	511	596	506	202	168	720	712	577	581	675
24	742	480	498	551	520	233	278	722	1,270	625	594	676
25	742	483	519	562	500	293	215	819	1,650	685	607	671
26	742	488	492	550	517	331	256	1,220	1,320	701	612	670
27	742	488	510	550	526	264	222	1,290	1,460	742	605	613
28	740	497	486	522	526	283	199	1,360	1,370	722	576	642
29	740	483	486	532	-----	264	198	1,390	1,030	612	591	656
30	738	455	486	505	-----	222	204	1,410	768	605	584	662
31	738	-----	488	521	-----	163	-----	1,480	-----	570	578	-----
TOTAL	22,751	17,936	10,742	16,527	15,015	9,081	7,834	23,348	31,478	21,045	17,835	18,152
MEAN	734	598	347	533	536	293	261	753	1,049	679	575	605
MAX	742	865	694	663	567	550	451	1,480	1,650	985	642	676
MIN	663	413	0	458	500	117	166	217	678	464	110	368
AC-FT	45,130	35,580	21,310	32,780	29,780	18,010	15,540	46,310	62,440	41,740	35,380	36,000
WAL YR 1969	TOTAL	226,050	MEAN	619	MAX	1,290	MIN	0	AC-FT	448,400		
CTR YR 1970	TOTAL	211,744	MEAN	580	MAX	1,650	MIN	0	AC-FT	420,000		

## 11236000 HUNTINGTON LAKE NEAR BIG CREEK, CALIF.

LOCATION.--Lat 37°14'03", long 119°12'41", in SW $\frac{1}{4}$  sec.14, T.8 S., R.25 E., Fresno County, Sierra National Forest, in gate tower of dam 1 on Big Creek, 2 miles northeast of town of Big Creek.

DRAINAGE AREA.--80.5 sq mi.

PERIOD OF RECORD.--April 1913 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Southern California Edison Co.). Prior to June 19, 1920, nonrecording gage at same site and datum.

EXTREMES.--Current year: Maximum contents, 88,400 acre-ft July 9, 10; maximum elevation, 6,949.46 ft July 9; minimum contents, 50,100 acre-ft Jan. 9 (elevation, 6,919.36 ft).  
Period of record: Maximum contents, 90,500 acre-ft May 31, 1926 (elevation, 6,950.92 ft); minimum, 2,100 acre-ft Nov. 6, 1937 (elevation, 6,838.53 ft).

NOTE.--Prior to 1960, maximum and minimum daily contents were published.

REMARKS.--Lake is formed by four dams; storage began Apr. 11, 1913. Dams were raised in 1914 and again in 1917. Usable capacity, 89,200 acre-ft between elevations 6,819.9 ft (invert of outlet tunnel No. 1) and 6,950 ft (spillway crest at dam 1) above mean sea level. Additional storage of 600 acre-ft is not available for release. Huntington-Shaver conduit has diverted water from Huntington Lake to Shaver Lake since Apr. 21, 1928 (see sta 11239000). Water is used for power development in Big Creek plants. Figures given herein represent usable contents. See schematic diagram of San Joaquin River basin.

COOPERATION.--Record of contents furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

6,819.9	0	6,835	1,550	6,870	11,300	6,920	50,800
6,820	8	6,840	2,350	6,880	16,400	6,930	62,600
6,822	142	6,845	3,320	6,890	22,900	6,940	75,300
6,825	382	6,850	4,480	6,900	30,900	6,950	89,200
6,830	899	6,860	7,430	6,910	40,200	6,951	90,610

CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78,676	71,608	64,148	51,621	61,895	66,159	56,829	54,682	69,463	86,345	88,065	85,106
2	78,405	71,386	63,024	51,441	62,090	66,171	56,534	54,601	69,964	86,629	88,008	84,993
3	78,039	71,140	61,870	51,194	62,310	66,159	56,301	54,786	70,247	86,927	87,836	84,825
4	77,756	70,907	60,713	50,924	62,555	66,209	56,137	55,261	70,467	87,197	87,665	84,554
5	77,473	70,700	59,566	50,679	62,789	66,171	56,032	55,868	70,597	87,466	87,608	83,986
6	77,204	70,804	58,393	50,423	63,024	66,159	56,160	56,711	70,713	87,750	87,622	83,721
7	76,935	70,700	57,278	50,200	63,295	66,134	56,301	57,490	70,713	88,022	87,566	83,511
8	76,626	70,713	56,184	50,156	63,566	66,134	56,546	58,393	70,985	88,251	87,622	83,317
9	76,372	70,519	55,111	50,145	63,788	66,121	56,853	59,109	71,830	88,351	87,637	83,164
10	76,105	70,325	54,185	50,590	64,037	65,382	57,136	60,107	72,286	88,351	86,572	83,012
11	75,811	70,118	53,829	51,441	64,235	64,608	57,845	60,386	72,613	88,165	86,487	83,056
12	75,531	69,887	53,554	51,734	64,559	63,788	58,453	59,794	72,875	88,094	86,416	83,039
13	75,265	69,540	53,267	51,599	64,869	62,987	59,133	59,410	73,033	88,022	86,345	83,157
14	75,039	68,962	52,970	52,175	65,119	62,249	59,506	59,710	73,296	87,679	86,388	83,178
15	75,132	68,413	53,004	52,992	65,720	61,528	59,662	60,422	73,703	87,552	86,431	83,234
16	75,053	67,878	53,187	54,983	65,896	60,859	59,734	61,320	74,205	87,452	86,374	83,317
17	74,867	67,585	52,924	56,581	66,196	60,228	59,710	62,396	74,801	87,523	86,303	83,345
18	74,682	67,484	52,674	57,726	66,297	59,770	59,650	63,443	75,318	87,552	86,247	83,372
19	74,470	67,332	52,765	58,643	66,234	59,458	59,494	64,124	75,798	87,580	86,190	83,414
20	74,244	67,168	52,686	59,290	66,372	59,037	59,061	64,671	76,225	87,580	86,035	83,463
21	74,032	67,143	52,833	59,626	66,347	58,619	58,738	65,269	76,666	87,594	86,007	83,535
22	73,809	66,840	52,754	59,915	66,271	58,250	58,262	65,983	77,056	87,552	85,965	83,693
23	73,585	66,549	52,674	60,107	66,184	57,964	57,750	66,663	77,460	87,481	85,881	83,819
24	73,375	66,347	52,561	60,410	66,121	57,762	57,278	67,282	78,554	87,481	85,796	83,958
25	73,138	66,134	52,788	60,519	66,033	57,714	56,888	67,395	80,310	87,608	85,726	84,070
26	72,914	65,921	52,686	60,592	65,958	57,797	56,640	67,484	82,014	87,765	85,669	84,196
27	72,691	65,708	52,561	60,786	65,896	57,691	56,371	67,700	83,986	87,993	85,641	84,210
28	72,443	65,507	52,368	60,786	66,046	57,702	55,938	67,993	84,993	88,179	85,529	84,280
29	72,221	65,282	52,197	60,786	-----	57,596	55,459	68,248	85,585	88,194	85,430	84,462
30	71,960	65,056	52,038	61,138	-----	57,443	55,030	68,490	86,021	88,136	85,360	85,050
31	71,856	-----	51,835	61,601	-----	57,171	-----	68,847	-----	88,051	85,233	-----
MAX	78,676	71,608	64,148	61,601	66,372	66,209	59,734	68,847	86,021	88,351	88,065	85,106
MIN	71,856	65,056	51,835	50,145	61,895	57,171	55,030	54,601	69,463	86,345	85,233	83,012
(a)	6,937.35	6,932.02	6,920.91	6,929.22	6,932.81	6,925.53	6,923.70	6,935.02	6,947.79	6,949.22	6,947.23	6,947.10
(b)	-7,100	-6,800	-13,300	+9,800	+4,400	-8,800	-2,200	+13,800	+17,200	+2,100	-2,900	-100

CAL YR 1969 b -7,800  
WTR YR 1970 b -6,100

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet, rounded to Geological Survey standards.

## SAN JOAQUIN RIVER BASIN

## 11237000 BIG CREEK BELOW HUNTINGTON LAKE, CALIF.

LOCATION.--Lat 37°13'19", long 119°12'43", in SW $\frac{1}{4}$  NW $\frac{1}{4}$  sec.23, T.8 S., R.25 E., Fresno County, Sierra National Forest, on right bank 1,200 ft upstream from Grouse Creek, and 1 mile downstream from Huntington Lake.

DRAINAGE AREA.--81.1 sq mi.

PERIOD OF RECORD.--June 1925 to current year.

GAGE.--Water-stage recorder, Parshall flume, and concrete control. Altitude of gage is 6,600 ft (from topographic map). Prior to Oct. 1, 1942, at datum 1.00 ft lower and from Oct. 1, 1942, to Sept. 30, 1948, at datum 1.00 ft higher.

EXTREMES.--Current year: Maximum discharge, 14 cfs Jan. 16 (gage height, 2.83 ft); minimum daily, 1.4 cfs Dec. 16-18, Jan. 3-8.

Period of record: Maximum discharge, 2,040 cfs June 23, 1925 (gage height, 11.3 ft, present datum), siphon spillways operating at Huntington Lake; minimum daily recorded, 0.1 cfs Jan. 18-21, Aug. 21 to Sept. 24, Oct. 7-18, Dec. 5-16, 1931.

REMARKS.--Records good. Flow regulated by Huntington Lake 1 mile upstream beginning in 1913 (see sta 11236000). During most of year flow is diverted for power development at Big Creek powerhouse No. 1. See schematic diagram of San Joaquin River basin. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

COOPERATION.--Gage-height record and one discharge measurement furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

REVISIONS (WATER YEARS).--WSP 1315-A: 1943(M). WSP 1635: 1925-29. WSP 1930: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	2.3	2.4	1.5	2.2	2.2	2.3	3.4	2.4	2.6	2.5	2.3
2	2.5	2.3	2.4	1.5	2.2	2.1	2.3	3.4	2.6	2.6	2.5	2.3
3	2.6	2.2	2.4	1.4	2.2	2.1	2.3	3.3	2.6	2.6	2.5	2.3
4	2.3	2.2	2.4	1.4	2.1	2.1	2.3	3.4	2.6	2.6	2.5	2.2
5	2.2	2.3	2.4	1.4	2.1	2.1	2.3	3.3	2.5	2.6	2.5	2.3
6	2.3	2.4	2.3	1.4	2.1	2.2	2.4	3.5	2.6	2.5	2.5	2.3
7	2.4	2.4	2.3	1.4	2.2	2.2	2.4	3.4	2.6	2.5	2.5	2.3
8	2.4	2.4	2.3	1.4	2.2	2.2	2.4	3.4	2.7	2.6	2.5	2.3
9	2.4	2.4	2.2	1.8	2.2	2.1	2.4	3.4	2.9	2.6	2.5	2.2
10	2.4	2.4	2.2	2.1	2.2	2.1	2.4	3.4	2.7	2.5	2.4	2.3
11	2.4	2.4	2.3	1.8	2.4	2.1	2.4	3.4	2.8	2.5	2.4	2.3
12	2.4	2.4	2.2	1.6	2.4	2.1	2.4	3.4	2.7	2.5	2.4	2.3
13	2.4	2.4	2.3	1.6	2.3	2.2	2.4	3.4	2.7	2.5	2.4	2.3
14	2.4	2.4	2.2	1.9	2.3	2.2	2.7	3.4	2.7	2.5	2.3	2.3
15	2.8	2.4	1.9	1.9	2.2	2.2	3.1	3.4	2.6	2.5	2.3	2.3
16	2.7	2.4	1.4	7.3	2.2	2.3	3.1	3.3	2.6	2.5	2.3	2.3
17	2.7	2.2	1.4	3.6	2.2	2.4	3.0	3.3	2.6	2.4	2.3	2.3
18	2.4	2.2	1.4	2.8	2.2	2.2	3.1	3.3	2.5	2.5	2.3	2.3
19	2.5	2.3	1.8	2.6	2.2	2.2	3.1	3.3	2.5	2.4	2.3	2.3
20	2.5	2.2	1.7	2.5	2.1	2.2	3.0	3.4	2.5	2.4	2.3	2.3
21	2.4	2.2	2.6	3.2	2.1	2.2	3.0	3.4	2.5	2.4	2.3	2.3
22	2.4	2.3	1.9	2.8	2.1	2.2	2.9	2.8	2.4	2.4	2.3	2.3
23	2.4	2.3	1.7	2.6	2.1	2.3	3.0	2.4	2.4	2.4	2.2	2.3
24	2.4	2.2	1.7	3.9	2.1	2.4	3.1	2.3	2.4	2.4	2.2	2.4
25	2.4	2.3	3.2	3.0	2.1	2.5	3.1	2.3	2.5	2.5	2.3	2.3
26	2.3	2.3	2.2	2.7	2.1	2.6	3.1	2.3	2.5	2.5	2.4	2.3
27	2.4	2.3	1.8	2.7	2.2	2.5	3.1	2.3	2.6	2.5	2.3	2.3
28	2.4	2.4	1.6	2.5	2.2	2.4	3.0	2.3	2.6	2.5	2.3	2.3
29	2.3	2.4	1.6	2.4	-----	2.4	3.1	2.3	2.7	2.5	2.3	2.3
30	2.3	2.4	1.5	2.3	-----	2.4	3.3	2.2	2.6	2.4	2.3	2.3
31	2.2	-----	1.5	2.2	-----	2.3	-----	2.2	-----	2.4	2.3	-----
TOTAL	75.0	69.7	63.2	73.2	61.2	69.7	82.5	94.3	77.6	77.3	73.4	68.9
MEAN	2.42	2.32	2.04	2.36	2.19	2.25	2.75	3.04	2.59	2.49	2.37	2.30
MAX	2.8	2.4	3.2	7.3	2.4	2.6	3.3	3.5	2.9	2.6	2.5	2.4
MIN	2.2	2.2	1.4	1.4	2.1	2.1	2.3	2.2	2.4	2.4	2.2	2.2
AC-FT	149	138	125	145	121	138	164	187	154	153	146	137

CAL YR 1969 TOTAL 1,493.2 MEAN 4.09 MAX 29 MIN 1.1 AC-FT 2,960  
WTR YR 1970 TOTAL 886.0 MEAN 2.43 MAX 7.3 MIN 1.4 AC-FT 1,760

## 11237500 PITMAN CREEK BELOW TAMARACK CREEK, CALIF.

LOCATION.--Lat 37°11'54", long 119°12'48", in NW $\frac{1}{4}$  sec.35, T.8 S., R.25 E., Fresno County, Sierra National Forest, on right bank 0.8 mile downstream from confluence of Tamarack Creek and South Fork Tamarack Creek, 1.4 miles upstream from mouth, and 1.9 miles east of town of Big Creek.

DRAINAGE AREA.--22.9 sq mi.

PERIOD OF RECORD.--October 1927 to current year. Records for water year 1928 incomplete, yearly estimate published in WSP 1315-A.

GAGE.--Water-stage recorder, Parshall flume, and concrete control. Altitude of gage is 7,005 ft (from Southern California Edison Co. contour map). Prior to Sept. 29, 1940, at site 10 ft downstream at same datum.

AVERAGE DISCHARGE.--43 years, 39.5 cfs (28,620 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 392 cfs Jan. 16 (gage height, 6.05 ft); minimum daily, 0.35 cfs Sept. 29, 30.  
Period of record: Maximum discharge, 3,670 cfs Dec. 23, 1955 (gage height, 11.20 ft), from rating curve extended above 1,100 cfs on basis of slope-area measurement at gage height 10.77 ft; no flow Oct. 15-18, 1931.

REMARKS.--Records good. No diversion above station; practically all flow diverted below station to Huntington-Shaver conduit. See schematic diagram of San Joaquin River basin.

COOPERATION.--Gage-height record and seven discharge measurements furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

REVISIONS (WATER YEARS).--WSP 931: 1940. WSP 1315-A: 1944. WSP 1395: 1928-29, 1938. WSP 1515: 1929. WSP 1930: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	2.9	3.4	7.0	20	19	43	72	103	13	2.1	.42
2	1.7	2.8	3.3	5.0	19	19	48	98	89	13	2.0	.42
3	1.6	2.8	3.2	3.5	18	17	55	133	76	12	1.8	.42
4	1.6	2.7	3.1	3.0	18	17	63	144	65	12	1.7	.42
5	1.7	2.7	3.2	2.5	18	18	77	170	59	11	1.6	.42
6	1.7	3.8	3.2	2.0	17	18	90	160	54	9.8	1.5	.44
7	1.7	4.7	3.1	2.5	18	18	94	144	48	9.4	1.4	.44
8	1.6	4.7	3.1	4.3	18	18	98	146	53	8.7	1.2	.42
9	1.5	4.4	3.0	5.0	18	18	100	166	107	8.7	1.1	.40
10	1.5	4.7	2.8	8.0	18	16	132	178	61	9.4	1.1	.40
11	1.5	4.9	2.8	6.8	19	16	133	141	51	8.3	1.0	.37
12	1.5	5.1	2.9	6.6	22	16	127	124	45	7.6	.97	.37
13	1.5	5.1	3.0	6.8	20	17	109	152	45	7.3	.88	.37
14	1.6	5.3	2.9	10	19	21	77	215	47	6.9	.82	.40
15	6.0	6.2	2.7	9.5	20	24	68	246	41	5.9	.79	.42
16	16	6.2	2.7	210	19	27	62	262	36	5.3	.76	.42
17	12	4.4	2.6	190	18	30	58	256	33	4.9	.73	.40
18	8.0	4.8	2.7	94	18	30	57	244	30	4.4	.73	.40
19	6.2	4.7	5.7	55	18	25	60	205	27	4.2	.73	.40
20	5.5	4.7	19	40	18	28	57	176	25	4.0	.67	.40
21	5.3	4.7	24	50	16	28	55	162	22	3.8	.62	.42
22	5.1	4.5	23	59	16	30	48	169	20	3.6	.60	.42
23	4.6	4.3	19	45	16	35	49	170	19	3.4	.57	.42
24	4.2	6.9	14	41	17	44	56	162	18	3.2	.52	.42
25	4.0	5.2	22	34	17	54	69	143	17	3.0	.52	.40
26	3.8	4.6	17	30	18	63	71	137	16	2.9	.49	.37
27	3.6	4.1	12	25	16	59	56	135	19	2.9	.49	.37
28	3.4	4.6	9.8	24	16	56	50	124	17	2.8	.49	.37
29	3.2	3.6	9.0	23	-----	55	52	118	16	2.6	.47	.35
30	3.1	3.4	8.1	23	-----	52	58	112	15	2.4	.44	.35
31	3.0	-----	8.0	22	-----	47	-----	109	-----	2.2	.44	-----
TOTAL	119.6	133.5	244.3	1,047.5	505	935	2,172	4,973	1,274	198.6	29.23	12.04
MEAN	3.86	4.45	7.88	33.8	18.0	30.2	72.4	160	42.5	6.41	.94	.40
MAX	16	6.9	24	210	22	63	133	262	107	13	2.1	.44
MIN	1.5	2.7	2.6	2.0	16	16	43	72	15	2.2	.44	.35
AC-FT	237	265	485	2,080	1,000	1,850	4,310	9,860	2,530	394	58	24
CAL YR 1969	TOTAL 38,432.00	MEAN 105	MAX 814	MIN 1.3	AC-FT 76,230							
WAT YR 1970	TOTAL 11,643.77	MEAN 31.9	MAX 262	MIN .35	AC-FT 23,100							

## PEAK DISCHARGE (BASE, 200 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-16	2000	6.05	392	5- 9	1930	5.40	250
5- 5	1930	5.50	270	5-16	1900	5.90	355

## SAN JOAQUIN RIVER BASIN

## 11239000 HUNTINGTON-SHAVER CONDUIT OUTLET NEAR SHAVER LAKE, CALIF.

LOCATION.--Lat 37°09'18", long 119°13'53", in NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.15, T.9 S., R.25 E., Fresno County, Sierra National Forest, on left bank at tunnel outlet, 2.3 miles northeast of Shaver Lake, and 3.5 miles south of town of Big Creek.

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for October 1928, published in WSP 1315-A. Prior to October 1962, published as Huntington-Shaver conduit at outlet.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 6,680 ft (from topographic map).

AVERAGE DISCHARGE.--42 years, 221 cfs (160,100 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 1,780 cfs June 3, 4, 1938; minimum daily, 0.90 cfs Sept. 8-11, 1955, Nov. 15, 19, 26, 27, 1966.

REMARKS.--Records good. Conduit diverts from Huntington Lake to Shaver Lake, with additions from Pitman Creek and seepage en route. See schematic diagram of San Joaquin River basin.

COOPERATION.--Gage-height record and ten discharge measurements furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

REVISIONS (WATER YEARS).--WSP 931: 1940.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	287	275	3.0	7.3	21	20	45	84	1,490	43	31	29
2	287	275	3.0	6.6	20	21	52	114	1,480	42	31	29
3	286	275	3.2	5.6	20	19	61	148	1,480	41	31	29
4	286	273	3.0	4.7	20	19	68	163	1,480	41	31	29
5	284	273	3.0	4.4	20	20	81	191	1,200	39	31	29
6	284	276	3.0	3.8	20	19	94	184	1,020	39	31	29
7	284	276	3.2	4.1	20	20	97	166	1,020	37	31	29
8	283	276	3.0	4.7	21	21	102	170	788	37	31	29
9	283	276	3.0	5.6	20	20	115	187	538	155	31	29
10	282	276	3.0	6.6	20	20	134	198	400	451	31	17
11	282	276	3.0	7.0	22	19	141	490	377	454	31	2.6
12	280	273	3.0	7.0	25	19	133	792	371	317	31	2.4
13	280	273	3.2	7.3	24	22	113	829	370	166	31	2.4
14	280	273	3.0	7.3	22	25	90	886	373	73	31	2.4
15	284	272	3.0	7.3	22	28	76	922	204	31	31	2.4
16	297	270	3.0	39	22	30	71	941	71	31	31	2.4
17	291	124	2.7	86	21	34	64	946	67	31	31	2.4
18	287	5.9	2.7	49	20	33	64	937	64	31	30	2.2
19	284	5.3	4.0	37	20	30	68	915	60	31	30	2.0
20	283	5.3	18	31	20	28	64	889	57	30	30	2.0
21	282	5.3	23	39	19	31	60	880	56	31	30	2.0
22	280	5.0	22	51	18	35	58	893	53	30	30	2.0
23	280	4.7	18	40	18	39	55	897	51	30	30	2.0
24	279	4.1	14	40	18	46	61	891	50	31	29	2.0
25	279	4.4	21	34	18	56	75	1,110	48	31	30	2.0
26	277	4.1	18	31	20	68	81	1,500	48	31	30	2.0
27	276	3.5	12	28	20	63	68	1,500	53	31	29	2.0
28	276	3.2	9.2	24	20	59	60	1,500	350	31	29	2.0
29	276	3.0	9.2	24	-----	58	55	1,500	277	31	29	2.0
30	275	3.2	8.1	23	-----	53	63	1,490	46	31	29	2.0
31	275	-----	7.7	22	-----	46	-----	1,490	-----	31	29	-----
TOTAL	8,749	4,569.0	238.2	687.3	571	1,021	2,369	23,803	13,942	2,459	941	321.2
MEAN	282	152	7.68	22.2	20.4	32.9	79.0	768	465	79.3	30.4	10.7
MAX	297	276	23	86	25	68	141	1,500	1,490	454	31	29
MIN	275	3.0	2.7	3.8	18	19	45	84	46	30	29	2.0
AC-FT	17,350	9,060	472	1,360	1,130	2,030	4,700	47,210	27,650	4,880	1,870	637
CAL YR 1969	TOTAL	176,382.0	MEAN	483	MAX	1,610	MIN	2.7	AC-FT	349,900		
WTR YR 1970	TOTAL	59,670.7	MEAN	163	MAX	1,500	MIN	2.0	AC-FT	118,400		



## 11239500 SHAVER LAKE NEAR BIG CREEK, CALIF.

LOCATION.--Lat 37°08'40", long 119°18'08", in SE $\frac{1}{4}$  sec.13, T.9 S., R.24 E., Fresno County, Sierra National Forest, near center of dam on Stevenson Creek, 6 miles southwest of town of Big Creek.

DRAINAGE AREA.--29.1 sq mi.

PERIOD OF RECORD.--November 1909 to current year. Prior to January 1927, monthly contents only, published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Southern California Edison Co.). Prior to Jan. 11, 1927, gage on rockfilled dam a short distance upstream at different datum.

EXTREMES.--Current year: Maximum contents, 127,300 acre-ft July 10 (elevation, 5,366.28 ft); minimum, 51,000 acre-ft Apr. 3 (elevation, 5,323.09 ft).  
Period of record: Maximum contents, 135,900 acre-ft July 5, 1946 (elevation, 5,370.25 ft); minimum, 26 acre-ft Jan. 29, 1927, during period of construction.

NOTE.--Prior to 1960, maximum and minimum daily contents were published.

REMARKS.--Storage began prior to 1905. Original lake formed by rockfilled dam (usable capacity, 5,500 acre-ft). Water diverted by Fresno Flume and Lumber Co.'s flumes Nos. 1 and 2 beginning prior to 1907 and discontinued July 7, 1920. Present lake formed by concrete-arch dam; dam completed Nov. 18, 1927. Usable capacity of present lake, 135,300 acre-ft between elevations 5,225 ft (trash-rack foundation) and 5,370 ft (crest of spillway) above mean sea level. Water is received from Pitman Creek (since Feb. 22, 1928) and Huntington Lake (since Apr. 21, 1928) through Huntington-Shaver conduit and released for power development in Big Creek plants. See schematic diagram of San Joaquin River basin. Figures given herein represent usable contents.

COOPERATION.--Record of contents furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

REVISIONS.--WSP 1565: Drainage area.

CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

5,225	0	5,250	700	5,280	9,190	5,330	60,900
5,230	42	5,255	1,250	5,290	15,600	5,340	76,700
5,235	97	5,260	2,070	5,300	24,000	5,350	94,600
5,240	191	5,265	3,210	5,310	34,500	5,360	114,200
5,245	379	5,270	4,750	5,320	46,800	5,371	137,500

CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	S.E.P
1	121,643	117,230	100,506	69,198	67,575	59,452	52,359	56,072	104,758	126,118	108,369	82,361
2	121,497	117,189	99,388	68,124	67,716	58,565	51,341	56,043	107,094	126,202	107,233	81,717
3	121,289	117,107	98,291	67,058	67,811	57,666	51,093	56,420	109,090	126,287	106,179	81,045
4	121,122	117,024	97,181	66,007	67,936	56,830	51,327	56,800	111,101	126,350	105,094	80,300
5	120,913	117,024	96,244	64,948	68,014	55,913	51,574	57,255	112,779	126,435	104,011	79,722
6	120,746	117,333	95,425	63,881	68,108	54,958	51,835	57,710	114,751	126,498	102,935	79,108
7	120,580	117,292	94,606	62,791	68,218	54,075	52,123	58,107	116,695	126,519	101,883	78,443
8	120,392	117,148	93,473	61,753	68,328	53,129	52,178	58,506	118,321	126,582	100,758	78,072
9	120,226	117,086	92,438	61,362	68,422	52,401	52,485	58,935	119,439	126,794	99,600	77,921
10	120,019	117,024	91,320	61,437	68,547	52,527	52,849	59,408	120,247	127,156	98,522	77,769
11	119,833	117,004	90,192	61,602	68,642	52,667	53,199	60,391	120,976	126,879	97,430	77,584
12	119,626	116,983	89,089	61,647	68,848	52,793	53,563	61,918	121,685	126,392	96,359	77,533
13	119,439	116,963	87,998	61,738	69,102	52,457	53,918	63,533	122,373	125,611	95,273	77,516
14	119,253	116,839	86,876	62,158	69,245	52,667	54,175	65,269	123,065	124,660	94,285	77,314
15	119,294	116,613	85,818	62,443	69,357	52,877	54,417	67,027	123,485	123,610	93,624	77,061
16	119,253	116,202	84,715	63,806	69,516	53,087	54,616	68,832	123,631	122,645	92,963	76,842
17	119,149	115,609	83,636	64,338	69,690	53,227	54,075	70,634	123,757	121,580	92,307	76,825
18	119,046	114,751	82,518	64,613	69,484	53,409	54,274	72,462	123,862	120,517	91,637	76,808
19	118,839	113,753	81,527	64,857	68,500	53,535	54,474	74,216	123,988	119,439	90,966	76,792
20	118,673	112,698	80,493	65,040	67,497	53,719	54,673	75,907	124,114	118,404	90,321	76,775
21	118,528	111,504	79,926	65,330	66,517	53,875	54,873	77,584	124,219	117,333	89,622	76,758
22	118,342	110,415	78,972	65,575	65,528	54,046	55,087	79,244	124,324	116,263	88,979	76,741
23	118,177	109,351	77,954	65,806	64,567	54,203	55,290	80,941	124,429	115,201	88,307	76,724
24	118,012	108,228	76,943	66,301	63,594	54,388	55,478	82,641	124,513	114,976	87,653	76,708
25	117,848	107,154	76,424	66,517	62,594	54,616	55,696	84,715	124,597	114,996	86,984	76,691
26	117,642	106,021	75,473	66,687	61,647	54,844	56,000	87,563	124,745	114,894	86,320	76,691
27	117,498	104,916	74,446	66,965	60,674	55,072	56,246	90,468	124,787	113,834	85,657	76,474
28	117,436	103,815	73,391	67,137	60,033	55,232	56,029	93,341	125,442	112,758	85,016	76,241
29	117,415	102,681	72,348	67,262	-----	54,916	55,985	96,187	125,970	111,666	84,362	76,024
30	117,354	101,572	71,310	67,340	-----	54,317	56,203	99,080	126,033	110,576	83,689	75,357
31	117,251	-----	70,264	67,481	-----	53,381	-----	101,941	-----	109,511	83,042	-----
MAX	121,643	117,333	100,506	69,198	69,690	59,452	56,246	101,941	126,033	127,156	108,369	82,361
MIN	117,251	101,572	70,264	61,362	60,033	52,401	51,093	56,043	104,758	109,511	83,042	75,357
(a)	5,363.72	5,361.62	5,353.65	5,336.05	5,335.73	5,329.39	5,326.89	5,353.84	5,365.69	5,366.28	5,357.67	5,343.68
(b)	-4,500	-15,700	-31,300	-2,800	-7,500	-6,600	+2,800	+45,700	+24,100	-16,500	-26,500	-7,600

CAL YR 1969 b +56,800  
WTR YR 1970 b -46,400

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet, rounded to Geological Survey standards.

## SAN JOAQUIN RIVER BASIN

11241950 REDINGER LAKE NEAR AUBERRY, CALIF.

LOCATION.--Lat 37°08'42", long 119°26'58", in SW $\frac{1}{4}$  sec.15, T.9 S., R.23 E., Madera County, Sierra National Forest, on upstream face of dam No. 7 on San Joaquin River, 4.2 miles northeast of Auberry.

DRAINAGE AREA.--1,295 sq mi.

PERIOD OF RECORD.--November 1950 to current year. Prior to October 1965, collected by Southern California Edison Co., available in files of California district office.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Southern California Edison Co.).

EXTREMES.--Current year: Maximum contents, 26,000 acre-ft Apr. 14 (elevation, 1,402.70 ft); minimum, 9,640 acre-ft Oct. 1 (elevation, 1,359.95 ft).

Period of record: Maximum contents, 26,100 acre-ft June 15, 1963, Oct. 29, 1964, Oct. 27, 1967; maximum elevation, 1,402.98 ft Oct. 27, 1967; minimum contents since appreciable storage was attained, 6,280 acre-ft Mar. 3, 1956 (elevation, 1,347.98 ft).

REMARKS.--Lake is formed by a concrete dam; storage began Nov. 19, 1950. Usable capacity, 26,119 acre-ft between elevations 1,320.0 ft (invert of tunnel) and 1,403.0 ft (top of radial gates). Additional storage of 8,914 acre-ft is not available for release. Water is used for power development in Big Creek powerhouse No. 4. See schematic diagram of San Joaquin River basin. Figures given herein represent usable contents.

COOPERATION.--Records of contents furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

1,320	0	1,330	2,010	1,355	8,200	1,380	16,500
1,322	384	1,335	3,120	1,360	9,650	1,385	18,400
1,324	778	1,340	4,280	1,365	11,200	1,390	20,400
1,326	1,180	1,345	5,520	1,370	12,900	1,400	24,700
1,328	1,590	1,350	6,810	1,375	14,600	1,403	26,119

CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10,532	25,360	25,860	25,146	25,015	25,177	24,906	25,483	25,856	25,515	25,685	25,383
2	11,339	25,438	25,301	25,374	25,296	24,834	25,483	25,488	25,740	25,547	25,712	25,342
3	12,131	24,992	25,259	25,360	25,708	24,780	25,652	25,497	25,534	25,579	25,712	25,538
4	12,965	25,037	25,010	25,232	25,870	25,028	25,492	25,502	25,314	25,666	25,689	25,429
5	13,973	25,209	24,893	25,442	25,883	24,766	25,584	25,470	25,073	25,666	25,708	25,515
6	15,628	25,360	24,942	25,543	25,879	24,578	25,406	25,456	25,105	25,657	25,694	25,433
7	17,279	25,451	24,829	25,598	25,879	25,264	25,406	25,506	25,087	25,639	25,657	25,374
8	18,888	25,355	25,055	24,775	25,842	25,456	25,392	25,506	25,087	25,643	25,639	25,033
9	20,448	25,073	25,177	24,158	25,782	24,649	25,415	25,237	25,634	25,652	25,657	24,470
10	22,202	25,137	25,369	24,105	25,749	24,663	25,447	25,006	25,634	25,666	25,593	23,954
11	23,228	25,146	25,105	23,958	25,616	24,296	25,415	24,929	25,634	25,652	25,763	23,368
12	24,430	25,186	24,929	24,771	25,703	23,772	25,282	24,915	25,579	25,726	25,763	22,052
13	24,681	25,273	24,703	25,006	25,433	23,263	25,524	25,015	25,579	25,685	25,722	20,802
14	25,019	25,218	24,983	24,466	25,310	23,918	25,442	25,073	25,652	25,694	25,552	20,311
15	25,155	24,974	25,101	23,636	25,652	24,256	25,397	25,110	25,643	25,703	25,740	19,756
16	25,323	24,735	25,465	25,791	25,579	23,746	25,365	25,024	25,415	25,699	25,703	19,243
17	24,506	24,988	25,456	24,672	25,556	22,957	25,355	25,699	25,488	25,740	25,699	18,472
18	24,233	25,529	25,465	24,434	25,337	23,385	25,278	25,736	25,479	25,689	25,680	17,586
19	24,676	25,883	25,602	24,345	25,269	24,016	25,497	25,759	25,666	25,763	25,634	16,832
20	25,383	25,925	25,406	24,318	25,406	23,075	25,282	25,842	25,662	25,625	25,782	16,086
21	25,360	25,911	25,191	24,109	25,383	23,834	25,365	25,828	25,639	25,429	25,685	15,465
22	25,342	25,657	24,884	24,127	25,410	24,834	25,346	25,846	25,652	25,717	25,652	14,812
23	25,305	25,796	25,028	23,847	25,451	24,884	25,369	25,856	25,643	25,689	25,712	14,104
24	25,296	25,888	25,033	23,954	25,337	23,998	25,397	25,874	25,652	25,497	25,777	13,476
25	25,365	25,865	25,010	24,069	25,200	23,184	25,337	25,851	25,680	25,401	25,796	12,804
26	25,378	25,777	25,511	23,667	24,793	22,413	25,442	25,828	25,685	25,492	25,768	12,570
27	25,378	24,870	25,301	22,988	24,533	22,711	25,387	25,833	25,666	25,579	25,759	11,520
28	25,323	24,502	25,328	22,387	24,632	23,821	25,374	25,842	25,648	25,671	25,630	10,837
29	25,616	24,920	25,717	21,979	-----	25,001	25,511	25,833	25,561	25,666	25,429	10,569
30	25,474	25,483	25,383	21,740	-----	25,355	25,497	25,846	25,534	25,671	25,424	10,448
31	25,497	-----	25,282	22,953	-----	24,933	-----	25,865	-----	25,639	25,333	-----
MAX	25,616	25,925	25,860	25,791	25,883	25,456	25,652	25,874	25,856	25,763	25,796	25,538
MIN	10,532	24,502	24,703	21,740	24,533	22,413	24,906	24,915	25,073	25,401	25,333	10,448
(a)	1,401.65	1,401.62	1,401.18	1,395.94	1,399.74	1,400.41	1,401.85	1,402.45	1,401.73	1,401.96	1,401.29	1,362.61
(b)	+15,860	0	-200	-2,300	+1,600	+300	+600	+400	-400	+100	-300	-14,900
CAL YR 1969	b +400											
WTR YR 1970	b +760											

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet, rounded to Geological Survey standards.

## 11242000 SAN JOAQUIN RIVER ABOVE WILLOW CREEK, NEAR AUBERRY, CALIF.

LOCATION.--Lat 37°08'40", long 119°27'13", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.15, T.9 S., R.23 E., Madera County, Sierra National Forest, on right bank 1,000 ft downstream from diversion dam, 0.4 mile upstream from Willow Creek, and 4.2 miles northeast of Auberry.

DRAINAGE AREA.--1,295 sq mi.

PERIOD OF RECORD.--March 1951 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,175.54 ft above mean sea level (levels by Southern California Edison Co.).

AVERAGE DISCHARGE.--19 years, 462 cfs (334,700 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 2,130 cfs June 26 (gage height, 10.45 ft); minimum daily, 3.2 cfs Jan. 27-29.

Period of record: Maximum discharge, 73,200 cfs Dec. 23, 1955 (gage height, 54.2 ft, from floodmarks), from rating curve extended above 7,000 cfs on basis of computed flow over dam; no flow Sept. 25, 1951.

REMARKS.--Records good. Flow regulated by nine powerplants and six reservoirs with combined capacity of about 559,900 acre-ft. Conduit to powerhouse No. 4 diverts 1,000 ft above station. See schematic diagram of San Joaquin River basin.

COOPERATION.--Gage-height record and 15 discharge measurements furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

REVISIONS.--WSP 1930: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	19	19	14	4.5	4.2	4.4	4.4	14	19	21	23
2	20	19	19	15	4.3	4.1	4.4	4.4	15	19	21	23
3	20	19	19	17	4.3	4.4	4.4	4.4	16	19	21	22
4	20	19	19	18	4.3	4.5	4.4	4.4	17	19	21	21
5	20	19	20	18	4.5	4.6	4.4	4.4	17	19	21	21
6	20	17	20	18	4.4	4.6	4.4	4.4	17	19	21	21
7	20	14	19	18	4.4	4.6	4.4	4.4	20	20	21	21
8	20	16	19	19	4.6	4.6	4.4	4.4	18	20	21	21
9	20	17	17	16	4.8	4.6	4.4	4.4	12	20	22	21
10	20	18	16	11	4.1	4.5	4.4	4.4	11	20	22	21
11	20	18	16	8.5	4.2	4.5	4.4	4.4	13	20	22	21
12	20	18	20	8.5	4.3	4.5	4.4	4.4	14	20	22	22
13	20	18	17	8.4	4.3	4.5	4.4	4.4	15	20	22	22
14	20	18	17	8.7	4.3	4.5	4.5	4.4	15	19	22	22
15	20	18	17	8.2	4.2	4.5	4.4	4.4	15	20	22	23
16	15	19	17	8.5	4.2	4.5	4.4	5.7	14	20	22	22
17	6.9	19	17	7.5	4.3	4.5	4.4	6.0	16	21	22	22
18	7.7	19	17	6.5	4.2	4.4	4.4	7.0	17	20	23	22
19	7.7	19	17	5.5	4.1	4.4	4.4	7.3	17	20	23	23
20	7.5	19	16	5.0	4.1	4.4	4.4	8.0	18	20	23	23
21	7.5	19	16	4.5	4.4	4.4	4.4	9.1	19	20	23	23
22	11	19	11	4.0	4.4	4.5	4.4	8.9	20	20	23	23
23	14	19	9.9	3.9	4.5	4.5	4.4	9.1	20	20	23	23
24	18	19	12	3.9	4.5	4.5	4.4	10	20	20	23	24
25	19	19	11	3.9	4.4	4.5	4.4	11	20	21	23	24
26	19	19	8.0	3.7	4.4	4.4	4.4	12	85	21	23	24
27	19	19	8.0	3.2	4.4	4.4	4.5	12	282	21	23	24
28	19	19	9.5	3.2	4.5	4.3	4.4	14	18	21	23	24
29	19	19	13	3.2	-----	4.4	4.4	14	19	21	23	23
30	19	19	14	3.3	-----	4.5	4.4	14	19	21	23	25
31	19	-----	14	4.2	-----	4.4	-----	14	-----	21	23	-----
TOTAL	528.3	552	484.4	280.3	121.9	138.2	132.2	228.1	833	621	688	674
MEAN	17.0	18.4	15.6	9.04	4.35	4.46	4.41	7.36	27.8	20.0	22.2	22.5
MAX	20	19	20	19	4.8	4.6	4.5	14	282	21	23	25
MIN	6.9	14	8.0	3.2	4.1	4.1	4.4	4.4	11	19	21	21
AC-FT	1,050	1,090	961	556	242	274	262	452	1,650	1,230	1,360	1,340
CAL YR 1969	TOTAL 807,127.6			MEAN 2,211	MAX 16,400	MIN 3.6	AC-FT 1,601,000					
WTR YR 1970	TOTAL 5,281.4			MEAN 14.5	MAX 282	MIN 3.2	AC-FT 10,480					

## SAN JOAQUIN RIVER BASIN

## 11242350 SOQUEL DIVERSION NEAR SUGAR PINE, CALIF.

LOCATION.--Lat 37°25'32", long 119°32'53", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.10, T.6 S., R.22 E., Madera County, Sierra National Forest, on left bank 100 ft downstream from headgate at North Fork Willow Creek and 4.8 miles east of Sugar Pine.

PERIOD OF RECORD.--October 1969 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 5,400 ft (from topographic map).

EXTREMES.--Current year: Maximum daily discharge, 34 cfs May 8-28; minimum daily, 0.43 cfs Aug. 12, 13.

REMARKS.--Records fair prior to January and good thereafter. Ditch diverts water from right bank of North Fork Willow Creek 100 ft upstream for irrigation in Madera Irrigation District.

COOPERATION.--Daily gage heights for October through December furnished by Madera Irrigation District.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.8	4.3	3.7	2.8	1.2	1.2	1.0	30	32	14	4.6	.48
2	4.8	4.3	3.5	2.8	1.4	1.2	1.0	31	32	14	4.6	.48
3	5.0	4.3	3.5	3.0	1.0	1.2	1.0	32	31	13	4.3	.48
4	5.0	4.3	3.2	3.2	1.0	1.0	1.0	32	30	13	4.3	.48
5	5.0	4.3	3.2	3.9	1.2	1.0	1.0	32	30	12	2.7	.48
6	5.0	4.3	3.2	3.0	1.0	1.0	1.0	32	28	11	1.2	.48
7	4.8	4.3	3.2	3.0	1.0	1.0	1.0	33	28	11	.55	.48
8	4.8	4.1	3.2	2.8	1.0	1.0	11	34	28	11	1.7	.48
9	4.8	4.1	3.2	3.0	1.0	1.2	29	34	32	11	1.4	.48
10	4.8	4.1	3.2	2.8	1.0	1.2	30	34	30	10	.78	.48
11	4.8	3.9	3.2	2.8	1.0	1.2	30	34	28	9.9	.64	.48
12	4.8	3.9	3.2	2.8	1.0	1.2	30	34	28	9.6	.43	.48
13	5.7	3.9	3.2	2.8	1.2	1.0	32	34	28	9.2	.43	.53
14	5.7	4.1	3.2	2.8	1.2	1.0	31	34	28	8.5	.48	.53
15	6.8	4.1	3.2	2.8	1.4	1.0	30	34	27	7.8	.75	.53
16	7.4	4.3	3.2	1.4	1.4	1.0	30	34	25	8.2	1.4	.53
17	6.4	4.3	3.2	1.0	1.4	1.0	30	34	23	7.8	1.5	.53
18	7.1	4.3	3.2	1.0	1.4	1.0	30	34	22	7.4	2.4	.53
19	7.4	4.3	3.2	1.0	1.4	1.0	30	34	21	7.1	2.4	.53
20	7.4	4.3	3.2	1.0	1.4	1.0	30	34	20	6.8	2.4	.53
21	7.4	4.3	3.5	1.0	1.4	1.0	30	34	20	6.8	2.4	.53
22	7.4	4.3	3.2	1.0	1.4	1.0	30	34	19	6.4	2.4	.53
23	7.4	4.3	3.5	1.2	1.4	1.0	30	34	18	6.0	2.4	.53
24	7.1	3.9	3.5	1.2	1.2	1.0	30	34	17	6.0	1.2	.53
25	7.4	3.7	3.7	1.2	1.2	1.0	30	34	16	5.7	.53	.53
26	7.4	3.7	3.7	1.2	1.0	1.0	30	34	16	5.7	.48	.53
27	7.1	3.7	3.5	1.2	1.0	.88	30	34	19	5.4	.48	.53
28	7.4	3.7	3.2	1.2	1.2	1.0	30	34	16	5.4	.48	.53
29	7.1	3.7	3.0	1.2	-----	1.0	30	33	16	5.0	.53	1.2
30	4.8	3.7	3.2	1.2	-----	1.0	30	32	15	4.8	.48	2.1
31	4.3	-----	3.0	1.2	-----	1.0	-----	32	-----	4.8	.48	-----
TOTAL	187.1	122.8	102.1	62.5	33.4	32.28	680.0	1,033	723	264.3	50.82	17.54
MEAN	6.04	4.09	3.29	2.02	1.19	1.04	22.7	33.3	24.1	8.53	1.64	.58
MAX	7.4	4.3	3.7	3.9	1.4	1.2	32	34	32	14	4.6	2.1
MIN	4.3	3.7	3.0	1.0	1.0	.88	1.0	30	15	4.8	.43	.48
AC-FT	371	244	203	124	66	64	1,350	2,050	1,430	524	101	35
CAL YR 1969	TOTAL	--	MEAN	--	MAX	--	MIN	--	ACFT	--		
WAT YR 1970	TOTAL	3,308.84	MEAN	9.07	MAX	34	MIN	.43	ACFT	6,560		

## 11242400 NORTH FORK WILLOW CREEK NEAR SUGAR PINE, CALIF.

LOCATION.--Lat 37°23'52", long 119°33'55", in NE $\frac{1}{4}$  sec.21, T.6 S., R.22 E., Madera County, on right bank at road bridge 0.6 mile downstream from Soquel campground, 3.0 miles upstream from Chilkoot Creek, and 4.7 miles southeast of Sugar Pine.

DRAINAGE AREA.--16.9 sq mi.

PERIOD OF RECORD.--August 1965 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 5,200 ft (from topographic map).

AVERAGE DISCHARGE.--5 years, 26.5 cfs (19,200 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 882 cfs Jan. 16 (gage height, 5.24 ft), from rating curve extended as explained below; minimum daily, 1.4 cfs Sept. 30.

Period of record: Maximum discharge, 1,600 cfs Dec. 6, 1966 (gage height, 5.90 ft), from rating curve extended above 250 cfs on basis of a step-backwater survey; minimum daily, 1.0 cfs Sept. 18, 19, 26-28, 1968.

REMARKS.--Records good. No storage above station. Madera irrigation district diverts up to 80 cfs through Soquel ditch to the Fresno River basin 2.2 miles upstream.

REVISIONS (WATER YEARS).--WRD Calif. 1967: 1966(M).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	3.8	4.5	9.8	38	48	37	15	15	3.5	2.0	3.3
2	2.9	3.8	4.6	9.1	36	45	37	17	12	3.3	2.0	3.3
3	2.9	3.8	4.5	8.7	35	38	39	18	9.4	3.3	2.0	3.1
4	2.9	3.6	4.3	8.0	35	34	40	24	7.4	3.3	1.8	3.1
5	3.0	5.4	4.1	8.4	34	37	42	29	5.7	3.3	2.4	3.3
6	3.0	19	4.5	9.5	32	37	45	29	4.8	2.9	4.2	3.7
7	3.0	9.5	4.3	8.7	32	37	46	23	4.4	2.9	4.6	3.5
8	3.0	7.7	4.6	9.1	32	35	35	19	6.2	2.8	4.2	3.1
9	3.0	6.8	4.8	47	31	35	19	18	21	2.8	3.5	2.9
10	3.0	6.8	4.8	70	31	34	20	20	7.1	2.8	4.2	2.9
11	3.0	6.6	5.0	29	32	32	21	18	5.7	2.6	4.2	2.8
12	2.9	6.3	5.0	25	40	33	20	17	5.4	2.6	4.6	2.8
13	2.9	6.3	5.0	22	37	37	20	20	6.0	2.6	4.6	2.9
14	2.9	6.0	4.8	68	38	40	19	28	6.2	2.6	4.6	3.1
15	16	7.3	4.6	49	37	42	17	36	5.4	2.4	4.4	3.1
16	66	7.3	4.6	381	35	42	15	46	4.4	2.4	3.3	2.9
17	26	6.0	4.5	150	37	42	13	51	4.8	2.4	3.1	2.8
18	10	5.6	4.6	77	34	38	13	50	7.1	2.4	2.2	2.8
19	7.3	5.6	16	58	32	35	12	46	6.8	2.4	2.0	2.8
20	6.3	5.6	24	55	31	35	12	40	6.2	2.4	2.0	2.9
21	5.0	5.3	44	131	31	36	11	37	5.7	2.4	1.8	3.1
22	5.0	5.0	26	98	31	37	12	37	4.8	2.4	1.8	3.1
23	4.6	4.8	15	67	31	39	12	38	4.6	2.4	1.7	3.1
24	4.5	4.8	14	137	31	42	12	37	4.2	2.4	1.8	2.9
25	4.1	4.8	77	72	30	47	13	33	3.8	2.2	3.5	2.9
26	4.1	4.6	32	57	31	50	15	31	3.7	2.2	3.5	2.9
27	4.0	4.6	19	68	31	47	12	28	6.3	2.2	3.5	2.8
28	3.8	4.5	14	53	40	45	10	23	4.8	2.2	3.7	2.8
29	3.8	4.3	13	47	-----	43	12	20	4.0	2.3	3.5	2.4
30	4.0	4.5	11	43	-----	42	13	19	3.7	2.3	3.3	1.4
31	4.0	-----	11	40	-----	39	-----	17	-----	2.2	3.3	-----
TOTAL	219.8	180.0	399.1	1,915.3	945	1,223	644	884	196.6	80.9	97.3	88.5
MEAN	7.09	6.00	12.9	61.8	33.8	39.5	21.5	28.5	6.55	2.61	3.14	2.95
MAX	66	19	77	381	40	50	46	51	21	3.5	4.6	3.7
MIN	2.9	3.6	4.1	8.0	30	32	10	15	3.7	2.2	1.7	1.4
AC-FT	436	357	792	3,800	1,870	2,430	1,280	1,750	390	160	193	176
CAL YR 1969	TOTAL	18,603.5	MEAN	51.0	MAX	492	MIN	2.7	ACFT	36,900		
WAT YR 1970	TOTAL	6,873.5	MEAN	18.8	MAX	381	MIN	1.4	ACFT	13,630		

## PEAK DISCHARGE (BASE, 100 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1700	3.83	172	1-16	1330	5.24	882
12-25	1300	3.85	177	1-21	1400	3.83	172
1-9	2400	3.99	217	1-24	0430	4.11	254
1-14	1500	3.76	155				

## SAN JOAQUIN RIVER BASIN

11243400 BASS LAKE NEAR BASS LAKE, CALIF.

LOCATION.--Lat 37°17'36", long 119°31'40", in NE $\frac{1}{4}$  sec.26, T.7 S., R.22 E., Madera County, Sierra National Forest, at outlet tower at dam on North Fork Willow Creek, 2.2 miles southeast of town of Bass Lake, and 5 miles north of town of North Fork.

DRAINAGE AREA.--50.4 sq mi.

PERIOD OF RECORD.--January 1912 to current year. Bass Lake was formerly called Crane Valley Reservoir.

GAGE.--Water-stage recorder. Datum of gage is mean sea level (levels by Pacific Gas and Electric Co.).

EXTREMES.--Current year: Maximum contents, 45,480 acre-ft June 15 (elevation, 3,376.46 ft); minimum, 18,030 acre-ft Dec. 18 (elevation, 3,347.69 ft).

Period of record: Maximum contents, 45,960 acre-ft June 17, 1923 (elevation, 3,376.8 ft); minimum, 35 acre-ft Nov. 19, 1953 (elevation, 3,270.2 ft).

REMARKS.--Reservoir formed by earth- and rockfill dam; completed in 1901 and raised in 1910. Since 1910 usable contents 45,100 acre-ft between elevations, 3,280.22 ft (invert of outlet conduit No. 3) and 3,376.40 ft (top of spillway gates) above mean sea level. Additional storage of 300 acre-ft not available for release. Water is released through Crane Valley powerhouse below dam for use in three small powerhouses before being discharged into Kerckhoff Reservoir at Wishon powerhouse. Water diverted from South Fork Willow Creek via Browns Creek ditch into Bass Lake near left end of dam. Madera Irrigation District has water rights to divert up to 50 cfs from North Fork Willow Creek through Soquel ditch into Nelder Creek (Fresno River basin) during October and March to July each year. Chilkoot ditch can divert up to 7 cfs from Chilkoot Creek into North Fork Willow Creek just upstream from diversion dam from Oct. 1 to Aug. 1 each water year if available. See schematic diagram of San Joaquin River basin;

COOPERATION.--Record of contents furnished by Pacific Gas and Electric Co. in connection with a Federal Power Commission project.

## MONTHEND CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

Date	Contents
Sept. 30.....	26,560
Oct. 31.....	24,130
Nov. 30.....	20,040
Dec. 31.....	19,240
Jan. 31.....	26,920
Feb. 28.....	30,870
Mar. 31.....	35,830
Apr. 30.....	41,880
May 31.....	44,980
June 30.....	44,030
July 31.....	38,110
Aug. 31.....	30,810
Sept. 30.....	24,270

LOCATION.--Lat 37°17'21", long 119°31'44", in SE $\frac{1}{4}$  sec.26, T.7 S., R.22 E., Madera County, Sierra National Forest, on left bank 1,000 ft downstream from Crane Valley powerhouse and dam and 2.5 miles southeast of town of Bass Lake.

GAGE.--Water-stage recorder and concrete flume. Altitude of gage is 3,300 ft (from topographic map).

AVERAGE DISCHARGE.--30 years, 68.3 cfs (49,480 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 167 cfs June 23, 24, 1965; no flow at times.

REMARKS.--Conduit diverts from Bass Lake in sec.26, T.7 S., R.22 E. Water passed through Crane Valley powerhouse, then to powerhouse No. 3, and is stored temporarily at Manzanita Lake on North Fork Willow Creek; flow then diverted to powerhouses No. 2 and 1A before it enters San Joaquin River at Kerckhoff Reservoir through Wishon powerhouse No. 1. See schematic diagram of San Joaquin River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	141	137	71	2.0	8.4	131	107	.40	83	7.3	121	119
2	144	137	109	8.4	70	130	107	.41	118	53	121	119
3	144	138	109	2.0	106	130	44	.50	119	53	121	118
4	144	139	109	3.7	106	130	2.7	78	120	.70	121	118
5	58	139	45	72	105	130	8.5	118	53	9.9	121	118
6	6.7	119	1.9	108	43	130	51	120	1.6	65	121	118
7	7.5	109	8.4	108	2.0	130	111	121	6.7	122	121	118
8	7.1	109	70	108	8.4	130	111	120	1.7	122	120	118
9	3.9	108	109	31	72	130	111	63	1.7	122	120	118
10	3.6	108	109	1.9	106	130	47	6.9	6.0	120	120	119
11	6.7	108	109	1.9	105	130	1.6	88	1.8	132	120	119
12	8.0	108	45	73	105	130	7.8	122	1.8	127	120	127
13	8.0	108	.70	107	105	130	2.6	121	7.7	121	120	128
14	8.0	46	14	88	105	130	2.4	121	1.9	122	120	127
15	8.0	1.9	68	91	81	130	2.5	48	87	122	120	125
16	8.0	1.9	107	36	60	117	1.3	1.9	148	122	120	127
17	8.0	69	109	2.2	57	102	.29	7.3	147	122	120	125
18	5.1	109	46	7.2	57	102	.30	88	130	122	120	124
19	3.0	109	1.7	62	57	102	.30	118	57	121	120	137
20	4.4	109	2.6	107	58	102	.28	118	.40	120	121	125
21	5.8	46	1.9	99	58	31	.30	118	6.2	121	120	124
22	6.5	2.0	8.0	74	58	2.8	.30	44	79	121	120	124
23	6.5	8.4	8.0	27	59	70	.24	1.6	120	121	120	123
24	94	69	1.9	2.0	59	102	.20	4.2	120	121	120	123
25	136	108	8.2	2.0	57	101	.20	88	120	121	120	111
26	137	45	2.0	55	61	100	.23	119	121	122	116	.60
27	137	1.9	3.7	88	83	40	.27	119	79	122	120	5.1
28	137	3.7	2.0	88	132	2.5	.30	119	1.6	121	120	16
29	137	1.9	69	88	-----	8.7	.30	48	21	121	120	123
30	137	8.2	108	35	-----	73	.37	1.7	1.7	121	119	120
31	137	-----	31	2.0	-----	107	-----	7.5	-----	121	119	-----
TOTAL	1,797.8	2,306.9	1,488.00	1,580.3	1,983.8	3,114.0	722.28	2,131.41	1,762.80	3,238.90	3,722	3,316.70
MEAN	58.0	76.9	48.0	51.0	70.9	100	24.1	68.8	58.8	104	120	111
MAX	144	139	109	108	132	131	111	122	148	132	121	137
MIN	3.0	1.9	.70	1.9	2.0	2.5	.20	.40	.40	.70	116	.60
AC-FT	3,570	4,580	2,950	3,130	3,930	6,180	1,430	4,230	3,500	6,420	7,380	6,580
CAL YR 1969	TOTAL 42,807.20			MEAN 117	MAX 154	MIN .10	AC-FT 84,910					
WTR YR 1970	TOTAL 27,164.89											

## SAN JOAQUIN RIVER BASIN

11244000 NORTH FORK WILLOW CREEK NEAR BASS LAKE, CALIF.

LOCATION.--Lat 37°17'20", long 119°31'45", in SE $\frac{1}{4}$  sec.26, T.7 S., R.22 E., Madera County, Sierra National Forest, on right bank 1,500 ft downstream from Bass Lake spillway and 2.5 miles southeast of town of Bass Lake.

DRAINAGE AREA.--50.8 sq mi.

PERIOD OF RECORD.--May 1940 to current year. Prior to October 1944, published as Willow Creek below Crane Valley Reservoir. October 1944 to September 1954, published as "below Crane Valley Reservoir."

GAGE.--Water-stage recorder. Broad-crested weir with V-notch since Dec. 21, 1961, ineffective since 1969. Altitude of gage is 3,200 ft (from topographic map).

AVERAGE DISCHARGE.--30 years, 15.0 cfs (10,870 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 4 cfs Jan. 16 (gage height, unknown); minimum daily, 0.29 cfs Sept. 7-30.

Period of record: Maximum discharge, 1,300 cfs Jan. 26, 1969 (gage height, unknown); minimum daily, 0.1 cfs Nov. 13-16, 1940.

REMARKS.--Flow regulated by Bass Lake (see sta 11243400) 1,500 ft upstream and by diversion into Pacific Gas and Electric Co. conduit No. 3 near Bass Lake (see sta 11243500). At times in October and March to July, up to 50 cfs may be diverted through Soquel ditch into Nelder Creek in Fresno River basin. Brown's ditch diverted 18,840 acre-ft from South Fork Willow Creek into Bass Lake in 1970 water year. See schematic diagram of San Joaquin River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.45	.38	.38	.38	.38	1.1	1.7	2.4	2.2	1.3	.73	.35
2	.45	.38	.38	.38	.38	1.2	1.8	2.4	2.2	1.3	.73	.35
3	.45	.38	.38	.38	.38	1.3	1.8	2.4	2.0	1.3	.73	.35
4	.45	.38	.38	.38	.38	1.3	1.8	2.4	2.0	1.3	.73	.35
5	.45	.38	.38	.38	.38	1.3	1.8	2.4	2.0	1.3	.67	.35
6	.38	1.5	.38	.38	.38	1.3	1.8	2.4	2.0	1.3	.67	.32
7	.38	1.0	.38	.38	.38	1.3	1.8	2.4	2.0	1.3	.67	.29
8	.30	.50	.38	.38	.38	1.3	1.8	2.4	2.0	1.3	.62	.29
9	.30	.30	.38	.38	.38	1.4	1.8	2.4	2.0	1.3	.62	.29
10	.30	.30	.38	.50	.38	1.4	1.8	2.4	2.0	1.3	.67	.29
11	.30	.30	.38	1.5	.38	1.4	1.8	2.4	2.0	1.3	.62	.29
12	.38	.30	.38	1.0	.38	1.4	2.0	2.4	2.0	1.3	.56	.29
13	.38	.30	.38	.80	.38	1.4	2.0	2.4	2.0	1.2	.56	.29
14	.45	.30	.38	1.5	.50	1.4	2.0	2.4	2.0	1.2	.51	.29
15	.45	.30	.38	3.0	.80	1.5	2.0	2.4	2.0	1.2	.51	.29
16	.80	.30	.38	4.0	.38	1.5	2.0	2.4	2.0	1.1	.51	.29
17	.60	.30	.38	3.0	.60	1.5	2.0	2.4	2.0	1.1	.51	.29
18	.45	.30	.38	1.0	.45	1.5	2.0	2.4	1.9	1.1	.48	.29
19	.45	.30	.38	1.0	.52	1.5	2.0	2.2	1.8	1.1	.48	.29
20	.45	.30	.38	.50	.59	1.5	2.2	2.2	1.7	1.0	.48	.29
21	.45	.30	.50	.38	.66	1.6	2.2	2.2	1.7	1.0	.45	.29
22	.45	.30	.50	.38	.72	1.6	2.2	2.2	1.7	.96	.45	.29
23	.45	.30	.38	.38	.79	1.6	2.2	2.2	1.7	.96	.45	.29
24	.38	.30	.38	.80	.85	1.6	2.2	2.2	1.6	.90	.45	.29
25	.38	.38	.80	.50	.91	1.6	2.2	2.2	1.5	.90	.45	.29
26	.38	.38	2.0	.38	.97	1.6	2.2	2.2	1.5	.84	.38	.29
27	.38	.38	.80	.38	1.0	1.7	2.2	2.2	1.3	.84	.38	.29
28	.38	.38	.80	.80	1.1	1.7	2.4	2.2	1.3	.84	.35	.29
29	.38	.38	.38	.50	-----	1.7	2.4	2.2	1.3	.78	.35	.29
30	.38	.38	.38	.38	-----	1.7	2.4	2.2	1.3	.78	.35	.29
31	.38	-----	.38	.38	-----	1.7	-----	2.2	-----	.78	.35	-----
TOTAL	13.01	11.98	14.90	26.48	15.78	45.6	60.5	71.8	54.7	34.18	16.47	9.03
MEAN	.42	.40	.48	.85	.56	1.47	2.02	2.32	1.82	1.10	.53	.30
MAX	.80	1.5	2.0	4.0	1.1	1.7	2.4	2.4	2.2	1.3	.73	.35
MIN	.30	.30	.38	.38	.38	1.1	1.7	2.2	1.3	.78	.35	.29
AC-FT	26	24	30	53	31	90	120	142	109	68	33	18

CAL YR 1969 TOTAL 15,458.55 MEAN 42.4 MAX 1,050 MIN .30 AC-FT 30,660  
WAT YR 1970 TOTAL 374.43 MEAN 1.03 MAX 4 MIN .29 AC-FT 743

NOTE.--No gage-height record Oct. 1 to Apr. 30.



## SAN JOAQUIN RIVER BASIN

641

11246500 WILLOW CREEK AT MOUTH, NEAR AUBERRY, CALIF.

LOCATION.--Lat 37°09'03", long 119°27'34", in SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.16, T.9 S., R.23 E., Madera County, Sierra National Forest, on left bank 40 ft upstream from bridge, 0.4 mile upstream from mouth, 1.3 miles downstream from Whiskey Creek, and 4.3 miles northeast of Auberry.

DRAINAGE AREA.--130 sq mi.

PERIOD OF RECORD.--January 1952 to current year.

GAGE.--Water-stage recorder. Concrete control since Oct. 22, 1964. Datum of gage is 1,174.69 ft above mean sea level (levels by Southern California Edison Co.).

AVERAGE DISCHARGE.--18 years, 61.4 cfs (44,480 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 4,140 cfs Jan. 16 (gage height, 14.56 ft); minimum daily, 0.06 cfs Aug. 26, 29, 30, Sept. 4, 30.

Period of record: Maximum discharge, 15,700 cfs Dec. 23, 1955 (gage height, 28.5 ft, from floodmarks), from rating curve extended above 4,700 cfs; no flow at times in 1955, 1959-62, 1964-66, 1968.

REMARKS.--Records good. Flow regulated by Bass Lake 10 miles upstream (see sta 11243400) and diversion into Pacific Gas and Electric Co. conduit No. 1. See schematic diagram of San Joaquin River basin. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

COOPERATION.--Gage-height record and 14 discharge measurements furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

REVISIONS (WATER YEARS).--WRD Calif. 1963: 1956-58(M).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	5.6	5.8	10	35	229	36	33	11	4.7	.97	.10
2	2.3	5.6	5.9	9.0	33	304	36	32	10	4.3	.97	.10
3	2.3	5.5	6.0	8.0	32	100	34	31	9.5	4.0	.90	.08
4	2.2	5.5	6.0	7.4	31	57	34	29	9.3	4.1	.90	.06
5	2.3	5.6	6.0	7.1	29	75	33	27	9.3	4.1	.90	.12
6	2.7	15	6.0	7.6	28	48	33	27	9.2	3.8	.82	.16
7	5.0	16	6.0	8.0	26	42	32	26	8.8	3.4	.90	.30
8	5.6	10	6.0	8.0	25	40	31	26	8.8	3.2	.75	.39
9	6.4	8.6	6.5	11	25	37	31	25	19	3.1	.63	.34
10	6.5	8.2	7.9	211	25	36	31	24	13	3.3	.58	.18
11	5.8	7.7	7.3	52	26	33	30	23	11	3.3	.49	.12
12	2.9	7.4	6.5	30	33	32	30	22	10	6.1	.30	.10
13	2.6	7.1	6.4	27	43	55	31	21	10	3.3	.25	.10
14	2.6	7.1	6.3	169	62	67	34	21	9.7	2.6	.18	.12
15	3.5	6.8	6.0	147	42	63	30	20	9.8	2.3	.18	.12
16	74	7.7	6.0	2,040	40	70	30	18	9.2	2.2	.18	.12
17	88	7.4	6.0	818	61	50	28	18	8.5	2.2	.16	.10
18	37	7.6	6.0	294	50	45	27	17	8.0	2.1	.14	.10
19	31	7.3	7.4	152	33	40	28	16	7.4	2.0	.16	.10
20	21	7.1	15	132	29	39	28	16	6.7	1.8	.14	.10
21	14	6.8	41	234	28	39	28	16	6.2	1.7	.10	.08
22	9.2	6.5	99	204	27	40	28	15	6.0	1.6	.10	.08
23	8.2	6.4	16	111	27	40	28	14	5.3	1.5	.08	.08
24	6.5	6.0	11	315	26	42	28	13	5.1	1.6	.08	.10
25	6.5	6.3	212	141	26	44	28	12	5.0	1.5	.10	.10
26	6.4	6.3	95	87	26	45	28	12	5.9	1.5	.06	.08
27	6.3	5.9	23	200	25	42	32	12	7.6	1.5	.08	.10
28	6.3	5.8	15	100	53	39	29	12	6.4	1.5	.08	.08
29	6.3	5.8	13	62	-----	38	29	12	6.3	1.2	.06	.08
30	5.9	5.6	11	46	-----	38	32	12	6.3	1.0	.06	.06
31	5.8	-----	11	38	-----	37	-----	11	-----	.97	.08	-----
TOTAL	387.6	220.2	682.0	5,686.1	946	1,906	917	613	258.3	81.47	11.38	3.75
MEAN	12.5	7.34	22.0	183	33.8	61.5	30.6	19.8	8.61	2.63	.37	.13
MAX	88	16	212	2,040	62	304	36	33	19	6.1	.97	.39
MIN	2.2	5.5	5.8	7.1	25	32	27	11	5.0	.97	.06	.06
AC-FT	769	437	1,350	11,280	1,880	3,780	1,820	1,220	512	162	23	7.4
CAL YR 1969	TOTAL 94,667.6		MEAN 259		MAX 4,390		MIN 2.2		AC-FT 187,800			
WTR YR 1970	TOTAL 11,712.80		MEAN 32.1		MAX 2,040		MIN .06		AC-FT 23,230			

## SAN JOAQUIN RIVER BASIN

## 11247000 SAN JOAQUIN RIVER BELOW KERCKHOFF POWERHOUSE, NEAR PRATHER, CALIF.

LOCATION.--Lat 37°04'45", long 119°33'36", in NE $\frac{1}{4}$  sec.10, T.10 S., R.22 E., Fresno County, on left bank 1.1 miles downstream from Kerckhoff powerhouse, 1.4 miles upstream from Big Sandy Creek, and 3.8 miles southeast of Prather.

DRAINAGE AREA.--1,480 sq mi.

PERIOD OF RECORD.--April 1910 to September 1914, December 1936 to December 1937, December 1942 to current year. Published as "near North Fork" 1910-14 and as "below Kerckhoff powerhouse" 1915-60.

GAGE.--Water-stage recorder. Datum of gage is 563.4 ft above mean sea level (levels by Bureau of Reclamation). Prior to Oct. 1, 1914, at site 11 miles upstream at different datum.

AVERAGE DISCHARGE.--31 years (1910-14, 1943-70), 2,386 cfs (1,729,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 12,800 cfs Jan. 17 (gage height, 23.76 ft); minimum daily, 104 cfs Oct. 8.

Period of record: Maximum discharge, 92,200 cfs Dec. 23, 1955 (gage height, 51.0 ft, from floodmarks), from rating curve extended above 20,000 cfs on basis of records for San Joaquin River above Willow Creek, near Auberry and Willow Creek at mouth, near Auberry; minimum daily, 24 cfs Sept. 26, 1966.

REMARKS.--Records excellent. Flow regulated by 12 powerplants and eight reservoirs with total usable capacity of 609,300 acre-ft. Earliest storage began in 1901 at Bass Lake (see sta 11243400). See records for Florence, Lake Thomas A. Edison, Mammoth Pool Reservoir, Huntington, Shaver, and Redinger Lakes, given elsewhere in this report. Backwater from Millerton Lake has affected record at times since November 1947, when spillway gates were installed at Friant Dam. See schematic diagram of San Joaquin River basin. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

COOPERATION.--Gage-height record, telemark readings, and nine discharge measurements furnished by Southern California Edison Co. in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,500	1,240	1,250	1,690	1,760	2,610	2,460	2,140	2,830	2,480	1,950	1,820
2	994	1,520	1,720	1,670	2,110	3,120	2,230	2,630	3,100	2,470	1,930	1,590
3	1,140	1,320	1,660	1,150	2,600	2,570	2,250	2,690	3,440	2,580	1,950	1,490
4	840	1,330	1,770	1,480	2,770	2,480	2,030	2,720	3,430	2,420	2,010	1,480
5	795	1,020	1,780	1,590	2,840	2,360	1,910	2,820	3,360	2,470	2,020	1,560
6	881	1,550	1,290	1,610	2,820	2,330	2,680	2,820	2,780	2,490	1,990	944
7	521	1,740	1,030	1,680	2,720	2,140	2,600	2,780	2,740	2,580	1,990	1,230
8	104	1,740	1,190	2,010	2,720	1,850	2,720	2,800	2,690	2,580	1,980	1,780
9	552	1,730	1,200	2,340	2,720	2,570	2,650	2,910	2,560	2,570	1,860	1,730
10	485	1,270	1,350	2,350	2,660	2,270	2,630	2,800	2,630	2,570	2,040	1,660
11	514	1,310	1,720	2,150	2,730	2,250	2,590	2,780	2,650	2,580	2,200	1,680
12	485	1,210	1,720	1,800	2,580	2,440	2,590	2,820	2,650	2,540	2,150	1,420
13	1,330	1,540	1,720	1,720	2,850	2,440	2,530	2,820	2,460	2,600	2,210	1,460
14	1,390	1,380	1,140	2,790	2,880	1,880	2,670	2,720	2,350	2,570	2,200	1,570
15	1,290	1,680	1,270	3,530	2,180	2,090	2,650	2,760	2,350	2,570	1,880	1,600
16	1,350	1,350	1,770	5,790	2,570	2,320	2,630	2,670	2,530	2,520	1,730	1,650
17	1,720	1,240	1,720	4,500	2,780	2,650	2,450	2,380	2,120	2,560	1,730	1,710
18	1,350	1,180	1,720	3,090	2,760	2,800	1,950	2,830	2,590	2,420	1,720	1,670
19	813	1,180	1,630	2,850	2,410	2,120	1,820	2,940	2,350	2,190	1,690	1,180
20	1,010	1,570	1,470	2,870	1,930	3,190	2,090	2,910	2,460	2,280	1,600	1,260
21	1,490	1,600	1,680	3,020	2,030	2,350	1,850	2,920	2,440	2,350	1,600	1,550
22	1,520	1,500	1,720	3,120	2,040	1,950	1,920	2,870	2,490	2,170	1,600	1,600
23	1,480	1,290	1,720	3,140	2,040	2,560	1,870	2,780	2,600	2,260	1,600	1,390
24	1,190	1,460	1,720	3,150	2,150	3,090	1,820	2,780	2,600	2,040	1,610	1,770
25	1,380	1,750	1,730	2,970	2,060	3,130	1,820	2,850	2,590	1,910	1,600	1,570
26	1,180	1,880	1,730	3,120	2,230	3,100	2,100	2,930	2,600	1,860	1,610	1,220
27	1,350	1,760	1,720	3,440	2,200	2,530	2,260	2,900	2,210	1,850	1,610	1,000
28	1,390	1,740	1,480	3,410	2,240	1,990	2,070	2,890	2,350	1,930	1,610	1,710
29	1,200	1,340	1,370	3,200	-----	2,020	2,040	2,880	2,540	1,920	1,640	1,450
30	1,740	1,190	1,700	3,060	-----	2,320	2,050	2,770	2,480	1,980	1,410	1,300
31	1,730	-----	1,700	2,260	-----	2,910	-----	2,770	-----	2,030	1,030	-----
TOTAL	34,714	43,610	48,390	82,550	68,380	76,430	67,930	86,080	78,970	72,340	55,750	45,044
MEAN	1,120	1,454	1,561	2,663	2,442	2,465	2,264	2,777	2,632	2,334	1,798	1,501
MAX	1,740	1,880	1,780	5,790	2,880	3,190	2,720	2,940	3,440	2,600	2,210	1,820
MIN	104	1,020	1,030	1,150	1,760	1,850	1,820	2,140	2,120	1,850	1,030	944
AC-FT	68,860	86,500	95,980	163,700	135,600	151,600	134,700	170,700	156,600	143,500	110,600	89,340
CAL YR 1969	TOTAL	1,836,692		MEAN	5,032	MAX	19,800	MIN	104	AC-FT	3,643,000	
WTR YR 1970	TOTAL	760,188		MEAN	2,083	MAX	5,790	MIN	104	AC-FT	1,508,000	

## 11247200 BIG SANDY CREEK TRIBUTARY, NEAR TOLLHOUSE, CALIF.

LOCATION.--Lat 37°01'53", long 119°26'50", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.27, T.10 S., R.23 E., Fresno County, at culvert on Lodge Road, 2.8 miles west of Tollhouse.

DRAINAGE AREA.--0.46 sq mi.

PERIOD OF RECORD.--Water years 1960-68 (annual maximum), October 1968 to current year.

GAGE.--Water-stage recorder, crest-stage gage, and tipping-bucket rain gage. Altitude of gage is 1,900 ft (from topographic map). Prior to September 23, 1968, crest-stage gage at same site and datum.

EXTREMES.--Current year: Maximum discharge, 16 cfs Jan. 16 (gage height, 4.38 ft); no flow for several months. Period of record: Maximum discharge, 48 cfs Jan. 25, 1969 (gage height, 7.40 ft), by computation of peak flow through culvert and road overflow; no flow for several months in each year.

REMARKS.--Records fair. No regulation or diversion above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			0	0	.13	1.1	.02	.01				
2			0	0	.11	1.1	.02	0				
3			0	0	.10	.53	.02	0				
4			0	0	.09	.88	.01	0				
5			0	0	.08	.97	.01	0				
6			0	0	.07	.48	.01	0				
7			0	0	.06	.44	.01	0				
8			0	0	.05	.40	.01	0				
9			0	0	.05	.36	.01	0				
10			0	.06	.04	.36	.01	0				
11			0	.03	.04	.28	.01	0				
12			0	0	.04	.24	.01	0				
13			0	0	.06	.24	.02	0				
14			0	.94	.15	.20	.02	0				
15			0	.64	.12	.20	.01	0				
16			0	7.2	.10	.16	.01	0				
17			0	1.1	.12	.16	.01	0				
18			0	.88	.11	.12	.01	0				
19			0	.78	.09	.12	0	0				
20			0	.67	.08	.08	0	0				
21			0	.59	.07	.08	.01	0				
22			0	.50	.06	.08	.01	0				
23			0	.44	.06	.04	0	0				
24			0	.42	.05	.04	0	0				
25			.31	.38	.04	.04	0	0				
26			0	.35	.04	.04	0	0				
27			0	.33	.02	.04	.01	0				
28			0	.30	.38	.04	.01	0				
29			0	.24	-----	.04	.01	0				
30			0	.16	-----	.04	.01	0				
31		-----	0	.14	-----	.02	-----	0	-----			-----
TOTAL	0	0	.31	16.15	2.41	8.92	.29	.01	0	0	0	0
MEAN	0	0	.010	.52	.086	.29	.009	.0003	0	0	0	0
MAX	0	0	.31	7.2	.38	1.1	.02	.01	0	0	0	0
MIN	0	0	0	0	.02	.02	0	0	0	0	0	0
AC-FT	0	0	.6	32	4.8	18	.6	.02	0	0	0	0
(a)	--	--	3.0	6.5	2.9	2.2	.4	0	.6	0	0	0

CAL YR 1969 TOTAL 257.59 MEAN .71 MAX 16 MIN 0 ACFT 511  
WAT YR 1970 TOTAL 28.09 MEAN .077 MAX 7.2 MIN 0 ACFT 56

a Precipitation, in inches.

## 11249500 MADERA CANAL AT FRIANT, CALIF.

LOCATION.--Lat 37°00'10", long 119°42'21", in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.5, T.11 S., R.21 E., Madera County, at Friant Dam 0.9 mile northeast of Friant.

PERIOD OF RECORD.--October 1943 to current year. October 1954 to September 1966 published as Friant-Madera Canal at Friant.

GAGE.--Discharge computed on basis of valve openings in dam and head on valves. Prior to Oct. 1, 1948, water-stage recorder at several sites at various datums. Oct. 1, 1948, to Sept. 30, 1949, water-stage recorder at site 8.8 miles downstream.

AVERAGE DISCHARGE.--27 years, 278 cfs (201,400 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 1,322 cfs June 27, 1964; no flow many days in each year.

REMARKS.--Canal diverts from Millerton Lake (see sta 11250100) at right end of Friant Dam for irrigation between San Joaquin and Fresno Rivers.

COOPERATION.--Records furnished by Bureau of Reclamation and reviewed by Geological Survey, rounded to Geological Survey standards.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	688	161	46	31	253	252	734	561	738	810	993	292
2	676	162	58	31	237	156	798	554	794	814	949	157
3	662	172	58	31	228	115	814	555	922	825	410	0
4	632	183	54	31	259	104	789	584	1,010	824	394	0
5	618	183	55	31	415	99	780	623	1,030	823	372	0
6	615	167	55	31	505	27	779	636	1,030	852	359	0
7	581	136	55	31	511	0	801	618	1,030	910	342	0
8	560	116	55	69	509	50	790	608	1,030	949	411	0
9	556	111	46	91	508	69	755	609	1,000	955	451	0
10	524	123	40	92	506	69	724	609	946	952	447	0
11	503	130	41	138	505	70	682	619	900	949	399	0
12	486	141	41	276	504	70	665	625	834	916	371	0
13	478	157	41	276	504	70	665	575	761	897	367	0
14	333	115	41	277	504	70	666	548	714	894	363	0
15	273	68	47	267	503	84	639	563	733	891	335	0
16	191	55	82	222	524	92	583	571	797	887	319	0
17	120	55	101	212	550	112	524	571	860	884	315	0
18	91	55	86	214	574	124	491	603	901	881	311	0
19	77	56	78	116	583	193	483	673	889	876	334	0
20	77	56	59	51	581	370	496	715	898	921	343	0
21	86	56	48	80	601	448	504	755	944	943	355	0
22	132	56	48	96	611	448	517	773	989	961	358	0
23	155	56	37	96	647	448	538	773	1,060	978	353	0
24	155	56	30	97	714	509	545	773	1,080	977	348	0
25	155	65	30	97	776	575	531	783	1,080	969	343	0
26	155	67	31	97	964	611	523	830	1,070	957	321	0
27	155	65	31	35	1,030	594	556	853	977	962	308	0
28	145	52	31	0	534	579	601	854	892	998	304	0
29	139	46	31	64	-----	608	589	807	855	1,040	301	0
30	153	46	31	99	-----	657	574	755	843	1,050	298	0
31	161	-----	31	204	-----	714	-----	738	-----	1,020	294	-----
TOTAL	10,332	2,967	1,518	3,483	15,140	8,387	19,136	20,714	27,607	28,565	12,168	449
MEAN	333	98.9	49.0	112	541	271	638	668	920	921	393	15.0
MAX	688	183	101	277	1,030	714	814	854	1,080	1,050	993	292
MIN	77	46	30	0	228	0	483	548	714	810	294	0
AC-FT	20,490	5,890	3,010	6,910	30,030	16,640	37,960	41,090	54,760	56,660	24,140	891
CAL YR 1969	TOTAL 215,912		MEAN 592	MAX 1,270	MIN 0	ACFT 428,300						
WAT YR 1970	TOTAL 150,466		MEAN 412	MAX 1,080	MIN 0	ACFT 298,400						

## 11250000 FRIANT-KERN CANAL AT FRIANT, CALIF.

LOCATION.--Lat 36°59'53", long 119°42'11", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.5, T.11 S., R.21 E., Fresno County, at Friant Dam 0.9 mile northeast of Friant.

PERIOD OF RECORD.--March 1949 to current year.

GAGE.--Discharge computed on basis of valve openings in dam and head on valves. Prior to July 8, 1949, nonrecording gages at various sites and datums. July 8 to Sept. 30, 1949, water-stage recorder at site 0.2 mile downstream.

AVERAGE DISCHARGE.--21 years, 1,300 cfs (941,800 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 4,564 cfs Apr. 17, 1962; no flow for several months in most years.

REMARKS.--Canal diverts from Millerton Lake (see sta 11250100) at left end of Friant Dam for irrigation in upper San Joaquin Valley.

COOPERATION.--Records furnished by Bureau of Reclamation and reviewed by Geological Survey, rounded to Geological Survey standards.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,700	951	986	605	350	1,820	1,930	846	2,180	2,470	3,470	1,900
2	1,270	978	872	580	387	1,100	1,940	915	2,370	2,180	3,580	1,930
3	1,220	1,040	851	559	588	803	1,930	1,090	2,610	2,000	3,730	1,890
4	1,140	1,070	880	619	734	831	1,940	1,410	2,730	1,910	3,840	1,600
5	1,140	1,330	902	785	1,680	813	2,050	1,590	2,620	2,070	3,890	1,060
6	1,160	1,270	904	852	1,670	707	2,120	1,680	2,560	2,380	3,840	1,100
7	1,150	1,060	904	934	1,660	679	2,160	1,660	2,830	2,590	3,620	1,120
8	1,140	951	905	1,060	2,000	702	2,160	1,570	3,020	2,790	3,340	1,170
9	1,120	955	872	1,020	2,460	705	1,930	1,410	3,010	2,930	3,450	1,320
10	1,030	917	819	1,030	2,730	725	1,530	1,290	2,890	2,750	3,580	1,480
11	911	732	776	1,030	2,660	742	1,500	1,290	2,740	2,720	3,750	1,460
12	877	581	616	709	2,540	744	1,610	1,300	2,490	2,770	3,920	1,460
13	840	543	288	649	2,530	747	1,610	1,300	2,350	2,940	3,960	1,540
14	806	529	38	688	2,520	764	1,500	1,330	2,350	2,980	3,840	1,640
15	807	532	0	634	2,590	878	1,470	1,360	2,370	3,040	3,600	1,720
16	779	561	0	153	2,650	979	1,400	1,470	2,450	3,040	3,540	1,700
17	673	579	0	89	2,710	1,120	1,310	1,740	2,530	2,910	3,680	1,620
18	605	535	0	161	2,870	1,240	1,320	1,860	2,540	2,970	3,880	1,460
19	606	500	167	162	3,080	1,260	1,470	1,890	2,460	3,170	3,930	1,220
20	607	544	978	226	3,180	1,260	1,630	2,060	2,350	3,370	3,920	1,320
21	630	903	1,300	266	3,330	1,270	1,700	2,180	2,450	3,660	3,740	1,380
22	651	905	1,080	245	3,510	1,360	1,720	2,060	2,790	3,950	3,210	1,350
23	862	907	762	229	3,630	1,480	1,680	1,780	2,960	3,950	3,030	1,310
24	964	922	563	230	3,600	1,760	1,520	1,610	3,140	3,900	3,060	1,210
25	977	935	553	275	3,320	1,780	1,300	1,650	3,120	3,550	3,070	1,080
26	1,040	939	555	323	3,090	1,760	1,210	1,700	2,950	3,580	2,980	919
27	1,060	942	583	358	2,850	1,650	1,150	1,700	2,700	3,740	2,800	993
28	1,040	946	569	373	2,570	1,580	1,020	1,660	2,770	3,780	2,540	1,080
29	1,020	948	570	339	-----	1,730	885	1,620	2,760	3,800	2,060	1,120
30	1,020	982	601	388	-----	1,840	832	1,660	2,680	3,780	2,020	1,120
31	1,000	-----	603	313	-----	1,870	-----	1,890	-----	3,640	1,960	-----
TOTAL	29,845	25,487	19,497	15,934	67,489	36,699	47,527	48,571	79,770	95,310	104,830	41,272
MEAN	963	850	629	514	2,410	1,184	1,584	1,567	2,659	3,075	3,382	1,376
MAX	1,700	1,330	1,300	1,060	3,630	1,870	2,160	2,180	3,140	3,950	3,960	1,930
MIN	605	500	0	89	350	679	832	846	2,180	1,910	1,960	919
AC-FT	59,200	50,550	38,670	31,610	133,900	72,790	94,270	96,340	158,200	189,000	207,900	81,660
CAL YR 1969	TOTAL 609,126		MEAN 1,669		MAX 4,410		MIN 0		ACFT 1,208,000			
WAT YR 1970	TOTAL 612,231		MEAN 1,677		MAX 3,960		MIN 0		ACFT 1,214,000			

## SAN JOAQUIN RIVER BASIN

## 11250100 MILLERTON LAKE AT FRIANT, CALIF.

LOCATION.--Lat 37°00'00", long 119°42'13", in SW $\frac{1}{4}$  sec.5, T.11 S., R.21 E., Fresno County, near center of Friant Dam on San Joaquin River, just upstream from Cottonwood Creek, and 0.9 mile northeast of Friant.

DRAINAGE AREA.--1,638 sq mi (revised).

PERIOD OF RECORD.--October 1941 to current year. Monthend contents only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Bureau of Reclamation). Prior to May 29, 1944, nonrecording gage on left bank at same datum.

EXTREMES.--Current year: Maximum contents, 465,200 acre-ft May 30, 31 (elevation, 566.36 ft); minimum, 165,400 acre-ft Sept. 4, 20 (elevation, 481.49 ft).

Period of record: Maximum contents, 528,200 acre-ft June 20, 1963 (elevation, 579.56 ft); minimum since lake first filled, 133,600 acre-ft Apr. 11, 1969 (elevation, 467.81 ft)

REMARKS.--Reservoir is formed by gravity-type concrete dam with spillway near center, completed in December 1942. Control valves installed in February 1944, and spillway gates installed in November 1947. Usable capacity, 503,200 acre-ft between elevations 375.4 ft (invert of river outlet) and 578.0 ft (top of drum-type spillway gates) above mean sea level. Not available for release, 17,400 acre-ft. Millerton Lake is one of the storage units in Central Valley project. Records, including extremes, represent total contents at 2400 hours.

COOPERATION.--Records furnished by Bureau of Reclamation.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

400	36,400	500	215,600
420	57,000	520	279,400
440	83,300	540	353,000
460	117,500	560	436,500
480	161,700	580	530,400

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	268,200	254,000	279,100	329,600	446,800	389,600	448,200	444,200	464,600	399,100	286,300	168,000
2	266,200	254,600	280,500	331,500	448,800	394,700	446,900	446,300	464,100	397,700	281,000	166,800
3	264,400	254,700	281,800	332,400	450,100	398,200	445,800	448,100	463,500	396,900	276,700	165,900
4	262,500	254,600	283,300	333,800	450,000	401,800	444,100	449,200	462,500	396,000	272,200	165,400
5	260,400	253,800	284,700	335,100	447,500	405,200	442,100	450,100	461,600	394,800	267,700	166,200
6	258,700	254,000	285,200	336,400	444,700	408,500	441,400	450,700	459,800	392,900	263,300	165,700
7	256,100	254,800	285,200	337,600	441,800	411,500	440,400	451,300	457,300	390,900	259,200	165,700
8	252,700	256,000	285,500	339,200	438,300	413,600	439,700	452,200	454,600	388,300	255,600	166,600
9	250,400	257,100	286,000	341,400	434,200	417,300	439,300	453,500	451,300	385,500	251,500	167,200
10	248,100	257,400	286,700	343,700	431,200	420,200	439,800	454,900	448,700	383,000	247,400	167,300
11	246,200	258,100	288,300	345,800	429,900	422,900	440,300	456,200	446,400	380,500	243,600	167,500
12	244,300	258,800	290,300	347,200	428,800	426,100	440,700	457,600	444,800	377,900	239,400	167,200
13	243,900	260,400	292,800	348,600	428,400	429,200	441,000	459,100	443,100	375,200	235,200	166,900
14	244,300	261,700	294,700	352,600	428,100	431,200	441,600	460,500	441,300	372,300	231,200	166,600
15	244,500	263,600	297,000	358,000	426,100	433,300	442,400	461,900	439,600	369,300	227,000	166,100
16	245,100	264,900	300,100	373,200	424,800	435,700	443,500	462,700	437,900	366,200	222,600	165,800
17	246,600	266,000	303,000	382,800	424,000	438,300	444,400	462,400	435,200	363,400	218,100	165,800
18	247,900	267,000	306,100	388,200	422,600	441,000	444,500	462,800	433,200	360,300	213,300	166,000
19	247,900	268,000	308,900	393,400	420,000	442,100	443,800	463,100	431,000	356,300	208,300	165,700
20	248,200	269,600	309,500	398,900	416,300	444,900	443,400	463,000	429,300	352,100	203,200	165,400
21	249,600	270,600	310,100	404,100	412,800	446,000	442,500	462,600	427,200	347,400	198,300	165,600
22	250,800	271,600	311,100	409,400	408,600	446,100	441,600	462,300	424,500	341,800	194,400	165,900
23	251,600	272,100	312,700	414,200	404,100	447,100	440,600	462,400	421,500	336,300	190,800	165,800
24	251,500	272,700	314,700	418,000	399,800	448,500	439,900	462,800	418,100	330,600	187,200	166,700
25	251,900	274,100	317,100	421,100	395,700	449,900	439,400	463,200	414,600	325,300	183,600	167,500
26	251,800	275,600	319,200	424,800	392,000	451,100	439,800	463,700	411,600	319,800	180,300	168,000
27	251,800	276,900	321,200	429,800	388,600	451,300	440,500	464,000	408,500	314,000	177,400	167,900
28	252,200	278,200	322,800	434,700	387,200	450,600	441,200	464,300	405,600	308,200	174,800	168,900
29	252,100	278,800	324,100	439,200	-----	449,400	442,200	464,800	403,200	302,400	173,300	169,400
30	253,000	278,900	325,900	443,100	-----	448,600	443,000	465,200	400,900	296,700	171,400	169,700
31	253,900	-----	327,800	445,600	-----	448,900	-----	465,200	-----	291,400	168,800	-----
MAX	268,200	278,900	327,800	445,600	450,100	451,300	448,200	465,200	464,600	399,100	286,300	169,700
MIN	243,900	253,800	279,100	329,600	387,200	389,600	439,300	444,200	400,900	291,400	168,800	165,400
(a)	512.37	519.86	533.46	562.04	548.50	562.78	561.46	566.36	551.78	523.47	482.84	483.20
(b)	-16.1	+25.0	+48.9	+117.8	-58.4	+61.7	-5.9	+22.2	-64.3	-109.5	-122.6	+.9
(c)	1,020	540	360	400	610	1,170	1,680	2,940	3,190	3,610	2,490	1,470
CAL YR 1969	MAX 520,300	MIN 133,600	(b) +72.5									
WAT YR 1970	MAX 465,200	MIN 165,400	(b) -100.3									

a Elevation, in feet, at end of month.

b Change in contents, in thousands of acre-feet.

c Evaporation, in acre-feet.

## 11251000 SAN JOAQUIN RIVER BELOW FRIANT, CALIF.

LOCATION.--Lat 36°59'04", long 119°43'24", in SW $\frac{1}{4}$  sec.7, T.11 S., R.21 E., Fresno County, on left bank 0.5 mile west of Friant, 1.5 miles downstream from Cottonwood Creek, 2 miles downstream from Friant Dam, and at mile 268.1.

DRAINAGE AREA.--1,676 sq mi.

PERIOD OF RECORD.-- October 1907 to current year. Published as "near Pollasky" October 1907 to December 1908 and as "near Friant" January 1909 to September 1938. Monthly discharge only for October 1907 to November 1908, published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is 294.00 ft above mean sea level (levels by Bureau of Reclamation). Oct. 18, 1907, to Nov. 9, 1913, nonrecording gage at site 4.5 miles upstream at different datum. Nov. 10, 1913, to Sept. 30, 1938, water-stage recorder at site 2.5 miles upstream at different datum.

AVERAGE DISCHARGE.--63 years, 2,364 cfs (1,713,000 acre-ft per year), including diversions to Madera Canal, 1944-70, Friant-Kern Canal, 1949-70, and adjusted for change in contents and evaporation from Millerton Lake 1941-70.

EXTREMES.--Current year: Maximum discharge, 1,960 cfs Feb. 4 (gage height, 5.34 ft); minimum daily, 36 cfs Nov. 5.

Period of record: Maximum discharge, 77,200 cfs Dec. 11, 1937 (gage height, 23.8 ft, site and datum then in use); minimum, 38 cfs (regulated) July 29, 1940. Maximum discharge since construction of Friant Dam in 1941, 12,400 cfs June 6, 1969; minimum, 5.5 cfs Oct. 20, 1941.

REMARKS.--Records good. Flow regulated by Millerton Lake beginning in 1941 (see sta 11250100) and by other reservoirs described in REMARKS for San Joaquin River below Kerckhoff powerhouse. Diversion for irrigation through Madera and Friant-Kern Canals (see sta 11249500, 11250000).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	41	47	42	492	116	83	62	90	83	88	80
2	73	39	46	42	492	155	83	60	90	82	88	80
3	63	39	46	44	935	76	68	58	87	83	90	82
4	49	38	46	44	1,760	89	54	60	85	83	90	97
5	49	36	47	44	1,950	138	54	68	85	82	90	88
6	49	39	49	44	1,940	95	54	92	85	80	88	82
7	49	39	47	46	1,940	85	55	92	85	80	88	80
8	47	39	49	46	1,940	82	55	90	82	80	88	80
9	49	39	49	47	1,780	76	55	90	78	88	90	80
10	49	38	49	47	1,000	73	55	90	78	95	88	80
11	49	39	50	49	233	68	55	92	78	95	88	78
12	49	39	49	49	50	66	57	92	80	102	95	80
13	47	39	49	47	49	65	58	92	78	108	104	78
14	47	39	50	60	50	63	58	90	78	112	106	78
15	49	39	52	55	49	62	60	90	78	119	106	78
16	49	39	52	187	49	66	58	90	73	121	104	78
17	49	39	44	85	57	60	60	90	68	121	99	71
18	50	39	46	70	54	58	60	90	70	121	95	63
19	50	41	52	58	50	57	60	90	70	121	95	63
20	44	41	50	57	50	55	60	90	75	119	95	63
21	39	41	52	54	49	55	60	92	70	119	95	63
22	38	41	49	65	47	55	60	92	68	117	94	63
23	38	41	47	336	42	54	60	92	68	108	94	63
24	39	41	46	801	42	54	60	92	70	108	88	63
25	41	41	52	966	42	54	60	92	76	108	83	65
26	39	41	49	798	42	54	60	90	85	106	83	65
27	39	42	46	502	42	88	62	90	82	102	83	66
28	39	44	46	497	47	168	62	90	82	100	82	65
29	39	46	47	492	-----	200	62	92	82	100	82	60
30	41	46	44	492	-----	175	62	90	83	100	82	55
31	39	-----	42	492	-----	126	-----	90	-----	95	82	-----
TOTAL	1,464	1,205	1,489	6,658	15,273	2,688	1,810	2,670	2,359	3,138	2,823	2,187
MEAN	47.2	40.2	48.0	215	545	86.7	60.3	86.1	78.6	101	91.1	72.9
MAX	73	46	52	966	1,950	200	83	92	90	121	106	97
MIN	38	36	42	42	42	54	54	58	68	80	82	55
AC-FT	2,900	2,390	2,950	13,210	30,290	5,330	3,590	5,300	4,680	6,220	5,600	4,340
MEAN a	1,099	1,417	1,527	2,763	2,454	2,563	2,208	2,731	2,630	2,376	1,913	1,503
AC-FT a	67,590	84,340	93,890	169,900	136,300	157,600	131,400	167,900	156,500	146,100	117,600	89,440
CAL YR 1969 TOTAL	1,112,060	MEAN 3,047	MAX 12,400	MIN 36	AC-FT 2,206,000	MEAN a 5,432	AC-FT a 3,933,000					
WTR YR 1970 TOTAL	43,764	MEAN 120	MAX 1,950	MIN 36	AC-FT 86,810	MEAN a 2,098	AC-FT a 1,519,000					

a Adjusted for change in contents and evaporation in Millerton Lake and for diversions to Madera and Friant-Kern Canals.

## SAN JOAQUIN RIVER BASIN

## 11253310 CANTUA CREEK NEAR CANTUA CREEK, CALIF.

LOCATION.--Lat 36°24'08", long 120°25'57", in SE $\frac{1}{4}$  sec.34, T.17 S., R.14 E., Fresno County, on left bank 9.2 miles southwest of town of Cantua Creek and 19 miles north of Coalinga.

DRAINAGE AREA.--46.4 sq mi.

PERIOD OF RECORD.--Water years 1958-66 (annual maximum), October 1966 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 680 ft (from topographic map). Prior to Sept. 16, 1966, crest-stage gage at datum 2.00 ft lower.

EXTREMES.--Current year: Maximum discharge, 108 cfs Mar. 1 (gage height, 2.97 ft); no flow for several months. Period of record: Maximum discharge, 1,920 cfs Feb. 24, 1969 (gage height, 6.60 ft), from rating curve extended above 170 cfs on basis of slope-area measurements at gage heights 4.57, 6.04, and 6.60 ft; no flow for several months in each year.

REMARKS.--Records good. Some small dams for stock use above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.30	.62	.80	1.2	64	1.7	.72	.04			
2	0	.30	.62	.80	1.1	20	1.7	.70	.03			
3	0	.30	.62	.80	1.1	8.5	1.7	.70	.02			
4	.01	.30	.62	.80	1.2	13	1.7	.68	.01			
5	.03	.30	.62	.74	1.1	13	1.5	.66	0			
6	.04	.62	.62	.74	1.1	9.5	1.5	.64	0			
7	.05	.92	.68	.74	1.0	6.6	.98	.64	.01			
8	.06	.68	.68	.68	1.0	5.8	.98	.62	.02			
9	.07	.62	.74	.94	1.0	5.3	.68	.62	.04			
10	.08	.62	.74	5.7	1.8	5.0	.62	.60	.02			
11	.09	.56	.68	3.4	1.5	4.8	.62	.62	.02			
12	.09	.50	.62	4.0	1.2	4.0	.68	.68	.02			
13	.09	.50	.68	1.9	1.4	4.0	.80	.68	.02			
14	.09	.50	.68	1.9	1.8	3.6	.92	.62	.02			
15	.15	.56	.68	5.8	1.7	3.3	1.0	.50	.01			
16	.17	.56	.68	15	1.3	3.0	.98	.42	0			
17	.17	.50	.68	6.0	1.2	2.8	1.3	.34	0			
18	.20	.56	.62	3.6	1.2	2.6	.98	.34	0			
19	.20	.56	.62	2.6	1.2	2.8	.95	.34	0			
20	.20	.56	.56	2.8	1.2	2.6	.92	.38	0			
21	.23	.56	.62	2.1	1.2	2.6	.90	.34	0			
22	.23	.56	.68	1.9	1.1	2.6	.88	.34	0			
23	.23	.56	.74	1.7	1.1	2.4	.86	.30	0			
24	.23	.62	.74	1.5	1.1	2.3	.84	.25	0			
25	.26	.62	.74	1.7	1.0	2.1	.82	.22	0			
26	.26	.62	.86	1.5	.92	1.9	.80	.19	0			
27	.26	.62	.86	1.4	.98	1.9	.82	.15	0			
28	.26	.62	.86	1.3	6.9	1.9	.80	.12	0			
29	.26	.56	.80	1.3	-----	1.8	.76	.10	0			
30	.30	.56	.80	1.3	-----	1.8	.74	.08	0			
31	.30	-----	.80	1.4	-----	1.8	-----	.06	-----			-----
TOTAL	4.61	16.22	21.56	76.84	39.60	207.3	30.43	13.65	.28	0	0	0
MEAN	.15	.54	.70	2.48	1.41	6.69	1.01	.44	.009	0	0	0
MAX	.30	.92	.86	15	6.9	64	1.7	.72	.04	0	0	0
MIN	0	.30	.56	.68	.92	1.8	.62	.06	0	0	0	0
AC-FT	9.1	32	43	152	79	411	60	27	.6	0	0	0

CAL YR 1969 TOTAL 4,617.22 MEAN 12.6 MAX 537 MIN 0 ACFT 9,160  
WAT YR 1970 TOTAL 410.49 MEAN 1.12 MAX 64 MIN 0 ACFT 814

PEAK DISCHARGE (BASE, 50 CFS).--Mar. 1 (0700) 108 cfs (2.97 ft); Mar. 4 (1900) 59 cfs (2.69 ft).



## 11255500 PANOCHE CREEK BELOW SILVER CREEK, NEAR PANOCHE, CALIF.

LOCATION.--Lat 36°37'08", long 120°40'22", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.16, T.15 S., R.12 E., Fresno County, on right bank 1.1 miles downstream from Silver Creek, 9 miles east of Panoche, and 18 miles southwest of Mendota.

DRAINAGE AREA.--293 sq mi.

PERIOD OF RECORD.--October 1949 to September 1953, October 1958 to September 1970 (discontinued as a continuous-record station; converted to a crest-stage partial-record station).

GAGE.--Water-stage recorder. Datum of gage is 558.26 ft above mean sea level.

AVERAGE DISCHARGE.--16 years, 2.56 cfs (1,850 acre-ft per year); median of yearly mean discharges, 0.5 cfs (360 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 58 cfs Mar. 4 (gage height, 2.07 ft); no flow for several months. Period of record: Maximum discharge, 5,400 cfs Feb. 24, 1969 (gage height, 8.42 ft), from rating curve extended above 1,500 cfs on basis of slope-area measurement of maximum flow; no flow for several months in each year. Flood of Apr. 2, 1958, reached a stage of 7.01 ft (discharge, 5,090 cfs, by slope-area measurement).

REMARKS.--Records poor except those for March through September, which are fair. Some small dams for stock use above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	0	.22	.24	16	.14	.07	.02			
2	0	0	0	.21	.21	10	.14	.06	.02			
3	0	0	0	.20	.16	3.4	.14	.05	.02			
4	0	0	0	.18	.10	7.9	.12	.05	.01			
5	0	.05	0	.16	.06	22	.10	.05	.01			
6	0	.14	0	.15	.02	5.0	.12	.05	.02			
7	0	.07	0	.14	0	4.4	.10	.05	.02			
8	0	.04	.20	.40	0	4.2	.08	.05	.02			
9	0	.02	.16	1.4	0	3.9	.07	.05	.03			
10	0	.01	.13	1.3	.28	3.4	.07	.05	.03			
11	0	0	.11	2.0	.26	2.9	.07	.05	.03			
12	0	0	.09	1.7	.22	2.6	.07	.05	.02			
13	0	0	.08	1.4	.32	2.3	.07	.05	.03			
14	0	0	.06	1.3	.27	1.8	.12	.05	.03			
15	.10	0	.04	2.8	.22	1.3	.18	.05	.03			
16	.04	0	.03	2.2	.20	1.0	.20	.05	.02			
17	.01	0	.02	2.0	.17	.72	.20	.04	.02			
18	0	0	.01	1.7	.12	.57	.18	.04	.02			
19	0	0	.11	1.7	.09	.43	.08	.04	.02			
20	0	0	.10	1.6	.07	.36	.07	.03	.02			
21	0	0	.45	1.5	.04	.33	.07	.03	.02			
22	0	0	.30	1.3	.02	.30	.08	.03	.01			
23	0	0	.20	1.0	.01	.27	.08	.03	0			
24	0	0	.06	.92	0	.24	.08	.03	0			
25	0	0	.40	.85	0	.22	.07	.03	.02			
26	0	0	.34	.67	0	.16	.07	.03	.02			
27	0	0	.30	.56	0	.14	.12	.03	.02			
28	0	0	.28	.47	0	.14	.18	.03	.02			
29	0	0	.26	.40	-----	.14	.16	.03	.01			
30	0	0	.24	.34	-----	.14	.10	.02	.01			
31	0	-----	.23	.29	-----	.16	-----	.02	-----			
TOTAL	.15	.33	4.20	31.06	3.08	96.42	3.33	1.29	.57	0	0	0
MEAN	.005	.011	.14	1.00	.11	3.11	.11	.042	.019	0	0	0
MAX	.10	.14	.45	2.8	.32	22	.20	.07	.03	0	0	0
MIN	0	0	0	.14	0	.14	.07	.02	0	0	0	0
AC-FT	.3	.7	8.3	62	6.1	191	6.6	2.6	1.1	0	0	0

CAL YR 1969 TOTAL 6,062.24 MEAN 16.6 MAX 1,690 MIN 0 AC-FT 12,020  
WAT YR 1970 TOTAL 140.43 MEAN .38 MAX 22 MIN 0 AC-FT 279

NOTE.--No gage-height record Oct. 1 to Jan. 21, Jan. 27 to Feb. 28.

## SAN JOAQUIN RIVER BASIN

## 11257100 MIAMI CREEK NEAR OAKHURST, CALIF.

LOCATION.--Lat 37°23'37", long 119°39'12", in NE¼SE¼ sec.22, T.6 S., R.21 E., Madera County, Sierra National Forest, on left bank 200 ft downstream from county road bridge, and 4.6 miles north of Oakhurst.

DRAINAGE AREA.--10.6 sq mi.

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,500 ft (from topographic map).

AVERAGE DISCHARGE.--10 years, 8.87 cfs (6,430 acre-ft per year); median of yearly mean discharges, 6.5 cfs (4,700 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 478 cfs Jan. 16 (gage height, 7.36 ft); minimum daily, 0.70 cfs Sept. 29.

Period of record: Maximum discharge, 804 cfs Feb. 1, 1963 (gage height, 9.08 ft); no flow for many days in most years.

REMARKS.--No known diversions above station.

COOPERATION.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

REVISIONS (WATER YEARS).--WRD Calif. 1967: 1963(M).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	3.9	3.8	5.5	13	54	11	8.8	4.7	3.4	1.8	1.0
2	2.7	3.9	4.3	5.2	12	39	11	8.3	4.5	3.3	1.7	1.0
3	2.8	3.8	5.1	5.3	12	27	10	7.9	4.4	3.2	1.7	1.0
4	2.8	3.7	4.3	6.6	11	23	10	7.6	4.3	3.2	1.6	.90
5	2.8	3.9	4.2	6.6	10	21	9.8	7.2	4.3	3.0	1.6	.90
6	2.8	12	4.1	6.5	10	21	9.7	7.1	4.2	2.8	1.6	1.1
7	2.8	9.1	4.1	4.8	9.6	21	9.4	7.2	4.2	2.7	1.6	1.2
8	2.8	7.0	4.5	5.2	9.2	20	9.3	7.2	4.7	2.8	1.5	1.1
9	2.9	6.1	4.6	9.6	9.0	18	9.2	7.1	10	2.8	1.5	1.1
10	3.0	5.5	4.5	42	9.2	18	9.1	6.9	7.5	2.9	1.4	1.0
11	3.2	5.2	4.5	15	9.2	17	8.9	6.7	6.8	2.7	1.3	.90
12	3.1	5.0	4.5	13	11	16	8.6	6.6	6.4	2.6	1.3	.90
13	3.1	4.9	4.4	13	16	17	9.1	6.5	6.7	2.5	1.2	.90
14	3.1	4.8	4.2	42	18	17	9.9	6.6	6.6	2.4	1.3	1.0
15	6.5	5.0	4.1	28	15	17	9.6	6.4	6.6	2.3	1.2	1.1
16	25	5.5	3.8	257	13	17	10	6.1	6.1	2.3	1.2	1.0
17	11	5.8	3.6	93	23	16	9.7	5.9	5.8	2.3	1.2	.90
18	7.0	5.7	3.7	37	16	16	11	5.7	5.6	2.2	1.2	.90
19	5.9	4.4	6.4	26	14	14	10	5.6	5.4	2.1	1.2	.90
20	5.4	4.3	9.1	24	12	14	7.0	5.6	5.0	2.1	1.2	.90
21	4.9	4.3	11	40	12	13	8.3	5.6	4.7	2.0	1.1	.90
22	4.6	4.3	11	29	12	13	9.8	5.5	4.0	2.0	1.1	.90
23	4.2	4.1	7.4	21	11	13	10	5.3	3.5	2.0	1.1	.90
24	4.2	4.1	6.7	38	11	13	9.8	5.1	3.4	2.0	1.1	.90
25	4.1	4.0	22	23	11	13	9.1	5.1	3.4	1.9	1.0	.80
26	4.1	4.0	13	19	11	13	9.2	5.1	3.5	1.8	1.1	.80
27	4.2	3.9	8.9	27	11	12	9.8	5.1	5.1	1.8	1.1	.80
28	4.2	3.9	7.7	21	19	11	9.3	5.1	4.3	1.7	1.0	.80
29	4.3	3.9	6.9	17	-----	12	9.1	5.0	3.9	1.7	1.1	.70
30	4.1	3.9	6.4	15	-----	11	9.4	4.9	3.7	1.7	1.0	.80
31	3.9	-----	5.9	14	-----	11	-----	4.9	-----	1.8	1.0	-----
TOTAL	148.2	149.9	198.7	909.3	350.2	558	286.1	193.7	153.3	74.0	40.0	28.00
MEAN	4.78	5.00	6.41	29.3	12.5	18.0	9.54	6.25	5.11	2.39	1.29	.93
MAX	25	12	22	257	23	54	11	8.8	10	3.4	1.8	1.2
MIN	2.7	3.7	3.6	4.8	9.0	11	7.0	4.9	3.4	1.7	1.0	.70
AC-FT	294	297	394	1,800	695	1,110	567	384	304	147	79	56
CAL YR 1969	TOTAL 8,326.60		MEAN 22.8		MAX 363		MIN 2.7		ACFT 16,520			
WAT YR 1970	TOTAL 3,089.40		MEAN 8.46		MAX 257		MIN .70		ACFT 6,130			

## 11257500 FRESNO RIVER NEAR KNOWLES, CALIF.

LOCATION.--Lat 37°14'14", long 119°46'26", in SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.15, T.8 S., R.20 E., Madera County, on left bank at Fresno Crossing, 0.1 mile downstream from Bean Gulch, and 6 miles northeast of Knowles.

DRAINAGE AREA.--133 sq mi.

PERIOD OF RECORD.--September 1911 to August 1913, November 1915 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,086.4 ft above mean sea level (river-profile survey). Prior to June 13, 1930, nonrecording gage 10 ft upstream and June 13, 1930, to Jan. 13, 1931, water-stage recorder at site 40 ft upstream at datum 0.34 ft lower.

AVERAGE DISCHARGE.--55 years (1911-12, 1916-70), 80.4 cfs (58,250 acre-ft per year); median of yearly mean discharges, 62 cfs (44,900 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 3,440 cfs Jan. 16 (gage height, 6.46 ft); minimum daily, 1.6 cfs Aug. 13, 14, 16.

Period of record: Maximum discharge, 13,300 cfs Dec. 23, 1955 (gage height, 11.52 ft), from rating curve extended above 2,500 cfs on basis of slope-area measurement of maximum flow; no flow at times in some years.

REMARKS.--Records good. Diversions for irrigation of 160 acres above station. Diversions into Fresno River basin above station of up to 80 cfs at times since 1897 from the San Joaquin River basin and up to 60 cfs at times since 1888 from the Merced River basin. Diversions are for irrigation downstream from station.

## DISCHARGE, IN CUBIC FEET PER SEC,ND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	22	24	38	114	597	100	110	79	33	4.3	2.5
2	13	22	24	36	104	631	100	109	75	31	4.4	2.3
3	13	22	25	34	98	300	99	109	70	30	4.1	2.2
4	13	22	26	31	94	290	98	107	69	30	3.8	2.8
5	13	22	25	29	84	372	96	107	65	29	3.5	2.5
6	14	39	25	28	75	256	95	107	63	27	3.7	2.6
7	14	62	25	34	73	225	94	108	60	25	3.2	2.8
8	14	38	25	35	70	208	93	112	60	24	2.1	2.9
9	14	33	28	41	67	193	93	110	103	22	2.1	2.7
10	15	30	28	212	65	190	101	109	88	23	2.4	2.6
11	15	30	27	133	68	172	101	108	73	22	2.7	2.6
12	14	30	26	95	72	158	100	107	68	21	2.0	2.6
13	15	29	26	93	90	155	106	104	70	21	1.6	2.5
14	16	30	26	213	200	155	125	104	70	20	1.6	2.5
15	23	29	26	285	143	154	114	104	73	18	2.2	2.7
16	98	28	25	1,810	120	150	111	105	63	17	1.6	2.8
17	116	27	25	949	249	148	106	103	58	17	1.9	3.2
18	62	27	24	381	169	143	106	100	54	16	2.0	3.0
19	46	26	27	240	142	132	107	101	51	9.0	2.0	2.8
20	37	26	53	212	124	127	102	100	48	7.7	2.5	2.7
21	31	26	57	250	114	125	99	99	45	6.3	2.7	2.7
22	30	26	109	249	106	125	108	97	43	5.7	2.9	3.1
23	27	25	58	185	102	123	108	96	40	5.8	2.7	3.0
24	27	25	45	234	99	121	104	94	38	5.9	2.6	2.9
25	27	25	103	195	93	122	101	91	36	6.2	2.5	3.2
26	27	26	146	162	90	124	101	90	37	6.2	2.3	2.9
27	25	25	78	201	89	121	114	89	40	5.9	1.9	2.8
28	25	25	53	189	130	114	105	88	45	5.0	2.5	2.7
29	25	24	46	151	-----	114	102	86	38	4.7	2.4	2.7
30	25	23	43	133	-----	112	101	85	36	4.8	2.3	2.7
31	24	-----	40	120	-----	105	-----	81	-----	4.4	2.5	-----
TOTAL	871	844	1,318	6,998	3,044	6,062	3,090	3,120	1,758	503.6	81.0	82.0
MEAN	28.1	28.1	42.5	226	109	196	103	101	58.6	16.2	2.61	2.73
MAX	116	62	146	1,810	249	631	125	112	103	33	4.4	3.2
MIN	13	22	24	28	65	105	93	81	36	4.4	1.6	2.2
AC-FT	1,730	1,670	2,610	13,880	6,040	12,020	6,130	6,190	3,490	999	161	163
CAL YR 1969	TOTAL 91,073		MEAN 250		MAX 3,240		MIN 12		AC-FT 180,600			
WTR YR 1970	TOTAL 27,771.6		MEAN 76.1		MAX 1,810		MIN 1.6		AC-FT 55,080			

## PEAK DISCHARGE (BASE, 590 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-14	2300	2.98	635	3- 2	0015	3.99	1,220
1-16	1345	6.46	3,440				

## SAN JOAQUIN RIVER BASIN

## 11258000 FRESNO RIVER NEAR DAULTON, CALIF.

LOCATION.--Lat 37°05'51", long 119°53'19", in NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.3, T.10 S., R.19 E., Madera County, on left bank 0.4 mile downstream from Willow Creek and 5.3 miles southeast of Daulton.

DRAINAGE AREA.--258 sq mi.

PERIOD OF RECORD.--October 1941 to current year.

GAGE.--Water-stage recorder. Datum of gage is 382.37 ft above mean sea level. October 1941 to Sept. 27, 1946, at site 300 ft downstream and Sept. 28, 1946, to Sept. 28, 1949, at present site, at datum 3.37 ft higher. Sept. 29, 1949, to Mar. 19, 1963, at datum 1.00 ft higher.

AVERAGE DISCHARGE.--29 years, 108 cfs (78,250 acre-ft per year); median of yearly mean discharges, 75 cfs (54,300 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 4,420 cfs Jan. 16 (gage height, 7.80 ft); no flow Aug. 19-21. Period of record: Maximum discharge, 17,500 cfs Dec. 23, 1955 (gage height, 12.64 ft, present datum), from rating curve extended above 6,400 cfs on basis of slope-area measurement at gage height 12.69 ft; maximum gage height, 12.69 ft Feb. 24, 1969; no flow at times in most years. Flood of Mar. 3, 1938, reached a discharge of 15,000 cfs (furnished by Bureau of Reclamation).

REMARKS.--Records good. No diversion for irrigation between this station and station near Knowles. Some regulation at low flow by mining operations above station. See REMARKS for station near Knowles.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	25	22	53	132	652	118	115	82	37	2.0	.56
2	11	24	22	45	122	1,400	111	115	79	33	1.9	.75
3	11	23	28	42	111	559	111	113	76	32	1.9	.71
4	11	24	31	40	108	488	110	109	72	31	1.8	.65
5	11	24	30	37	101	937	108	109	70	30	1.7	.67
6	11	30	26	33	94	524	110	108	68	26	1.5	1.2
7	11	58	22	33	89	414	108	107	66	24	1.5	.64
8	13	49	24	35	86	358	108	111	64	23	1.7	.75
9	13	38	27	43	81	318	104	115	66	22	1.0	1.1
10	13	38	31	174	81	293	109	115	84	22	.66	1.1
11	13	33	32	195	91	264	112	110	85	22	.40	.78
12	14	31	28	133	86	235	112	107	78	22	.43	.60
13	14	30	26	112	118	220	110	106	73	22	.54	.66
14	14	32	26	176	248	213	136	106	72	20	.31	.76
15	16	30	24	511	186	210	131	105	71	19	.18	.71
16	39	28	23	2,330	142	204	125	102	70	17	.07	.84
17	124	31	24	1,650	290	192	120	99	67	15	.20	1.0
18	78	26	23	684	254	184	116	97	63	13	.03	1.2
19	58	27	27	374	186	172	116	95	60	11	0	1.4
20	49	26	43	293	152	159	115	97	56	5.7	0	1.3
21	40	26	67	263	132	154	108	98	54	3.9	0	1.3
22	35	27	103	313	120	150	112	97	52	3.3	.20	1.2
23	33	25	88	240	113	147	114	94	48	2.8	.65	1.4
24	36	24	61	263	108	145	112	91	45	2.6	.83	1.5
25	37	24	66	273	100	145	109	90	41	2.6	.79	1.5
26	35	25	189	212	95	146	107	89	38	2.8	.75	1.6
27	29	29	113	208	94	142	119	87	41	2.9	.76	1.5
28	30	26	76	271	112	133	117	85	47	2.8	.65	1.4
29	27	24	60	194	-----	130	114	85	44	2.4	.41	1.3
30	26	23	55	164	-----	128	110	85	40	2.1	.39	1.2
31	26	-----	55	146	-----	126	-----	83	-----	2.1	.46	-----
TOTAL	889	880	1,472	9,540	3,632	9,542	3,412	3,125	1,872	477.0	23.71	31.28
MEAN	28.7	29.3	47.5	308	130	308	114	101	62.4	15.4	.76	1.04
MAX	124	58	189	2,330	290	1,400	136	115	85	37	2.0	1.6
MIN	11	23	22	33	81	126	104	83	38	2.1	0	.56
AC-FT	1,760	1,750	2,920	18,920	7,200	18,930	6,770	6,200	3,710	946	47	62

CAL YR 1969 TOTAL 135,597 MEAN 371 MAX 7,250 MIN 11 AC-FT 269,000  
WTR YR 1970 TOTAL 34,895.99 MEAN 95.6 MAX 2,330 MIN 0 AC-FT 69,220

## PEAK DISCHARGE (BASE, 600 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-15	0500	3.75	791	3- 2	0330	5.84	2,280
1-16	1715	7.80	4,420	3- 5	0330	4.61	1,290

## 11258900 WEST FORK CHOWCHILLA RIVER NEAR MARIPOSA, CALIF.

LOCATION.--Lat 37°25'14", long 119°52'25", in SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.10, T 6 S., R.19 E., Mariposa County, on left bank 15 ft downstream from bridge on Indian Peak Road, 0.5 mile downstream from Humbug Creek, and 6.7 miles southeast of Mariposa.

DRAINAGE AREA.--33.6 sq mi.

PERIOD OF RECORD.--October 1957 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,680 ft (from topographic map).

AVERAGE DISCHARGE.--13 years, 18.9 cfs (13,690 acre-ft per year); median of yearly mean discharges, 14.5 cfs (10,500 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 2,220 cfs Jan. 16 (gage height, 7.79 ft); no flow many days.  
Period of record: Maximum discharge, 4,350 cfs Jan. 25, 1969 (gage height, 8.93 ft in gage well, 11.1 ft, from floodmarks); no flow many days in each year.

REMARKS.--No known diversions above station.

COOPERATION.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.80	1.3	3.5	20	401	14	9.4	2.3	.90		
2	0	.80	1.3	3.1	18	147	14	9.1	2.1	.70		
3	0	.80	1.4	2.9	16	74	14	8.8	1.9	.60		
4	0	.80	1.4	2.9	16	134	14	8.5	1.7	.50		
5	0	1.0	1.4	2.8	14	127	12	7.8	1.5	.40		
6	0	5.0	1.4	2.6	13	74	12	7.5	1.4	.30		
7	0	6.3	1.4	2.6	12	63	12	7.5	1.3	.20		
8	0	2.6	1.6	3.1	12	57	12	7.5	1.9	.20		
9	0	1.9	1.8	10	11	51	11	7.3	14	.20		
10	0	1.7	1.7	82	13	54	11	6.8	5.9	.20		
11	0	1.5	1.7	24	14	45	12	6.6	3.6	.20		
12	0	1.4	1.6	20	18	41	11	6.6	2.9	.20		
13	0	1.3	1.6	17	38	38	14	6.8	2.7	.10		
14	0	1.3	1.6	125	68	35	21	6.4	2.7	.10		
15	.20	1.3	1.5	57	33	33	16	5.9	2.7	0		
16	8.0	1.4	1.5	946	26	32	14	5.3	2.3	0		
17	5.3	1.3	1.5	139	94	30	13	4.8	2.0	0		
18	2.1	1.3	1.5	62	38	28	12	4.4	1.8	0		
19	1.6	1.3	3.7	38	30	25	11	4.2	1.6	0		
20	1.3	1.3	5.7	33	26	25	11	4.6	1.4	0		
21	1.1	1.3	8.8	77	22	23	12	4.6	1.2	0		
22	1.0	1.3	14	47	20	22	12	4.4	1.0	0		
23	.90	1.3	5.1	33	18	22	10	4.1	.90	0		
24	.80	1.3	3.9	60	17	21	12	3.8	.80	0		
25	.90	1.3	41	35	16	20	12	3.5	.90	0		
26	.90	1.3	17	29	15	20	12	3.2	1.1	0		
27	.90	1.3	7.5	63	15	19	15	3.2	1.7	0		
28	.90	1.3	5.1	42	42	17	12	3.2	1.4	0		
29	.90	1.3	4.6	31	-----	18	11	3.1	1.2	0		
30	.90	1.3	3.9	26	-----	17	10	2.9	1.1	0		
31	.80	-----	3.6	21	-----	16	-----	2.7	-----	0		-----
TOTAL	28.50	48.10	151.1	2,040.5	695	1,729	379	174.5	69.00	4.80	0	0
MEAN	.92	1.60	4.87	65.8	24.8	55.8	12.6	5.63	2.30	.15	0	0
MAX	8.0	6.3	41	946	94	401	21	9.4	14	.90	0	0
MIN	0	.80	1.3	2.6	11	16	10	2.7	.80	0	0	0
AC-FT	57	95	300	4,050	1,380	3,430	752	346	137	9.5	0	0
CAL YR 1969	TOTAL	21,230.40	MEAN	58.2	MAX	1,720	MIN	0	ACFT	42,110		
WAT YR 1970	TOTAL	5,319.50	MEAN	14.6	MAX	946	MIN	0	ACFT	10,550		

## SA JOAQUIN RIVER BASIN

11259000 CHOWCHILLA RIVER AT BUCHANAN DAMSITE, NEAR RAYMOND, CALIF.

LOCATION.--Lat 37°13'02", long 119°59'03", in SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.22, T.8 S., R.18 E., Madera County, on right bank 1.9 miles upstream from Raynor Creek and 4.3 miles west of Raymond.

DRAINAGE AREA.--235 sq mi.

PERIOD OF RECORD.--October 1921 to September 1923, October 1930 to current year. Prior to Oct. 1, 1962, published as "at Buchanan damsite."

GAGE.--Water-stage recorder. Datum of gage is 407.32 ft above mean sea level. October 1921 to September 1923, at site 2.5 miles upstream at different datum.

AVERAGE DISCHARGE.--42 years (1921-23, 1930-70), 101 cfs (73,170 acre-ft per year); median of yearly mean discharges, 78 cfs (56,500 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 8,700 cfs Jan. 16 (gage height, 11.28 ft); no flow many days. Period of record: Maximum discharge, 30,000 cfs Dec. 23, 1955 (gage height, 16.50 ft), from rating curve extended above 6,000 cfs on basis of slope-area measurement at gage height 15.06 ft; no flow for part of each year except 1937-38, 1940-43.

REMARKS.--Records excellent. No storage or large diversion above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	10	12	23	108	1,050	80	51	13	7.0	.06	0
2	1.7	9.9	12	21	101	1,330	77	48	11	6.1	.05	0
3	1.8	9.8	12	20	93	468	76	45	10	5.3	.05	0
4	1.8	9.6	13	20	88	482	74	43	9.1	4.5	.05	0
5	1.9	9.8	13	19	84	1,160	70	41	8.2	3.7	.04	0
6	2.0	16	13	18	78	504	68	38	7.7	3.0	.03	0
7	2.1	39	13	18	75	382	66	38	7.3	2.6	.02	0
8	2.3	36	13	20	72	329	64	39	7.3	2.2	.02	0
9	2.4	23	14	25	69	287	63	39	17	1.8	.02	0
10	2.6	18	16	230	70	275	61	38	42	1.7	.01	0
11	2.7	16	16	144	79	247	60	37	27	1.5	.01	0
12	2.9	14	15	105	76	212	58	36	19	1.3	.01	0
13	3.0	13	14	99	144	192	58	35	15	1.2	0	0
14	3.2	13	14	240	340	178	76	33	14	1.0	0	0
15	4.5	14	14	555	190	168	76	32	14	.87	0	0
16	9.6	14	13	4,190	135	161	72	30	14	.72	0	0
17	46	13	13	1,450	354	151	67	28	12	.61	0	0
18	33	13	13	563	250	143	62	25	11	.45	0	0
19	20	12	16	295	171	133	60	24	11	.33	0	0
20	17	12	27	238	148	125	58	23	9.4	.22	0	0
21	14	12	36	259	130	120	57	23	8.4	.16	0	0
22	12	12	52	331	117	115	58	22	7.4	.13	0	0
23	11	13	48	201	108	112	59	21	6.4	.11	0	0
24	10	13	32	239	104	107	57	20	5.8	.10	0	0
25	10	13	35	215	97	104	54	19	5.6	.09	0	0
26	10	13	119	156	91	102	51	18	6.0	.08	0	0
27	11	13	60	172	88	98	52	15	6.6	.08	0	0
28	11	13	40	240	99	90	60	15	7.0	.07	0	0
29	10	13	32	152	-----	89	56	15	8.2	.06	0	0
30	10	13	28	130	-----	88	53	14	7.4	.06	0	0
31	11	-----	25	117	-----	86	-----	13	-----	.06	0	-----
TOTAL	282.2	443.1	793	10,505	3,559	9,088	1,903	918	347.8	47.10	0.37	0
MEAN	9.10	14.8	25.6	339	127	293	63.4	29.6	11.6	1.52	.012	0
MAX	46	39	119	4,190	354	1,330	80	51	42	7.0	.06	0
MIN	1.7	9.6	12	18	69	86	51	13	5.6	.06	0	0
AC-FT	560	879	1,570	20,840	7,060	18,030	3,770	1,820	690	93	.7	0
CAL YR 1969	TOTAL	120,421.8	MEAN	330	MAX	7,010	MIN	1.0	AC-FT	238,900		
WTR YR 1970	TOTAL	27,886.57	MEAN	76.4	MAX	4,190	MIN	0	AC-FT	55,310		

## PEAK DISCHARGE (BASE, 770 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-15	0100	6.12	1,250	3- 2	0130	7.83	2,820
1-16	1515	11.28	8,700	3- 5	0400	7.07	2,030

## 11260480 MARIPOSA CREEK NEAR CATHEYS VALLEY, CALIF.

LOCATION.--Lat 37°23'56", long 120°00'10", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.21, T.6 S., R.18 E., Mariposa County, on downstream side of bridge on White Rock Road, 0.3 mile downstream from China Gulch, and 5.7 miles southeast of town of Catheys Valley.

DRAINAGE AREA.--65.7 sq mi.

PERIOD OF RECORD.--October 1958 to current year. Prior to October 1963, published as "near Cathay."

GAGE.--Water-stage recorder. Altitude of gage is 1,230 ft (from topographic map).

AVERAGE DISCHARGE.--12 years, 29.5 cfs (21,370 acre-ft per year); median of yearly mean discharges, 19 cfs (13,800 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 4,790 cfs Jan. 16 (gage height, 10.37 ft); no flow many days.

Period of record: Maximum discharge, 7,460 cfs Feb. 24, 1969 (gage height, 11.63 ft); no flow many days in each year.

Flood of Apr. 3, 1958, reached a stage of 11.62 ft (discharge, 7,180 cfs).

REMARKS.--Probably minor diversions above the station for irrigation.

COOPERATION.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	1.8	2.8	7.1	38	1,010	17	8.4	2.8	.90		
2	0	1.8	2.8	6.8	32	405	17	8.1	2.6	.70		
3	0	1.7	2.9	6.4	29	166	16	7.8	2.5	.70		
4	0	1.7	2.8	6.4	27	392	15	7.6	2.2	.60		
5	0	2.0	2.8	6.2	25	410	14	7.8	2.1	.50		
6	0	16	2.8	5.7	23	190	14	7.3	1.9	.40		
7	0	24	2.9	5.7	21	132	14	7.1	1.9	.40		
8	0	6.8	3.0	6.8	19	109	13	7.3	2.2	.30		
9	0	4.4	3.7	15	18	89	13	7.1	10	.20		
10	0	3.4	3.4	214	20	84	12	6.4	6.4	.20		
11	0	2.9	3.0	62	23	67	12	6.2	4.4	.20		
12	0	2.6	3.0	60	22	58	12	5.9	3.5	.10		
13	0	2.6	3.2	56	41	51	14	5.9	3.0	.10		
14	0	2.6	3.0	396	110	46	18	5.7	2.9	.10		
15	0	2.6	3.0	145	52	43	13	5.5	2.6	0		
16	10	2.6	3.0	2,270	40	39	12	5.1	2.6	0		
17	8.4	2.5	3.0	320	207	37	12	4.9	2.4	0		
18	4.0	2.5	3.0	144	89	34	11	4.7	2.1	0		
19	2.8	2.4	6.0	90	63	31	11	4.5	1.7	0		
20	2.4	2.4	22	77	50	29	10	4.5	1.3	0		
21	2.2	2.5	29	197	41	28	11	4.4	1.1	0		
22	2.0	2.6	43	129	35	26	12	4.2	1.0	0		
23	1.9	2.6	13	83	31	25	10	4.2	.90	0		
24	1.9	2.6	9.2	111	28	24	10	3.8	.90	0		
25	1.9	2.6	82	74	25	23	9.8	3.5	.90	0		
26	1.9	2.6	40	58	24	23	9.8	3.4	.90	0		
27	2.0	2.6	18	123	22	21	10	3.2	1.2	0		
28	1.9	2.8	12	86	48	19	9.2	3.2	1.4	0		
29	1.9	2.8	9.8	62	-----	19	9.2	3.2	1.2	0		
30	1.9	2.8	8.6	50	-----	19	8.9	3.2	1.0	0		
31	1.8	-----	7.6	43	-----	18	-----	3.0	-----	0		-----
TOTAL	48.9	115.8	354.3	4,916.1	1,203	3,667	369.9	167.1	71.60	5.40	0	0
MEAN	1.58	3.86	11.4	159	43.0	118	12.3	5.39	2.39	.17	0	0
MAX	10	24	82	2,270	207	1,010	18	8.4	10	.90	0	0
MIN	0	1.7	2.8	5.7	18	18	8.9	3.0	.90	0	0	0
AC-FT	97	230	703	9,750	2,390	7,270	734	331	142	11	0	0
CAL YR 1969	TOTAL	36,854.80	MEAN	101	MAX	3,510	MIN	0	ACFT	73,100		
WAT YR 1970	TOTAL	10,919.10	MEAN	29.9	MAX	2,270	MIN	0	ACFT	21,660		

## SAN JOAQUIN RIVER BASIN

## 11261500 SAN JOAQUIN RIVER AT FREMONT FORD BRIDGE, CALIF.

LOCATION.--Lat 37°18'36", long 120°55'48", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.24, T.7 S., R.9 E., Merced County, on left bank 30 ft downstream from Fremont Ford bridge, 2.1 miles downstream from Salt Slough, 4.5 miles west of Stevenson, and 6.7 miles upstream from Merced River.

DRAINAGE AREA.--7,615 sq mi.

PERIOD OF RECORD.--March 1937 to September 1970 (discontinued as a continuous-record station; converted to a low flow continuous-record station). Monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. March 1937 to Oct. 1, 1959, at datum 3.77 ft below mean sea level.

AVERAGE DISCHARGE.--33 years, 810 cfs (586,800 acre-ft per year)

EXTREMES.--Current year: Maximum discharge, 3,290 cfs Jan. 19 (elevation, 64.41 ft); minimum daily, 96 cfs July 17.

Period of record: Maximum discharge, 9,180 cfs Feb. 26, 1969 (elevation, 68.05 ft); minimum, 9.5 cfs Oct. 30, 1960.

REMARKS.--Records good. Natural flow of stream affected by storage reservoirs, ground-water withdrawals, diversions for irrigation, and imported water from Delta-Mendota Canal (see sta 11313000). During periods of high flow, water bypasses this station through Mud Slough; low flows consist mainly of return water from irrigated areas. Stage affected at times by backwater from the Merced River. See REMARKS for stations upstream.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	360	170	485	192	2,290	416	328	361	204	166	140	167
2	356	158	450	187	2,070	565	314	347	204	135	134	182
3	367	170	420	178	1,840	1,230	290	339	176	146	151	195
4	347	173	420	183	1,570	2,180	293	323	153	166	159	187
5	324	177	406	205	1,220	2,260	302	297	164	215	158	179
6	310	194	389	212	1,050	2,410	295	262	158	226	137	178
7	295	304	373	216	1,010	2,730	290	223	163	208	125	181
8	279	442	359	217	1,190	2,550	294	225	174	160	142	161
9	286	453	334	227	1,600	2,120	293	230	176	131	176	158
10	289	405	308	233	1,770	1,750	283	249	221	115	183	175
11	301	363	300	251	1,690	1,490	283	300	207	131	187	183
12	303	347	285	392	1,710	1,210	290	320	204	141	192	168
13	309	372	264	520	1,580	1,040	291	304	193	135	171	160
14	302	398	258	535	1,300	881	297	292	197	131	151	159
15	292	403	256	598	1,070	732	317	281	204	121	175	165
16	320	391	238	1,010	1,040	656	345	264	203	112	178	148
17	340	363	226	1,490	1,060	564	349	252	193	96	178	141
18	365	361	220	2,570	985	511	319	249	171	104	206	169
19	405	372	217	3,210	1,160	454	297	248	157	120	186	172
20	360	400	215	3,240	1,170	408	292	241	174	147	155	161
21	307	396	214	3,140	1,030	385	294	239	170	150	140	182
22	260	389	228	3,050	883	469	294	213	185	155	170	188
23	228	392	241	2,840	787	548	284	205	193	123	194	168
24	204	396	243	2,700	678	517	266	180	174	113	194	175
25	192	409	238	2,660	604	398	269	186	139	124	172	168
26	187	429	250	2,680	539	343	285	171	116	126	159	178
27	186	432	254	2,650	456	326	303	181	118	118	153	182
28	188	427	286	2,550	401	303	349	181	147	119	142	158
29	193	429	270	2,380	-----	312	374	194	150	136	148	167
30	190	439	235	2,340	-----	309	369	204	162	123	148	194
31	186	-----	215	2,360	-----	336	-----	193	-----	136	140	-----
TOTAL	8,831	10,554	9,097	45,216	33,753	30,403	9,149	7,754	5,250	4,329	5,044	5,149
MEAN	285	352	293	1,459	1,205	981	305	250	175	140	163	172
MAX	405	453	485	3,240	2,290	2,730	374	361	221	226	206	195
MIN	186	158	214	178	401	303	266	171	116	96	125	141
AC-FT	17,520	20,930	18,040	89,690	66,950	60,300	18,150	15,380	10,410	8,590	10,000	10,210
CAL YR 1969	TOTAL 980,931		MEAN 2,687		MAX 9,110		MIN 158		AC-FT 1,946,000			
WTR YR 1970	TOTAL 174,529		MEAN 478		MAX 3,240		MIN 96		AC-FT 346,200			



11264500 MERCED RIVER AT HAPPY ISLES BRIDGE, NEAR YOSEMITE, CALIF.  
(Hydrologic bench-mark station)

LOCATION.--Lat 37°43'54", long 119°33'28", (unsurveyed), Mariposa County, Yosemite National Park, on right bank 10 ft downstream from footbridge at Happy Isles, 0.4 mile downstream from Illilouette Creek, and 2.0 miles southeast of Yosemite National Park headquarters.

DRAINAGE AREA.--181 sq mi.

PERIOD OF RECORD.--August 1915 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,016.58 ft above mean sea level. Prior to Nov. 2, 1916, nonrecording gage at datum 0.55 ft lower.

AVERAGE DISCHARGE.--55 years, 343 cfs (248,500 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 2,330 cfs May 18 (gage height, 6.37 ft); minimum daily, 4.3 cfs Sept. 30.

Period of record: Maximum discharge, 9,860 cfs Dec. 23, 1955 (gage height, 12.73 ft), from rating curve extended above 4,000 cfs on basis of contracted-opening measurements at gage heights 10.4 and 11.55 ft; minimum, 1.5 cfs Sept. 30, 1926.

REMARKS.--Records excellent. Up to 4 cfs can be diverted above station for Yosemite Valley water supply. Records of chemical analyses, water temperatures, and suspended-sediment loads for the water year 1970 are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	54	26	72	169	166	245	307	1,760	428	104	26
2	23	58	26	63	156	166	250	464	1,740	452	92	24
3	23	62	25	58	152	150	274	700	1,640	496	85	21
4	22	63	22	48	156	146	295	865	1,480	474	78	19
5	22	59	22	46	160	152	345	1,000	1,310	510	78	18
6	20	75	24	46	152	150	440	1,020	1,260	595	78	16
7	20	86	22	51	154	160	478	815	1,170	568	73	14
8	18	88	23	53	164	164	482	795	1,280	492	70	13
9	18	86	22	71	160	154	546	730	1,380	452	68	12
10	17	86	22	96	154	154	655	860	1,070	388	65	11
11	15	88	23	84	154	143	680	790	845	370	61	11
12	15	91	23	79	171	141	618	618	825	345	58	11
13	14	92	23	78	169	156	541	700	760	331	60	11
14	14	90	23	106	162	186	440	1,070	622	331	61	11
15	34	87	23	111	156	198	356	1,230	505	338	59	11
16	265	88	22	592	152	210	324	1,770	492	352	56	10
17	205	73	22	496	158	232	295	1,990	665	295	54	9.6
18	128	62	23	345	145	225	280	2,040	805	262	50	9.0
19	95	60	37	265	139	202	286	1,820	1,030	268	48	8.5
20	80	57	222	245	132	191	271	1,510	1,200	277	46	8.2
21	70	53	304	551	130	198	256	1,400	1,220	268	44	7.6
22	69	48	248	680	127	220	235	1,590	1,230	262	42	7.4
23	74	43	171	448	125	253	225	1,760	1,140	228	39	6.6
24	76	41	146	396	127	304	225	1,760	1,050	193	35	6.1
25	70	40	216	295	127	276	256	1,640	1,010	173	32	5.9
26	65	36	143	259	137	436	320	1,680	946	188	29	5.2
27	61	34	106	268	148	396	295	1,650	1,240	166	28	5.0
28	57	30	87	225	156	362	256	1,480	900	139	28	5.0
29	53	29	91	208	-----	356	240	1,520	626	120	30	4.7
30	52	28	84	193	-----	324	250	1,600	469	112	29	4.3
31	52	-----	76	177	-----	277	-----	1,760	-----	112	28	-----
TOTAL	1,770	1,887	2,347	6,705	4,192	6,848	10,659	38,934	31,670	9,985	1,708	332.1
MEAN	57.1	62.9	75.7	216	150	221	355	1,256	1,056	322	55.1	11.1
MAX	265	92	304	680	171	436	680	2,040	1,760	595	104	26
MIN	14	28	22	46	125	141	225	307	469	112	28	4.3
AC-FT	3,510	3,740	4,660	13,300	8,310	13,580	21,140	77,230	62,820	19,810	3,390	659

CAL YR 1969 TOTAL 238,514.0 MEAN 653 MAX 4,280 MIN 14 ACFT 473,100  
WAT YR 1970 TOTAL 117,037.1 MEAN 321 MAX 2,040 MIN 4.3 ACFT 232,100

PEAK DISCHARGE (BASE, 1,900 CFS).-- May 18 (0100) 2,330 cfs (6.37 ft).

## SAN JOAQUIN RIVER BASIN

11266500 MERCED RIVER AT POHONO BRIDGE, NEAR YOSEMITE, CALIF.

LOCATION.--Lat 37°43'01", long 119°39'55", Mariposa County, Yosemite National Park, on left bank 150 ft upstream from Pohono Bridge, 0.4 mile upstream from Artist Creek, and 4.8 miles southwest of Yosemite National Park headquarters.

DRAINAGE AREA.--321 sq mi.

PERIOD OF RECORD.--October 1916 to current year. Monthly discharge only for October and November 1916, published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is 3,861.66 ft above mean sea level. Prior to Sept. 5, 1918, at datum 1.8 ft higher. Sept. 5, 1918, to Sept. 30, 1955, at datum 1.0 ft higher.

AVERAGE DISCHARGE.--54 years, 603 cfs (436,900 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 4,150 cfs May 18 (gage height, 8.31 ft); minimum daily, 19 cfs Sept. 28-30.

Period of record: Maximum discharge, 23,400 cfs Dec. 23, 1955 (gage height, 21.52 ft, from floodmarks in well), from rating curve extended above 16,300 cfs on basis of computation of flow over diversion dam for Yosemite powerhouse, 1 mile downstream at gage heights 20.1 and 20.98 ft, present datum; minimum, 3.3 cfs Sept. 29, Oct. 1, 1924.

REMARKS.--Records excellent. No diversions between stations at Happy Isles bridge and Pohono bridge. One cfs sewage effluent returns between stations (see REMARKS for sta 11264500).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	96	65	183	427	412	579	737	2,610	605	140	47
2	46	97	64	162	403	412	635	991	2,500	602	127	45
3	45	99	63	146	380	372	700	1,350	2,360	630	117	43
4	44	100	59	129	390	348	820	1,670	2,140	606	109	41
5	44	101	57	119	404	368	935	1,910	1,940	617	105	39
6	43	131	61	120	382	378	1,020	2,000	1,820	696	104	37
7	42	158	58	132	394	399	1,040	1,570	1,710	665	100	35
8	41	167	61	142	417	378	1,060	1,550	1,870	597	96	33
9	40	162	59	187	402	369	1,200	1,380	2,410	546	94	31
10	38	164	58	262	387	353	1,300	1,650	1,750	498	90	30
11	37	170	60	221	385	342	1,340	1,540	1,360	452	87	29
12	36	174	59	210	440	354	1,260	1,220	1,280	428	83	28
13	36	175	60	203	431	425	1,090	1,330	1,180	403	83	28
14	35	170	59	285	409	458	939	1,960	1,020	394	81	28
15	50	164	58	280	399	470	788	2,590	854	400	80	28
16	608	170	58	1,550	384	482	758	3,190	800	407	78	27
17	562	149	55	1,410	396	536	693	3,520	941	361	76	26
18	312	124	57	933	354	504	665	3,570	1,090	315	73	26
19	221	122	77	713	351	467	695	3,260	1,340	313	71	25
20	186	116	700	648	341	438	633	2,720	1,520	317	69	25
21	158	111	899	1,520	330	445	597	2,480	1,520	310	67	24
22	152	103	704	1,880	326	608	536	2,730	1,530	299	64	23
23	157	94	477	1,200	319	746	531	2,970	1,430	273	62	23
24	156	89	390	1,070	328	814	554	2,940	1,320	236	58	22
25	141	87	668	796	327	880	632	2,730	1,250	214	55	21
26	130	83	424	706	349	924	745	2,760	1,160	218	51	21
27	120	79	302	715	374	843	648	2,710	1,570	210	49	20
28	111	73	230	590	402	791	574	2,390	1,190	182	49	19
29	103	70	233	530	-----	750	555	2,400	874	160	50	19
30	99	69	217	495	-----	706	624	2,480	681	150	49	19
31	96	-----	193	455	-----	602	-----	2,640	-----	149	49	-----
TOTAL	3,936	3,667	6,585	17,992	10,631	16,374	24,146	68,938	45,020	12,253	2,466	862
MEAN	127	122	212	580	380	528	805	2,224	1,501	395	79.5	28.7
MAX	608	175	899	1,880	440	924	1,340	3,570	2,610	696	140	47
MIN	35	69	55	119	319	342	531	737	681	149	49	19
AC-FT	7,810	7,270	13,060	35,690	21,090	32,480	47,890	136,700	89,300	24,300	4,890	1,710
CAL YR 1969	TOTAL 447,861		MEAN 1,227		MAX 7,450		MIN 35		AC-FT 888,300			
WTR YR 1970	TOTAL 212,870		MEAN 583		MAX 3,570		MIN 19		AC-FT 422,200			

PEAK DISCHARGE (BASE, 2,900 CFS).--May 18 (0100) 4,150 cfs (8.31 ft).

## 11267350 BIG CREEK DIVERSION NEAR FISH CAMP, CALIF.

LOCATION.--Lat 37°28'10", long 119°36'51", in SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.25, T.5 S., R.21 E., Mariposa County, Sierra National Forest, on right bank 0.5 mile downstream from diversion weir, 0.5 mile upstream from Rainier Creek, and 1.2 miles southeast of Fish Camp.

PERIOD OF RECORD.--October 1969 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 5,400 ft (from topographic map).

EXTREMES.--Maximum daily discharge, 56 cfs Jan. 16; minimum daily, 1.3 cfs July 29 to Aug. 5.

REMARKS.--Records fair.

COOPERATION.--Gage-height record for October through June and seven discharge measurements furnished by Madera Irrigation District.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	5.3	6.3	10	33	36	36	34	28	10	1.3	1.7
2	2.7	5.3	6.3	9.9	32	38	36	34	26	9.4	1.3	1.7
3	2.7	5.0	6.3	9.4	32	35	38	34	25	9.1	1.3	1.7
4	3.0	5.0	6.2	9.2	31	32	39	35	24	9.1	1.3	1.7
5	3.0	9.4	6.1	9.0	31	32	41	35	23	8.8	1.3	1.8
6	3.2	14	6.0	9.5	30	32	43	35	22	8.2	1.6	1.8
7	3.2	9.4	6.0	11	30	32	43	34	20	7.9	2.7	1.7
8	3.2	8.8	6.0	30	30	32	32	34	26	7.9	2.7	1.7
9	3.4	8.5	6.0	47	30	32	22	34	34	7.9	2.4	1.7
10	3.4	8.5	6.0	50	30	32	22	34	27	7.9	2.4	1.6
11	3.4	8.8	6.0	27	34	32	22	34	25	7.6	2.2	1.5
12	3.4	8.8	6.3	24	41	33	22	34	26	7.3	2.1	1.5
13	3.4	8.8	6.0	22	36	39	22	34	26	6.9	2.1	1.6
14	3.4	8.5	6.3	46	37	40	22	35	26	6.6	2.1	1.7
15	18	8.8	6.0	43	36	35	22	35	24	6.0	1.9	1.7
16	49	10	5.7	56	35	38	21	35	21	6.0	1.9	1.7
17	23	8.5	5.7	55	33	39	21	35	20	3.6	1.9	1.6
18	12	7.6	5.7	53	32	36	21	35	18	1.7	1.9	1.6
19	9.8	7.6	22	51	31	34	21	35	16	1.7	1.9	1.6
20	9.1	7.3	23	49	31	34	21	35	14	1.6	1.9	1.7
21	8.2	7.3	34	47	31	35	21	34	14	1.6	1.8	1.7
22	7.6	6.9	30	52	31	38	21	34	12	1.6	1.8	1.7
23	7.3	6.9	17	46	32	40	20	34	12	1.5	1.8	1.7
24	6.6	6.6	16	51	32	42	20	34	12	1.5	1.7	1.6
25	6.3	6.3	44	47	32	45	20	33	11	1.5	1.7	1.6
26	6.3	6.3	36	45	34	46	20	33	11	1.4	1.4	1.5
27	6.0	6.3	25	46	34	44	21	33	17	1.4	1.6	1.5
28	6.0	6.3	14	43	35	43	20	32	13	1.4	1.7	1.5
29	5.7	6.3	13	40	-----	42	21	31	12	1.3	1.7	1.5
30	5.7	6.3	11	37	-----	40	28	31	11	1.3	1.7	1.5
31	5.3	-----	11	35	-----	37	-----	30	-----	1.3	1.7	-----
TOTAL	236.0	229.4	404.9	1,110.0	916	1,145	779	1,049	596	151.0	56.8	49.1
MEAN	7.61	7.65	13.1	35.8	32.7	36.9	26.0	33.8	19.9	4.87	1.83	1.64
MAX	49	14	44	56	41	46	43	35	34	10	2.7	1.8
MIN	2.7	5.0	5.7	9.0	30	32	20	30	11	1.3	1.3	1.5
AC-FT	468	455	803	2,200	1,820	2,270	1,550	2,080	1,180	300	113	97
CAL YR 1969	TOTAL --		MEAN --		MAX --	MIN --	ACFT --					
WAT YR 1970	TOTAL 6,722.2		MEAN 18.4		MAX 56	MIN 1.3	ACFT 13,330					

## 11268000 SOUTH FORK MERCED RIVER NEAR EL PORTAL, CALIF.

LOCATION.--Lat 37°39'05", long 119°53'04", in NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.29, T.3 S., R.19 E., Mariposa County, on right bank 1,500 ft upstream from mouth and 5.9 miles west of El Portal.

DRAINAGE AREA.--241 sq mi.

PERIOD OF RECORD.--November 1950 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,400 ft (from topographic map).

AVERAGE DISCHARGE.--19 years, 353 cfs (255,700 acre-ft per year); median of yearly mean discharges, 270 cfs (196,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 5,030 cfs Jan. 16 (gage height, 10.44 ft); minimum daily, 9.0 cfs Sept. 13.  
Period of record: Maximum discharge, 46,500 cfs Dec. 23, 1955 (gage height, 18.70 ft), from rating curve extended above 10,500 cfs on basis of slope-area measurement at gage height 17.63 ft; minimum, 2.2 cfs Aug. 26, 27, 1961.

REMARKS.--Records excellent. Big Creek ditch diverts up to 60 cfs at times into Fresno River basin. Diversion of 0.5 cfs at Wawona for domestic use and irrigation of golf course.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	55	46	106	329	1,300	332	353	866	117	24	10
2	28	57	45	99	301	993	326	464	804	110	24	10
3	28	57	46	88	289	634	350	683	751	106	23	10
4	28	55	45	80	283	526	368	848	629	99	22	10
5	30	53	44	74	278	509	407	933	547	95	21	10
6	30	115	44	78	265	503	501	1,010	497	96	20	10
7	30	132	46	91	260	483	534	764	436	89	20	11
8	30	93	46	94	264	460	509	747	416	82	19	11
9	30	86	51	254	256	414	558	615	855	76	17	11
10	30	81	47	1,040	250	406	663	849	619	74	16	10
11	30	86	47	337	248	369	731	791	395	67	15	10
12	30	90	47	253	327	345	675	563	347	65	14	9.3
13	30	93	47	237	411	347	632	651	351	60	13	9.0
14	30	92	47	593	434	399	510	1,050	362	57	13	9.1
15	40	89	46	578	373	408	426	1,340	314	53	13	9.7
16	308	89	44	2,840	334	397	403	1,540	274	50	12	11
17	343	84	46	1,720	441	424	360	1,570	271	48	12	11
18	159	70	42	949	379	407	347	1,510	271	44	12	10
19	109	65	47	643	344	362	367	1,340	286	42	12	9.8
20	87	62	180	549	316	335	346	1,120	280	41	12	9.7
21	78	62	516	1,300	295	330	330	1,030	263	40	12	10
22	72	61	573	1,430	279	348	308	1,170	250	38	11	10
23	72	59	268	887	268	368	306	1,220	222	37	11	10
24	75	55	196	1,180	266	404	302	1,240	197	36	11	10
25	72	53	490	771	258	470	328	1,130	183	34	11	10
26	67	52	358	583	260	573	400	1,070	168	33	11	10
27	65	51	210	637	266	546	366	1,030	242	29	11	9.8
28	59	49	149	523	345	468	325	896	200	28	11	9.6
29	57	47	134	436	-----	448	303	876	153	29	11	9.5
30	55	46	124	388	-----	428	317	884	132	26	11	9.2
31	55	-----	113	348	-----	372	-----	904	-----	25	11	-----
TOTAL	2,185	2,139	4,184	19,186	8,619	14,776	12,630	30,191	11,581	1,826	456	299.7
MEAN	70.5	71.3	135	619	308	477	421	974	386	58.9	14.7	9.99
MAX	343	132	573	2,840	441	1,300	731	1,570	866	117	24	11
MIN	28	46	42	74	248	330	302	353	132	25	11	9.0
AC-FT	4,330	4,240	8,300	38,060	17,100	29,310	25,050	59,880	22,970	3,620	904	594
CAL YR 1969	TOTAL 297,888		MEAN 816		MAX 8,960		MIN 28		AC-FT 590,900			
WTR YR 1970	TOTAL 108,072.7		MEAN 296		MAX 2,840		MIN 9.0		AC-FT 214,400			

## PEAK DISCHARGE (BASE, 2,000 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-16	1415	10.44	5,030	5-17	0015	8.91	2,240
1-21	1845	8.71	2,010				

## 11268200 MERCED RIVER NEAR BRICEBURG, CALIF.

LOCATION.--Lat 37°38'09", long 119°55'56", in NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.36, T.3 S., R.18 E., Mariposa County, on left bank 150 ft upstream from Feliciana Creek and 2.8 miles northeast of Briceburg.

DRAINAGE AREA --691 sq mi.

PERIOD OF RECORD.--September 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,194.98 ft above mean sea level.

AVERAGE DISCHARGE.--5 years, 1,340 cfs (970,800 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 10,500 cfs Jan. 16 (gage height, 12.40 ft); minimum daily, 37 cfs Sept. 30.

Period of record: Maximum discharge, 21,500 cfs Dec. 6, 1966 (gage height, 17.79 ft); minimum daily, 27 cfs Sept. 30, 1968.

REMARKS.--Records good. No regulation. Small diversions above station (see REMARKS for sta 11268000).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	93	190	152	352	1,010	2,260	1,070	1,250	3,790	760	182	68
2	93	188	148	334	922	1,910	1,100	1,570	3,540	731	173	64
3	92	190	146	302	887	1,380	1,170	2,150	3,390	739	160	62
4	92	192	143	269	873	1,220	1,250	2,670	3,010	737	149	61
5	92	190	139	248	859	1,200	1,380	3,070	2,670	717	144	60
6	93	275	136	248	817	1,170	1,640	3,420	2,480	784	141	58
7	93	348	141	260	810	1,160	1,760	2,560	2,280	764	138	57
8	92	305	143	284	824	1,130	1,730	2,540	2,340	703	132	55
9	90	296	158	444	810	1,040	1,830	2,150	3,490	635	126	53
10	89	287	141	1,540	792	1,020	2,110	2,670	2,690	606	122	50
11	89	296	143	726	780	936	2,300	2,540	1,940	533	117	49
12	87	302	143	595	929	894	2,150	1,980	1,730	517	109	47
13	86	308	143	575	1,080	915	1,990	2,040	1,670	479	106	45
14	85	305	143	1,070	1,150	1,040	1,670	3,120	1,530	463	107	45
15	102	299	139	1,240	1,030	1,100	1,420	4,170	1,310	458	104	46
16	827	299	137	5,990	950	1,090	1,380	4,980	1,160	461	102	46
17	1,290	287	136	4,370	1,120	1,170	1,240	5,380	1,240	441	102	47
18	620	248	132	2,420	978	1,130	1,200	5,460	1,390	378	100	45
19	423	232	145	1,750	936	1,010	1,250	4,970	1,610	360	96	44
20	334	225	821	1,560	866	964	1,160	4,210	1,840	359	94	43
21	296	218	1,610	3,670	817	957	1,110	3,810	1,860	357	91	42
22	269	212	1,680	4,480	786	1,030	999	4,190	1,850	334	89	44
23	266	198	901	2,650	750	1,140	999	4,550	1,730	329	86	42
24	272	190	684	2,830	762	1,290	1,010	4,520	1,590	291	82	41
25	263	184	1,360	1,960	732	1,490	1,090	4,190	1,490	263	79	42
26	242	178	1,080	1,640	756	1,730	1,330	4,140	1,370	248	76	40
27	232	172	678	1,740	780	1,650	1,200	4,090	1,800	256	73	39
28	210	166	485	1,460	904	1,490	1,070	3,610	1,570	230	70	39
29	202	158	444	1,290	-----	1,460	999	3,540	1,130	208	69	38
30	196	154	415	1,170	-----	1,400	1,090	3,630	887	193	69	37
31	192	-----	379	1,040	-----	1,210	-----	3,780	-----	186	68	-----
TOTAL	7,502	7,092	13,245	48,507	24,710	38,586	41,697	106,950	60,377	14,520	3,356	1,449
MEAN	242	236	427	1,565	883	1,245	1,390	3,450	2,013	468	108	48.3
MAX	1,290	348	1,680	5,990	1,150	2,260	2,300	5,460	3,790	784	182	68
MIN	85	154	132	248	732	894	999	1,250	887	186	68	37
AC-FT	14,880	14,070	26,270	96,210	49,010	76,540	82,710	212,100	119,800	28,800	6,660	2,870

CAL YR 1969 TOTAL 882,847 MEAN 2,419 MAX 15,100 MIN 85 ACFT 1,751,000  
WAT YR 1970 TOTAL 367,991 MEAN 1,008 MAX 5,990 MIN 37 ACFT 729,900

## PEAK DISCHARGE (BASE, 5,000 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-16	1500	12.40	10,500	5-18	0200	9.98	6,570
1-21	2300	9.35	5,940				

## SAN JOAQUIN RIVER BASIN

11269300 MAXWELL CREEK AT COULTERVILLE, CALIF.

LOCATION.--Lat 37°42'58", long 120°11'20", in SE $\frac{1}{4}$  sec.34, T.2 S., R.16 E., Mariposa County, on Dogtown Road bridge, 0.4 mile downstream from Cuneo Creek, and 0.5 mile northeast of Coulterville.

DRAINAGE AREA.--17.0 sq mi.

PERIOD OF RECORD.--October 1959 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,740 ft (from topographic map).

AVERAGE DISCHARGE.--11 years, 8.37 cfs (6,060 acre-ft per year); median of yearly mean discharges, 6.3 cfs (4,560 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,080 cfs Jan. 16 (gage height, 5.52 ft); no flow many days.  
Period of record: Maximum discharge, 1,770 cfs Dec. 22, 1964 (gage height, 5.71 ft); no flow many days in each year.

REMARKS.--No diversion or storage above station.

COOPERATION.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

REVISIONS (WATER YEARS).--WRD Calif. 1965: 1960(M), 1962(M).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.50	.50	1.8	10	176	4.4	1.9	.60	.50	.10	0
2	0	.50	.50	1.6	8.5	108	4.1	1.9	.50	.40	0	0
3	0	.50	.60	1.8	7.4	44	3.8	1.9	.50	.40	0	0
4	0	.50	.60	1.6	7.0	81	3.4	1.8	.50	.30	0	0
5	0	1.4	.60	1.6	6.4	71	3.2	1.6	.50	.20	0	0
6	0	14	.60	1.5	6.1	47	3.2	1.6	.50	.20	0	0
7	0	4.6	.60	1.5	5.8	33	3.2	1.6	.50	.20	0	0
8	0	2.1	.80	1.6	5.4	29	3.2	1.6	.90	.20	0	0
9	.10	1.5	1.3	4.6	5.2	23	3.0	1.6	3.2	.20	0	0
10	.10	1.3	1.1	27	5.2	22	3.0	1.6	1.5	.20	0	0
11	.10	1.1	.90	11	5.2	18	2.8	1.5	1.1	.20	0	0
12	.10	.90	.80	11	6.7	15	2.8	1.5	1.0	.20	0	0
13	.10	.80	.80	11	26	14	3.4	1.5	1.0	.20	0	0
14	.10	.80	.90	243	50	13	4.4	1.5	1.0	.20	0	0
15	1.2	.80	.90	40	20	12	3.4	1.5	1.0	.10	0	0
16	3.2	.90	.90	523	18	11	3.0	1.3	.90	.20	0	0
17	1.9	.80	.80	81	150	11	2.8	1.1	.80	.10	0	0
18	.80	.80	.80	35	41	9.3	2.4	1.1	.80	.10	0	0
19	.50	.80	3.4	19	25	8.5	2.6	1.1	.80	.10	0	0
20	.40	.80	6.4	16	19	8.2	2.4	1.1	.70	.10	0	0
21	.40	.70	16	186	15	7.8	2.4	1.3	.60	.10	0	0
22	.30	.70	8.2	55	13	7.0	2.4	1.1	.60	.10	0	0
23	.30	.70	3.4	26	12	6.7	2.2	1.0	.50	.10	0	0
24	.40	.70	4.9	52	11	6.4	2.1	.80	.50	.10	0	0
25	.40	.70	58	26	8.9	6.1	2.1	.80	.40	.10	0	0
26	.40	.70	9.8	18	8.5	5.8	2.4	.80	.80	.10	0	0
27	.40	.70	4.6	35	8.2	5.2	2.6	.80	.80	.10	0	0
28	.40	.70	3.2	23	9.8	5.2	2.2	.80	.70	0	0	.10
29	.40	.60	2.4	18	-----	4.9	2.2	.70	.70	0	0	0
30	.50	.50	2.2	14	-----	4.9	1.9	.60	.60	.10	0	.10
31	.50	-----	1.9	12	-----	4.4	-----	.60	-----	.10	0	-----
TOTAL	13.00	42.10	138.40	1,499.6	514.3	818.4	87.0	39.60	24.50	5.20	.10	.20
MEAN	.42	1.40	4.46	48.4	18.4	26.4	2.90	1.28	.82	.17	.003	.006
MAX	3.2	14	58	523	150	176	4.4	1.9	3.2	.50	.10	.10
MIN	0	.50	.50	1.5	5.2	4.4	1.9	.60	.40	0	0	0
AC-FT	26	84	275	2,970	1,020	1,620	173	79	49	10	.2	.4
CAL YR 1969	TOTAL	8,696.30	MEAN	23.8	MAX	635	MIN	0	ACFT	17,250		
WAT YR 1970	TOTAL	3,182.40	MEAN	8.72	MAX	523	MIN	0	ACFT	6,310		

## 11269500 LAKE McCLURE AT EXCHEQUER, CALIF.

LOCATION.--Lat 37°35'02", long 120°16'09", in NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.13, T.4 S., R.15 E., Mariposa County, on left end of New Exchequer Dam on Merced River, 0.9 mile east of Exchequer, and 5.5 miles northeast of Merced Falls.

DRAINAGE AREA.--1,037 sq mi.

PERIOD OF RECORD.--April 1926 to September 1930 (daily gage heights; also summary of yearly contents in WSP 881), October 1930 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Merced Irrigation District). Prior to Oct. 1, 1964, indicator in powerhouse at same datum. Oct. 1, 1964, to July 31, 1966, non-recording gage at center of upstream face of dam at same datum.

EXTREMES.--Current year: Maximum contents, 844,000 acre-ft June 13 (elevation, 839.7 ft); minimum, 542,800 acre-ft Jan. 9 (elevation, 781.9 ft).

Period of record: Maximum contents, 1,026,000 acre-ft July 14, 15, 1969 (elevation, 867.2 ft); practically no storage at times in 1926, 1930-31, 64-65 when reservoir was drained for inspection or construction.

REMARKS.--Reservoir is formed by a rockfill dam with a reinforced concrete face completed in March 1967. Dam is downstream from and connected to the original concrete arch and gravity-type dam which was completed in April 1926. Usable capacity, 1,024,000 acre-ft between elevations 440.0 ft (invert entrance to outlet tunnel) and 867.0 ft (top of spillway gates). Dead storage, 300 acre-ft. Water is released through a series of powerplants down the Merced River to a diversion dam for Merced Irrigation District's main canal. Records, including extremes, represent total contents at 2400 hours.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

700	263,000	820	729,600
720	317,800	840	845,800
750	415,900	860	975,700
780	534,500	870	1,046,000

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	747,900	666,100	600,000	554,300	688,300	679,500	708,500	699,900	820,900	833,000	740,700	635,100
2	745,100	665,600	597,700	552,900	689,400	685,200	707,400	699,900	824,500	830,600	737,300	632,200
3	741,800	662,100	594,800	551,100	686,800	685,200	706,900	701,000	828,100	828,100	733,500	629,200
4	738,400	660,000	592,000	549,400	684,200	686,200	706,300	703,100	830,000	826,300	729,600	626,300
5	735,100	657,000	589,700	547,200	681,600	686,200	705,800	705,800	831,800	823,900	725,800	623,400
6	732,400	655,000	586,900	545,900	679,500	685,700	705,800	709,500	833,600	821,500	723,100	620,500
7	729,600	653,500	584,200	544,100	677,900	684,700	705,800	711,700	834,800	819,700	719,200	618,100
8	726,300	651,000	581,800	543,200	675,900	683,600	706,300	713,300	836,000	816,700	716,000	615,700
9	723,600	649,500	578,600	542,800	673,300	682,100	706,300	714,400	839,700	814,300	712,800	612,800
10	720,900	647,500	576,300	545,400	672,300	683,100	707,400	716,500	842,700	811,900	708,500	610,400
11	717,600	644,500	574,100	547,200	670,700	682,100	708,500	718,700	843,400	809,000	705,300	607,100
12	716,000	641,500	572,700	548,900	670,200	682,600	709,500	719,800	842,700	806,000	701,500	604,300
13	713,800	638,500	570,900	550,700	670,700	684,200	710,600	721,400	844,000	802,500	697,800	602,400
14	709,500	635,100	569,500	558,300	671,800	685,700	711,100	724,100	843,400	799,500	694,600	599,100
15	707,900	635,100	567,700	562,700	672,300	687,800	711,700	729,100	842,700	796,600	691,000	596,200
16	706,900	635,100	565,900	593,000	672,300	689,900	710,600	736,200	842,100	793,700	687,800	593,900
17	706,900	631,700	564,100	605,200	673,300	691,000	709,500	744,500	840,900	790,700	684,200	592,000
18	705,800	629,700	562,700	612,300	672,300	692,500	709,000	752,400	840,300	787,200	680,000	589,200
19	703,700	627,300	562,300	616,600	670,700	693,600	708,500	759,700	839,700	784,300	676,400	586,900
20	701,000	624,400	562,700	621,000	669,700	694,600	707,900	765,400	840,300	781,400	673,300	586,000
21	697,800	621,900	565,000	632,200	670,200	696,800	707,400	769,400	840,300	778,000	670,200	581,800
22	695,200	621,500	567,700	644,000	670,200	698,900	705,800	774,500	840,300	775,100	666,600	579,500
23	692,000	621,500	567,200	651,000	670,200	699,400	705,300	779,700	840,300	771,700	663,100	577,700
24	688,900	618,600	566,300	658,500	669,700	700,500	703,700	786,100	839,700	769,400	660,000	575,400
25	685,700	615,700	568,600	663,600	668,200	702,100	703,100	791,300	838,500	765,400	656,500	572,200
26	682,100	613,300	567,200	667,700	668,200	704,200	702,600	796,000	837,900	762,000	653,500	570,400
27	678,500	610,400	566,300	672,800	668,700	705,800	702,100	800,700	837,200	758,600	650,500	568,200
28	675,900	608,000	564,500	676,900	669,200	706,900	702,100	804,800	837,900	755,200	647,000	566,300
29	673,300	605,200	562,300	680,000	-----	708,500	701,000	808,400	836,600	751,300	644,500	564,100
30	670,700	602,800	559,200	683,100	-----	708,500	700,500	812,500	834,800	747,900	641,500	561,400
31	668,700	-----	556,000	685,700	-----	708,500	-----	816,700	-----	744,000	638,000	-----
MAX	747,900	666,100	600,000	685,700	689,400	708,500	711,700	816,700	844,000	833,000	740,700	635,100
MIN	668,700	602,800	556,000	542,800	668,200	679,500	700,500	699,900	820,900	744,000	638,000	561,400
(a)	808.5	795.1	784.9	811.8	808.6	816.1	814.6	835.2	838.2	822.6	802.4	786.1
(b)	-80,900	-65,900	-46,800	+129,700	-16,500	+39,300	-8,000	+116,200	+18,100	-90,800	-106,000	-76,600
CAL YR 1969	b +183,100		MAX 1,026,000		MIN 373,900							
WTR YR 1970	b -188,200		MAX 844,000		MIN 542,800							

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

## SAN JOAQUIN RIVER BASIN

## 11270900 MERCED RIVER BELOW MERCED FALLS DAM, NEAR SNELLING, CALIF.

LOCATION.--Lat 37°31'18", long 120°19'53", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.4, T.5 S., R.15 E., Merced County, on right bank 0.1 mile south of Merced Falls, 0.2 mile downstream from Merced Falls Dam, and 5.8 miles east of Snelling.

DRAINAGE AREA.--1,061 sq mi.

PERIOD OF RECORD.--April 1901 to current year. Records for water years 1914-16 incomplete, yearly estimates published in WSP 1315-A. Published as "near Merced Falls" 1901-13; as "at Exchequer" 1916-64, and as "at Merced Falls" 1965. Records at present site are about equivalent when adjusted for diversion to North Side Canal and change in contents of Lake McClure.

GAGE.--Water-stage recorder. Datum of gage is 310.55 ft above mean sea level. Apr. 6, 1901, to Nov. 30, 1913, nonrecording gage at site 2 miles upstream at different datum. Nov. 22, 1915, to Apr. 28, 1922, nonrecording gage and Apr. 29 to Oct. 24, 1922, water-stage recorder at site 8 miles upstream at different datum. Oct. 25, 1922, to Sept. 30, 1964, at site 7 miles upstream at different datum.

AVERAGE DISCHARGE (adjusted for diversion to North Side Canal and change in contents of Lake McClure since 1965 and change in contents of McSwain Reservoir since 1969).--69 years, 1,343 cfs (973,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 5,590 cfs Sept. 11 (gage height, 10.15 ft); minimum daily, 133 cfs Jan. 13.

1901-13, 1915 to current year: Maximum discharge observed, 47,700 cfs Jan. 31, 1911 (gage height, 23.3 ft, site and datum then in use); no flow for part of Nov. 21, 1901. Maximum discharge since construction of Exchequer Dam in 1926, 46,200 cfs Dec. 4, 1950 (gage height, 22.6 ft, from floodmarks, site and datum then in use), from rating curve extended above 13,000 cfs on basis of computation of peak flow over dam; minimum daily, 3.4 cfs Mar. 5, 1966.

REMARKS.--Records good. Merced Falls Dam diverts water to North Side Canal to irrigate 4,100 acres below station. Flow regulated by Exchequer, McSwain, and Merced Falls powerplants, Lake McClure since 1926 (see sta 11269500), and McSwain Reservoir since 1966 (capacity, 9,200 acre-ft).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,430	1,510	1,500	1,240	144	570	1,420	1,440	1,580	1,740	1,890	1,450
2	1,410	992	1,500	1,210	430	1,430	1,440	1,500	1,640	1,740	1,860	1,430
3	1,430	1,540	1,500	1,220	2,030	2,020	1,500	1,570	1,740	1,740	1,840	1,410
4	1,450	1,520	1,500	1,210	2,010	2,300	1,600	1,580	1,820	1,740	1,830	1,410
5	1,440	1,510	1,510	1,220	2,020	2,420	1,620	1,580	1,800	1,760	1,810	1,430
6	1,450	1,500	1,510	1,210	2,010	2,380	1,650	1,630	1,750	1,780	1,800	1,450
7	1,440	1,490	1,510	1,070	1,980	2,410	1,690	1,670	1,740	1,800	1,810	1,390
8	1,450	1,470	1,510	834	1,990	2,410	1,650	1,650	1,740	1,870	1,830	1,320
9	1,450	1,470	1,510	882	1,830	2,440	1,660	1,630	1,690	1,930	1,840	1,360
10	1,450	1,480	1,510	1,020	1,510	941	1,670	1,610	1,630	1,940	1,800	1,380
11	1,450	1,490	1,210	344	1,510	1,490	1,700	1,570	1,620	1,940	1,810	1,410
12	1,430	1,840	1,000	140	1,370	975	1,690	1,560	1,610	1,930	1,820	1,380
13	1,410	2,010	990	133	1,530	524	1,690	1,520	1,600	1,920	1,840	1,370
14	1,430	2,000	995	179	1,530	516	1,660	1,500	1,600	1,910	1,830	1,320
15	1,480	620	995	153	1,530	522	1,640	1,490	1,550	1,900	1,790	1,260
16	1,500	495	998	283	1,540	504	1,590	1,500	1,630	1,910	1,770	1,220
17	1,500	1,460	998	158	1,850	503	1,560	1,490	1,710	1,880	1,770	1,170
18	1,500	1,490	833	147	2,000	519	1,530	1,510	1,680	1,860	1,780	1,160
19	1,490	1,500	678	145	2,010	531	1,520	1,530	1,740	1,820	1,750	1,160
20	1,520	1,500	665	145	1,850	520	1,530	1,540	1,770	1,810	1,740	1,190
21	1,780	1,500	667	162	983	516	1,530	1,570	1,760	1,880	1,710	1,220
22	1,950	566	881	147	1,020	510	1,530	1,550	1,760	1,920	1,670	1,190
23	1,990	511	1,230	143	1,000	509	1,570	1,540	1,800	1,910	1,630	1,180
24	1,990	1,460	1,510	141	1,650	568	1,580	1,540	1,840	1,910	1,620	1,150
25	1,980	1,480	1,490	139	1,390	740	1,520	1,540	1,840	1,910	1,620	1,160
26	2,010	1,480	1,500	135	1,000	860	1,480	1,570	1,830	1,880	1,590	1,140
27	1,720	1,500	1,510	141	919	929	1,460	1,590	1,790	1,880	1,620	1,130
28	1,480	1,500	1,510	146	544	965	1,440	1,580	1,760	1,930	1,590	1,110
29	1,470	1,500	1,790	147	-----	1,020	1,420	1,570	1,770	1,910	1,570	1,160
30	1,500	1,500	2,000	146	-----	1,160	1,420	1,570	1,770	1,920	1,560	1,200
31	1,510	-----	2,000	146	-----	1,340	-----	1,570	-----	1,910	1,480	-----
TOTAL	48,490	41,884	40,510	14,536	41,180	35,042	46,960	48,260	51,560	57,880	53,870	38,310
MEAN	1,564	1,396	1,307	469	1,471	1,130	1,565	1,557	1,719	1,867	1,738	1,277
MAX	2,010	2,010	2,000	1,240	2,030	2,440	1,700	1,670	1,840	1,940	1,890	1,450
MIN	1,410	495	665	133	144	503	1,420	1,440	1,550	1,740	1,480	1,110
AC-FT	96,180	83,080	80,350	28,830	81,680	69,510	93,150	95,720	102,300	114,800	106,900	75,990
(a)	1,940	99	48	20	0	413	2,800	3,710	3,830	4,480	3,910	3,330
MEAN <sup>b</sup>	271	298	548	2,538	1,214	1,782	1,474	3,505	2,086	465	81.4	27.4
AC-FT <sup>b</sup>	16,690	17,740	33,730	156,100	67,420	109,600	87,730	215,500	124,100	28,580	5,000	1,630

CAL YR 1969 TOTAL 1,003,299 MEAN 2,749 MAX 7,860 MIN 102 AC-FT 1,990,000 MEAN<sup>b</sup> 3,032 AC-FT<sup>b</sup> 2,195,000  
WTR YR 1970 TOTAL 518,482 MEAN 1,420 MAX 2,440 MIN 133 AC-FT 1,028,000 MEAN<sup>b</sup> 1,193 AC-FT<sup>b</sup> 863,800

a Diversion, in acre-feet, to North Side Canal, furnished by Merced Irrigation District.

b Adjusted for change in contents in Lake McClure, McSwain Lake, and diversion to North Side Canal.



## 11271290 MERCED RIVER AT SHAFFER BRIDGE, NEAR CRESSEY, CALIF.

LOCATION.--Lat 37°27'15", long 120°36'28", in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.36, T.5 S., R.12 E., Merced County, near center of span on downstream side of county road bridge, 0.6 mile upstream from Dry Creek, and 4.0 miles northeast of Cressey.

DRAINAGE AREA.--1,117 sq mi.

PERIOD OF RECORD.--October 1965 to current year (low flow only).

GAGE.--Water-stage recorder. Datum of gage is 116.79 ft above mean sea level.

REMARKS.--Records good. Most water released from Lake McClure (see sta 11269500, 11270900) is diverted upstream into the Main Canal of Merced Irrigation District. Flow past station consists of releases from diversion dam, irrigation return flow, and tributary inflow. No records computed above 200 cfs.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				--	194	--	131	100	78	80	54	60
2				--	190	--	122	100	77	63	71	55
3				--	--	--	155	110	77	58	71	84
4				--	--	--	169	122	66	60	66	82
5				--	--	--	183	102	68	51	74	78
6				--	--	--	180	86	82	55	71	77
7				--	--	--	158	76	65	61	66	99
8				--	--	--	149	68	63	66	72	98
9				--	--	--	122	74	86	68	77	80
10				--	--	--	118	82	100	68	80	90
11				--	--	--	112	86	92	76	74	110
12				--	--	--	112	84	80	86	57	110
13				--	--	--	122	78	77	82	68	120
14				--	--	--	125	84	71	74	70	102
15				--	--	--	125	76	65	72	74	115
16				--	--	--	143	84	128	71	70	120
17				--	--	--	137	86	--	80	76	105
18				--	--	--	131	92	72	76	54	98
19				--	--	--	128	92	74	76	63	72
20				--	--	--	108	84	59	76	64	66
21				--	--	--	105	77	80	66	49	65
22				--	--	--	96	74	80	70	51	70
23				--	--	--	92	72	71	72	61	82
24				--	--	197	98	68	65	71	65	78
25				--	--	158	94	64	70	63	47	64
26				200	--	149	94	63	80	63	51	68
27				197	--	155	105	63	78	76	48	76
28				197	--	149	115	82	88	78	50	74
29				158	-----	146	125	84	86	64	65	76
30				194	-----	134	125	78	77	66	54	82
31		-----		194	-----	122	-----	88	-----	63	68	-----
TOTAL	--	--	--	--	--	--	3,779	2,579	--	2,151	1,981	2,556
MEAN	--	--	--	--	--	--	126	83.2	--	69.4	63.9	85.2
MAX	--	--	--	--	--	--	183	122	--	86	80	120
MIN	--	--	--	--	--	--	92	63	59	51	47	55
AC-FT	--	--	--	--	--	--	7,500	5,120	--	4,270	3,930	5,070
(a)	28,460	7,390	3,540	1,150	795	16,760	84,100	86,220	92,570	105,500	97,290	67,500

a Diversion, in acre-feet, to Main Canal near diversion dam, near Merced Falls; furnished by Merced Irrigation District.

## SAN JOAQUIN RIVER BASIN

11271320 DRY CREEK NEAR SNELLING, CALIF.

LOCATION.--Lat 37°33'18", long 120°27'44", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.30, T.4 S., R.14 E., Merced County, on left bank 650 ft downstream from Fields Road, and 2.8 miles northwest of Snelling.

DRAINAGE AREA.--67.6 sq mi.

PERIOD OF RECORD.--October 1966 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 230 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 2,650 cfs Jan. 16 (gage height, 11.37 ft); no flow for several months.

Period of record: Maximum discharge, 6,710 cfs Jan. 21, 1969 (gage height, 17.01 ft); no flow for several months most years.

REMARKS.--Records good. Small weir upstream from gage regulates storage for stock pond and irrigation pumping.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	.34	1.3	9.7	294	1.0	0				0
2	0	0	.34	1.1	8.4	225	.64	0				0
3	0	0	.32	1.0	7.2	44	.30	0				0
4	0	0	.34	.97	6.3	283	.21	0				0
5	0	0	.32	.97	6.1	214	.21	0				0
6	0	1.1	.32	.83	5.2	56	.14	0				0
7	0	3.8	.32	.90	4.7	33	.08	0				0
8	0	2.6	.32	.90	4.4	29	.06	0				0
9	0	1.2	.34	.97	3.9	26	.04	0				0
10	0	.90	.34	44	3.9	24	.02	0				0
11	0	.70	.34	28	3.9	20	.01	0				0
12	0	.64	.34	34	28	14	0	0				0
13	0	.53	.32	32	58	12	0	0				0
14	0	.53	.30	511	110	9.7	0	0				0
15	0	.64	.28	110	26	8.1	0	0				0
16	.15	.48	.28	1,090	15	7.2	0	0				0
17	1.7	.44	.28	123	403	6.3	0	0				0
18	1.1	.41	.28	74	58	4.9	0	0				0
19	.90	.38	.30	40	30	4.1	0	0				0
20	.76	.38	.34	38	20	3.5	0	0				0
21	.64	.36	.44	424	15	3.1	0	0				.37
22	.53	.36	14	98	11	2.9	0	.24				.82
23	.34	.36	2.8	51	8.8	2.7	0	.17				.40
24	.26	.34	27	35	7.5	2.5	0	.06				.21
25	.20	.34	72	27	6.1	2.3	0	.01				.30
26	.18	.34	40	20	4.9	2.0	0	0				1.3
27	.14	.34	8.1	57	4.7	1.8	0	0				.73
28	.08	.34	3.8	40	4.1	.91	0	0				.40
29	.02	.36	2.4	20	-----	.40	0	0				.21
30	0	.36	1.8	15	-----	.25	0	0				.11
31	0	-----	1.4	12	-----	1.0	-----	0	-----			-----
TOTAL	7.00	18.23	180.10	2,931.94	873.8	1,337.66	2.71	.48	0	0	0	4.85
MEAN	.23	.61	5.81	94.6	31.2	43.2	.090	.016	0	0	0	.16
MAX	1.7	3.8	72	1,090	403	294	1.0	.24	0	0	0	1.3
MIN	0	0	.28	.83	3.9	.25	0	0	0	0	0	0
AC-FT	14	36	357	5,820	1,730	2,650	5.4	1.0	0	0	0	9.6

CAL YR 1969 TOTAL 19,582.01 MEAN 53.6 MAX 2,770 MIN 0 AC-FT 38,840  
WTR YR 1970 TOTAL 5,356.77 MEAN 14.7 MAX 1,090 MIN 0 AC-FT 10,630

PEAK DISCHARGE (BASE, 1,000 CFS, REVISED)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-14	1530	10.78	2,330	2-17	0300	9.05	1,450
1-16	0700	11.37	2,650	3- 1	2100	9.72	1,780
1-21	1030	8.52	1,210	3- 4	2100	8.86	1,370

## SAN JOAQUIN RIVER BASIN

667

11272500 MERCED RIVER NEAR STEVINSON, CALIF.

LOCATION.--Lat 37°22'15", long 120°55'46", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.36, T.6 S., R.9 E., Merced County, on right bank 5 miles upstream from mouth and 6 miles northwest of Stevinson.

DRAINAGE AREA.--1,273 sq mi.

PERIOD OF RECORD.--October 1940 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. October 1940 to Aug. 16, 1955, at datum 55.74 ft higher, Aug. 16, 1955, to Sept. 30, 1959, at datum 54.74 ft higher.

AVERAGE DISCHARGE.--30 years, 700 cfs (507,200 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 3,280 cfs Mar. 6 (elevation, 65.10 ft); minimum daily, 121 cfs July 22.

Period of record: Maximum discharge, 13,600 cfs Dec. 5, 1950 (elevation, 73.79 ft, present datum); no flow July 19 to Aug. 21, 1961, result of temporary dam below station.

REMARKS.--Records good. Practically entire flow is diverted above station for irrigation of 120,000 acres; some return flow enters above station. Flow regulated by three reservoirs (combined capacity, 1,034,000 acre-ft), the largest of which is Lake McClure (see sta 11269500).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	477	1,470	1,340	1,950	317	902	271	269	221	180	125	186
2	463	1,480	1,340	1,470	306	911	264	254	201	166	150	189
3	482	1,280	1,340	1,250	312	1,440	276	243	178	166	171	203
4	499	1,420	1,340	1,210	1,200	2,000	302	266	168	165	174	207
5	522	1,500	1,360	1,200	1,710	2,530	318	252	157	159	155	220
6	559	1,490	1,420	1,190	1,860	3,000	354	227	144	175	149	224
7	578	1,530	1,440	1,180	1,940	2,700	344	239	167	155	174	215
8	553	1,470	1,450	1,130	1,940	2,710	305	233	181	136	175	212
9	571	1,440	1,460	936	1,980	2,680	302	236	172	127	186	218
10	594	1,430	1,460	918	1,950	2,660	286	254	195	130	194	210
11	575	1,400	1,470	998	1,610	1,600	295	272	187	128	169	221
12	575	1,360	1,330	818	1,560	1,610	281	240	185	136	175	220
13	598	1,550	1,050	531	1,500	1,410	308	230	182	158	165	241
14	585	1,820	1,010	483	1,570	923	294	229	188	141	153	249
15	718	1,830	992	510	1,650	782	268	223	188	138	157	244
16	1,100	1,070	992	698	1,610	702	270	218	164	155	161	235
17	1,380	715	983	1,180	1,610	628	278	214	160	156	170	247
18	1,400	998	983	818	2,120	536	271	227	158	146	177	234
19	1,410	1,290	941	642	2,140	472	259	230	150	143	161	215
20	1,410	1,340	821	495	2,120	454	268	222	154	149	163	215
21	1,450	1,340	779	415	2,040	440	250	210	146	130	166	214
22	1,580	1,340	770	400	1,330	442	245	192	159	121	155	212
23	1,840	908	815	385	1,160	428	259	185	158	136	185	220
24	1,900	595	1,010	373	1,110	394	268	181	159	142	179	213
25	1,900	908	1,340	360	1,440	380	287	181	135	151	158	210
26	1,900	1,210	1,420	350	1,600	352	303	187	152	147	161	215
27	1,910	1,280	1,460	345	1,130	332	270	184	167	159	165	212
28	1,710	1,300	1,460	337	1,080	312	226	168	165	137	168	213
29	1,520	1,330	1,450	330	-----	316	241	166	172	131	164	213
30	1,430	1,330	1,590	324	-----	325	272	185	159	131	186	206
31	1,460	-----	1,880	321	-----	289	-----	179	-----	124	184	-----
TOTAL	33,649	39,424	38,496	23,547	41,895	34,660	8,435	6,796	5,072	4,518	5,175	6,533
MEAN	1,085	1,314	1,242	760	1,496	1,118	281	219	169	146	167	210
MAX	1,910	1,830	1,880	1,950	2,140	3,000	354	272	221	180	194	249
MIN	463	595	770	321	306	289	226	166	135	121	125	186
AC-FT	66,740	78,200	76,360	46,710	83,100	68,750	16,730	13,480	10,060	8,960	10,260	12,960
CAL YR 1969	TOTAL 722,926		MEAN 1,981		MAX 6,800		MIN 192		AC-FT 1,434,000			
WTR YR 1970	TOTAL 248,200		MEAN 680		MAX 3,000		MIN 121		AC-FT 492,300			

## SAN JOAQUIN RIVER BASIN

11273000 MERCED RIVER SLOUGH NEAR NEWMAN, CALIF.

LOCATION.--Lat 37°21'36", long 120°57'38", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.3, T 7 S., R.9 E., Merced County, on left bank 0.1 mile downstream from bridge, 0.2 mile downstream from head of slough between Merced and San Joaquin Rivers, and 5 miles northeast of Newman.

PERIOD OF RECORD.--October 1941 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to July 31, 1948, at datum 56.44 ft higher and Aug. 1, 1948, to Sept. 30, 1959, at datum 54.36 ft higher.

AVERAGE DISCHARGE.--29 years, 65.9 cfs (47,740 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 0.12 cfs Apr. 21; no flow for several months.

Period of record: Maximum daily discharge, 7,770 cfs Apr. 6, 1958; no flow for several months in each year.

REMARKS.--Records good. Sloughs flow from Merced River to San Joaquin River, bypassing the gaging station on San Joaquin River near Newman. Flow at times consists of return flow from irrigated fields. Records include flow in South Slough.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							0					
2							0					
3							0					
4							0					
5							0					
6							0					
7							0					
8							0					
9							0					
10							0					
11							0					
12							0					
13							0					
14							0					
15							0					
16							0					
17							0					
18							0					
19							0					
20							0					
21							.01					
22							.01					
23							0					
24							0					
25							0					
26							0					
27							0					
28							0					
29					-----		0					
30					-----		0					
31		-----			-----		-----		-----			-----
TOTAL	0	0	0	0	0	0	.02	0	0	0	0	0
MEAN	0	0	0	0	0	0	.0007	0	0	0	0	0
MAX	0	0	0	0	0	0	.01	0	0	0	0	0
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	0	0	0	.04	0	0	0	0	0
CAL YR 1969	TOTAL	48,500.61	MEAN	133	MAX	1,500	MIN	0	ACFT	96,200		
WAT YR 1970	TOTAL	0.02	MEAN	.0	MAX	0	MIN	0	ACFT	0		

## 11274000 SAN JOAQUIN RIVER NEAR NEWMAN, CALIF.

LOCATION.--Lat 37°21'02", long 120°58'34", in SW $\frac{1}{4}$  sec.3, T.7 S., R.9 E., Stanislaus County, on left bank 300 ft downstream from bridge on Hills Ferry Road, 500 ft downstream from Merced River, and 3.5 miles northeast of Newman.

DRAINAGE AREA.--9,520 sq mi.

PERIOD OF RECORD.--April 1912 to current year. Prior to Oct. 1, 1937, and subsequent to Oct. 1, 1943, flow that bypassed station at discharges above 9,000 cfs not included in records.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Mar. 3, 1931, nonrecording gage at various sites within 240 ft of bridge, and Mar. 3, 1931, to Sept. 30, 1959, water-stage recorder within 300 ft of bridge at datum 47.31 ft higher. Oct. 1, 1959, to Aug. 9, 1960, water-stage recorder at site 70 ft upstream at present datum.

AVERAGE DISCHARGE.- 58 years, 2,099 cfs (1,521,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 6,050 cfs Mar. 8 (elevation, 58.59 ft); minimum daily, 257 cfs July 18.

Period of record: Maximum discharge (River only), 28,000 cfs Feb. 26, 1969 (elevation, 65.90 ft, from high-water mark in well); river and Merced River Slough, 34,700 cfs Feb. 26, 1969 (elevation, 65.90 ft, present datum); minimum, 15 cfs Aug. 9, 10, 1924.

Flood of Jan. 2, 1868, reached a stage of 21.7 ft, from floodmarks; flood of February 1886, reached a stage of 19.8 ft, from floodmarks; and flood of 1911 reached a stage of 19 ft, from floodmarks. All stages referred to datum in use from 1931 to 1959. Discharges unknown.

REMARKS.--Records good. Natural flow of stream affected by storage reservoirs, ground-water withdrawals, diversions for irrigation, and imported water; low flows consist mainly of return water from irrigated areas. Record for Merced River Slough (see sta 11273000) shows flow bypassing station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	990	1,780	2,000	2,110	3,230	1,510	774	838	440	350	281	363
2	965	1,760	2,000	1,860	2,970	1,540	751	801	417	335	310	378
3	992	1,590	1,990	1,590	2,630	2,380	734	772	381	320	341	426
4	991	1,580	1,960	1,550	2,940	4,010	758	774	331	340	348	437
5	973	1,760	1,950	1,550	3,180	4,930	802	726	338	385	338	428
6	987	1,860	1,970	1,540	3,060	5,590	826	662	319	420	310	445
7	994	1,990	1,970	1,540	3,030	5,860	804	610	351	400	308	451
8	967	2,120	1,960	1,530	3,130	5,990	767	601	399	340	319	386
9	972	2,160	1,940	1,390	3,550	5,530	758	598	373	300	346	397
10	1,010	2,130	1,920	1,400	3,990	4,880	736	625	445	285	399	431
11	993	2,020	1,910	1,490	3,700	3,850	748	701	434	270	381	437
12	989	1,950	1,840	1,570	3,570	3,050	729	676	417	285	381	412
13	988	2,020	1,590	1,480	3,470	2,780	762	666	412	312	361	410
14	983	2,290	1,530	1,490	3,170	2,060	749	646	423	287	314	428
15	1,030	2,350	1,510	1,550	2,950	1,680	731	634	437	276	341	420
16	1,370	1,910	1,480	1,980	2,800	1,510	764	604	404	281	353	410
17	1,810	1,390	1,460	2,840	2,810	1,390	802	583	380	270	366	402
18	1,960	1,500	1,450	3,630	2,990	1,260	783	565	360	257	386	445
19	1,940	1,830	1,420	4,740	3,260	1,140	717	583	345	270	378	412
20	1,830	1,900	1,290	5,680	3,320	1,070	724	559	335	301	338	412
21	1,800	1,920	1,250	5,620	3,200	1,020	688	544	355	276	314	417
22	1,810	1,910	1,240	5,420	2,550	1,070	672	505	360	268	319	437
23	2,050	1,640	1,270	5,140	2,150	1,180	681	456	380	276	368	412
24	2,150	1,320	1,440	4,520	2,010	1,130	671	428	400	266	417	415
25	2,190	1,450	1,680	4,220	2,050	1,020	682	420	360	274	358	407
26	2,170	1,790	1,780	4,110	2,260	896	730	412	330	287	346	399
27	2,190	1,890	1,820	4,040	1,800	863	713	412	295	294	338	420
28	2,130	1,930	1,840	3,860	1,660	800	716	386	315	283	338	389
29	1,850	1,950	1,830	3,590	-----	822	762	397	325	278	312	384
30	1,790	1,960	1,850	3,330	-----	818	821	412	330	266	333	412
31	1,780	-----	2,050	3,300	-----	774	-----	402	-----	274	336	-----
TOTAL	45,644	55,650	53,190	89,660	81,430	72,403	22,355	17,998	11,191	9,326	10,678	12,422
MEAN	1,472	1,855	1,716	2,892	2,908	2,336	745	581	373	301	344	414
MAX	2,190	2,350	2,050	5,680	3,990	5,990	826	838	445	420	417	451
MIN	965	1,320	1,240	1,390	1,660	774	671	386	295	257	281	363
AC-FT	90,530	110,400	105,500	177,800	161,500	143,600	44,340	35,700	22,200	18,500	21,180	24,640
CAL YR 1969	TOTAL	2,716,473	MEAN	7,442	MAX	27,200	MIN	522	AC-FT	5,388,000		
WTR YR 1970	TOTAL	481,947	MEAN	1,320	MAX	5,990	MIN	257	AC-FT	955,900		

## SAN JOAQUIN RIVER BASIN

11274500 ORESTIMBA CREEK NEAR NEWMAN, CALIF.

LOCATION.--Lat 37°19'01", long 121°07'39", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.19, T.7 S., R.8 E., Stanislaus County, on right bank 220 ft upstream from California aqueduct siphon, 3 miles downstream from Oso Creek, and 5 miles west of Newman.

DRAINAGE AREA.--134 sq mi.

PERIOD OF RECORD.--January 1932 to current year.

GAGE.--Water-stage recorder. Datum of gage is 216.00 ft above mean sea level. Prior to Oct. 1, 1958, at site 1,320 ft downstream at datum 24.14 ft lower. Oct. 1, 1958, to Aug. 13, 1969, at site 1,200 ft downstream at datum 27.14 ft lower.

AVERAGE DISCHARGE.--38 years, 15.5 cfs (11,230 acre-ft per year); median of yearly mean discharges, 8.6 cfs (6,200 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,010 cfs Mar. 1 (gage height, 6.04 ft); no flow for several months.

Period of record: Maximum discharge, 10,200 cfs Apr. 2, 1958 (gage height, 6.57 ft, site and datum then in use), from rating curve extended above 5,000 cfs; no flow for several months in each year.

REMARKS.--Records fair. No storage or diversion except for minor stock ponds.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				0	10	452	1.2	.42				
2				0	8.0	300	1.2	.42				
3				0	8.0	120	1.1	.20				
4				0	8.0	189	1.1	.20				
5				0	8.0	284	1.1	.20				
6				0	8.0	137	1.0	.20				
7				0	8.0	88	1.0	.20				
8				0	8.0	62	1.0	.05				
9				0	8.0	47	1.0	.05				
10				0	8.0	40	1.0	.05				
11				0	8.0	28	1.0	.05				
12				0	6.4	23	1.0	.05				
13				0	8.0	18	1.0	.02				
14				0	10	16	2.5	0				
15				31	10	14	5.2	0				
16				474	10	12	18	0				
17				343	12	12	8.0	0				
18				142	14	10	4.1	0				
19				55	14	8.0	2.4	0				
20				32	12	8.0	2.4	0				
21				291	12	8.0	1.2	0				
22				226	14	8.0	.74	0				
23				96	14	8.0	.74	0				
24				251	14	7.2	.74	0				
25				181	14	6.4	.74	0				
26				91	14	6.4	.42	0				
27				62	16	3.2	.42	0				
28				42	23	2.4	.42	0				
29				25	-----	2.4	.42	0				
30				18	-----	1.7	.42	0				
31		-----		12	-----	1.2	-----	0	-----			-----
TOTAL	0	0	0	2,372	307.4	1,922.9	62.56	2.11	0	0	0	0
MEAN	0	0	0	76.5	11.0	62.0	2.09	.068	0	0	0	0
MAX	0	0	0	474	23	452	18	.42	0	0	0	0
MIN	0	0	0	0	6.4	1.2	.42	0	0	0	0	0
AC-FT	0	0	0	4,700	610	3,810	124	4.2	0	0	0	0

CAL YR 1969 TOTAL 21,576.31 MEAN 59.1 MAX 2,060 MIN 0 ACFT 42,800  
 WAT YR 1970 TOTAL 4,666.97 MEAN 12.8 MAX 474 MIN 0 ACFT 9,260

## PEAK DISCHARGE (BASE, 50 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-16	1300	5.74	778	3- 1	1300	6.04	1,010
1-21	1300	5.27	500	3- 4	2000	5.49	614
1-24	1100	5.10	420				

## 11274630 DEL PUERTO CREEK NEAR PATTERSON, CALIF.

LOCATION.--Lat 37°29'12", long 121°12'29", in SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.21, T.5 S., R.7 E., Stanislaus County, on left bank 1.0 mile upstream from Delta-Mendota Canal crossing and 4.4 miles west of Patterson.

DRAINAGE AREA.--72.6 sq mi (revised).

PERIOD OF RECORD.--October 1958 to May 1965 (maximums only), June 1965 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 200 ft (from topographic map) Prior to June 1965, crest-stage gage at site 1.0 mile downstream at different datum.

AVERAGE DISCHARGE.--5 years, 5.71 cfs (4,140 acre-ft per year)

EXTREMES.--Current year: Maximum discharge, 182 cfs Mar. 1 (gage height, 3.28 ft); no flow for several months. Period of record: Maximum discharge, 1,800 cfs Feb. 16, 1959 (gage height, 14.68 ft, site and datum then in use), from rating curve extended above 690 cfs; no flow for several months in each year.

REVISIONS.--The maximum discharge for the water year 1967 has been revised to 1,180 cfs Jan. 22, 1967 (gage height, 6.72 ft), superseding figure published in WRD Calif. 1967.

REMARKS.--Records good. Some stock ponds and small diversions above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		0	1.3	1.5	8.6	85	3.6	1.7	.08			
2		0	1.1	1.5	7.8	66	3.6	1.5	.08			
3		0	1.1	1.3	7.4	31	3.6	1.5	.05			
4		0	1.1	1.5	7.4	38	3.1	1.3	.05			
5		0	1.1	1.3	7.0	50	3.1	1.1	.03			
6		0	1.1	1.1	7.0	30	3.1	.98	.05			
7		0	1.1	1.3	6.6	24	3.3	1.1	.05			
8		0	1.3	1.1	6.6	20	3.3	1.3	.08			
9		0	1.5	2.4	6.3	17	3.6	1.5	.20			
10		0	1.5	10	7.8	17	3.6	1.3	.20			
11		0	1.5	10	7.0	14	3.3	1.3	.12			
12		0	1.3	11	6.3	13	3.3	1.3	.08			
13		0	1.3	7.4	7.8	11	3.3	1.3	.05			
14		0	1.3	31	9.0	10	4.5	1.1	.05			
15		0	1.3	35	7.8	9.4	5.2	.84	.03			
16		0	1.3	80	7.0	8.6	4.5	.72	.03			
17		0	1.3	48	7.8	7.8	4.2	.60	.01			
18		0	1.3	25	8.2	7.4	3.6	.50	.01			
19		0	1.1	16	7.4	6.6	2.8	.40	0			
20		0	1.7	12	7.0	6.3	2.6	.40	0			
21		0	2.1	50	7.0	5.9	2.6	.30	0			
22		.40	3.6	40	6.6	5.6	3.1	.30	0			
23		.72	3.3	22	6.6	5.6	2.6	.30	0			
24		.84	2.3	38	6.3	5.2	2.3	.12	0			
25		.84	2.6	31	6.3	5.2	2.1	.12	0			
26		.98	3.6	20	6.3	4.9	2.1	.12	0			
27		.98	2.8	17	6.6	4.5	2.1	.12	0			
28		1.1	2.3	14	9.8	4.2	2.3	.12	0			
29		1.3	1.9	11	-----	4.2	2.1	.12	0			
30		1.3	1.7	10	-----	3.9	1.9	.12	0			
31		-----	1.7	9.4	-----	3.9	-----	.12	-----			-----
TOTAL	0	8.46	53.5	560.8	203.3	525.2	94.4	23.60	1.25	0	0	0
MEAN	0	.28	1.73	18.1	7.26	16.9	3.15	.76	.042	0	0	0
MAX	0	1.3	3.6	80	9.8	85	5.2	1.7	.20	0	0	0
MIN	0	0	1.1	1.1	6.3	3.9	1.9	.12	0	0	0	0
AC-FT	0	17	106	1,110	403	1,040	187	47	2.5	0	0	0

CAL YR 1969 TOTAL 5,520.96 MEAN 15.1 MAX 399 MIN 0 AC-FT 10,950  
WAT YR 1970 TOTAL 1,470.51 MEAN 4.03 MAX 85 MIN 0 AC-FT 2,920

## PEAK DISCHARGE (BASE, 50 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-14	1900	3.02	142	1-24	0830	2.38	64
1-16	1400	2.93	130	3- 1	1430	3.28	182
1-21	1500	2.60	90	3- 4	2230	2.60	90

## 11274710 MACLURE CREEK BELOW MACLURE GLACIER, NEAR TUOLUMNE MEADOWS, CALIF.

LOCATION.--Lat 37°45'09", long 119°16'52", in T.2 S., R.24 E., Tuolumne County, Yosemite National Park, in middle of stream 650 ft upstream from large unnamed lake, 2.3 miles upstream from mouth, and 9.3 miles south of town of Tuolumne Meadows.

DRAINAGE AREA.--0.37 sq mi.

PERIOD OF RECORD.--May 1967 to current year (no winter records).

GAGE.--Water-stage recorder and artificial control. Altitude of gage is 11,520 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 14 cfs July 15, 19; maximum gage height, 2.02 ft July 19; minimum daily discharge recorded, 0.02 cfs Oct. 23 to Nov. 1.

Period of record: Maximum discharge, 28 cfs July 28, 1967 (gage height, 2.64 ft); possibility of no flow during winter months each year.

REMARKS.--Records fair. No storage or diversion above station. This station measures the outflow from Maclure Glacier in Yosemite National Park.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.87	.02							2.1	2.7	3.4	2.4
2	.87	.03							2.5	3.6	3.4	2.2
3	.73	.03							2.6	4.1	3.8	2.0
4	.63	.03							2.5	4.2	4.4	1.7
5	.57								2.2	5.9	4.0	1.3
6	.50								2.6	7.6	4.0	1.2
7	.43								2.3	6.8	4.4	1.5
8	.37								2.3	6.2	4.0	1.9
9	.31								1.4	5.5	3.7	2.1
10	.28								.98	5.1	3.9	2.2
11	.23								.76	5.2	4.8	2.2
12	.19								.63	4.9	5.1	1.9
13	.14								.55	5.5	5.3	1.4
14	.10								.45	6.6	5.0	1.1
15	.10								.35	8.5	4.7	.95
16	.09								.30	6.8	4.5	.90
17	.07								.34	6.2	4.1	.90
18	.06							.40	.52	7.5	3.8	.92
19	.05							.34	1.6	9.2	4.1	.90
20	.04							.25	3.3	8.6	4.0	.81
21	.03							.17	3.8	10	3.4	.73
22	.03							.21	4.3	7.2	3.2	.70
23	.02							.35	4.7	5.4	3.2	.70
24	.02							.50	4.9	5.1	2.8	.68
25	.02							.59	4.6	4.9	3.2	.68
26	.02							.66	6.2	4.5	3.3	.68
27	.02							.87	6.6	3.8	3.8	.68
28	.02							.70	3.7	3.9	3.9	.68
29	.02				-----			.70	2.8	5.4	3.8	.63
30	.02				-----			.98	2.2	4.7	3.4	.63
31	.02	-----			-----		-----	1.6	-----	3.8	2.9	-----
TOTAL	6.87								74.08	179.4	121.3	37.27
MEAN	.22								2.47	5.79	3.91	1.24
MAX	.87								6.6	10	5.3	2.4
MIN	.02								.30	2.7	2.8	.63
AC-FT	14								147	356	241	74

PEAK DISCHARGE (BASE, 10 CFS)							
DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
6-26	2400	1.86	11	7-15	2000	1.97	14
7- 6	2100	1.86	11	7-19	2030	2.02	14



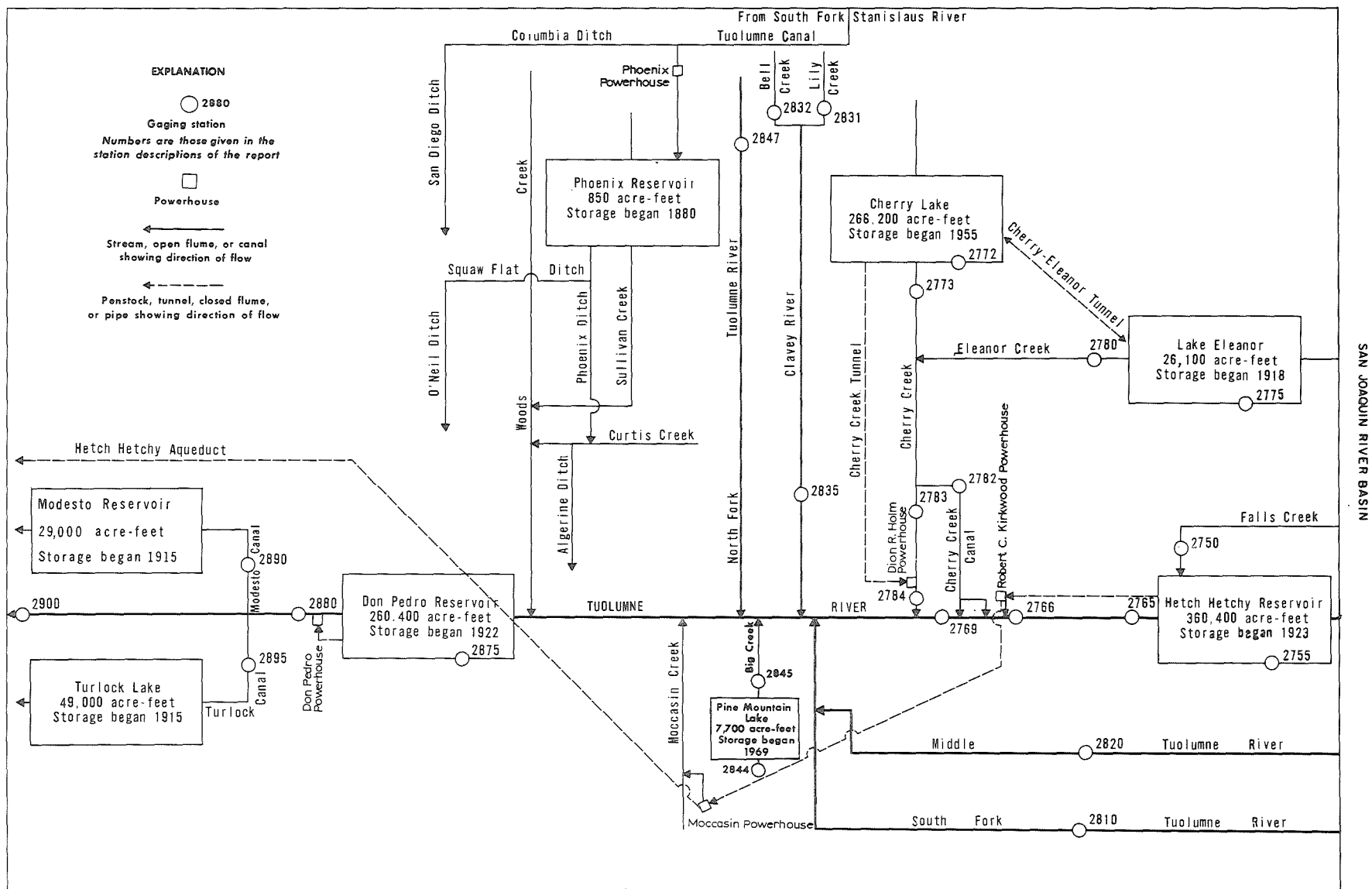


FIGURE 7.--Schematic diagram showing diversions and storage in Tuolumne River basin.

## SAN JOAQUIN RIVER BASIN

11275000 FALLS CREEK NEAR HETCH HETCHY, CALIF.

LOCATION.--Lat 37°58'15", long 119°45'48", in SE $\frac{1}{4}$  sec.3, T.1 N., R.20 E., Tuolumne County, Yosemite National Park, on right bank 0.2 mile upstream from Wampana Falls, 0.6 mile upstream from mouth, and 2 miles northeast of Hetch Hetchy.

DRAINAGE AREA.--46.0 sq mi.

PERIOD OF RECORD.--October 1915 to current year. Monthly discharge only for some periods, published in WSP 1315-A. Prior to October 1918, published as "near Sequoia."

GAGE.--Water-stage recorder. Altitude of gage is 5,350 ft (from topographic map).

AVERAGE DISCHARGE.--55 years, 143 cfs (103,600 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,350 cfs Jan. 21 (gage height, 6.21 ft); no flow Sept. 24-30. Period of record: Maximum discharge, 6,660 cfs Nov. 19, 1950, Dec. 23, 1955 (gage height, 9.0 ft, from floodmarks), from rating curve extended above 2,500 cfs on basis of velocity-area studies; no flow at times in many summers.

REMARKS.--Records good. No regulation or diversion above station. See schematic diagram of Tuolumne River basin.

COOPERATION.--Gage-height record and seven discharge measurements furnished by city and county of San Francisco.

REVISIONS (WATER YEARS).--WSP 531: 1917(M). WSP 931: 1938. WSP 1930: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	22	12	53	68	91	87	143	710	182	15	1.6
2	1.3	22	11	49	62	83	93	175	695	198	13	1.5
3	1.2	23	11	47	65	80	105	242	670	208	12	1.4
4	1.1	23	9.8	46	70	70	112	320	710	188	10	1.3
5	.97	23	9.2	47	75	72	132	391	715	210	9.5	1.1
6	.79	46	9.0	43	72	73	170	433	625	228	9.2	.96
7	.70	51	9.0	33	75	79	190	308	548	195	8.9	.84
8	.70	52	9.8	36	79	80	188	280	620	159	8.2	.70
9	.70	51	11	77	78	70	198	238	932	143	7.3	.58
10	.67	50	10	97	74	72	248	312	568	117	7.1	.46
11	.61	50	12	70	76	65	270	260	379	115	6.4	.38
12	.49	52	13	70	87	62	235	190	325	104	5.8	.30
13	.36	55	14	69	81	76	198	210	280	97	4.9	.22
14	.36	54	14	157	80	97	165	355	218	93	4.8	.18
15	18	52	13	102	78	107	149	540	175	89	4.8	.14
16	302	53	12	918	72	107	131	670	192	88	4.6	.10
17	259	51	11	664	72	113	118	776	295	75	4.3	.08
18	114	39	10	318	68	97	117	854	382	66	4.0	.05
19	70	33	90	211	62	81	120	750	476	61	3.7	.04
20	58	30	641	219	55	78	100	596	552	58	3.7	.03
21	49	29	720	950	55	81	87	524	520	54	3.7	.03
22	49	28	504	953	57	94	84	592	540	51	3.6	.02
23	51	25	255	468	61	118	79	695	496	45	3.3	.01
24	51	22	195	372	64	143	83	680	472	37	2.9	0
25	45	19	457	198	66	168	97	635	437	32	2.6	0
26	38	18	205	145	72	175	131	690	379	29	2.3	0
27	34	17	113	178	79	155	129	765	490	25	2.2	0
28	30	15	84	113	91	141	118	604	462	22	2.0	0
29	25	13	70	91	-----	136	117	588	280	20	1.8	0
30	23	13	64	83	-----	124	131	635	200	18	1.7	0
31	22	-----	58	73	-----	100	-----	685	-----	17	1.6	-----
TOTAL	1,249.25	1,031	3,656.8	6,950	1,994	3,088	4,182	15,136	14,343	3,024	174.9	12.02
MEAN	40.3	34.4	118	224	71.2	99.6	139	488	478	97.5	5.64	.40
MAX	302	55	720	953	91	175	270	854	932	228	15	1.6
MIN	.36	13	9.0	33	55	62	79	143	175	17	1.6	0
AC-FT	2,480	2,040	7,250	13,790	3,960	6,130	8,300	30,020	28,450	6,000	347	24

CAL YR 1969 TOTAL 89,910.05 MEAN 246 MAX 1,390 MIN .36 AC-FT 178,300  
 WAT YR 1970 TOTAL 54,840.97 MEAN 150 MAX 953 MIN 0 AC-FT 108,800

## PEAK DISCHARGE (BASE, 900 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-20	2000	5.80	1,020	1-21	1700	6.21	1,350
12-25	1130	5.65	920	5-18	0600	5.70	950
1-16	1230	6.13	1,280	6- 9	0900	5.91	1,100

## 11275500 HETCH HETCHY RESERVOIR AT HETCH HETCHY, CALIF.

LOCATION.--Lat 37°56'52", long 119°47'13", in NW $\frac{1}{4}$  sec.16, T.1 N., R.20 E., Tuolumne County, Yosemite National Park, near center of O'Shaughnessy Dam on Tuolumne River at Hetch Hetchy, 1.5 miles downstream from Falls Creek.

DRAINAGE AREA.--455 sq mi.

PERIOD OF RECORD.--May 1923 to current year. Prior to October 1930 monthend contents, published in WSP 1315-A. GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by city and county of San Francisco).

Prior to Oct. 1, 1927, nonrecording gage at same site and datum.

EXTREMES.--Current year: Maximum contents, 361,500 acre-ft June 20 (elevation, 3,806.6 ft); minimum, 203,500 acre-ft Jan. 13 (elevation, 3,718.4 ft).

Period of record: Maximum contents, 369,100 acre-ft Dec. 3, 1950 (elevation, 3,810.4 ft); no contents at times in 1929-31.

REMARKS.--Reservoir is formed by concrete gravity-type dam, completed to crest elevation 3,726.5 ft in 1923 and raised to 3,812.0 ft in 1937; storage began Apr. 6, 1923. Ten-foot drum gates were installed on spillway in 1949. Usable capacity, 360,400 acre-ft between elevations, 3,512.0 ft (somewhat above bottom outlet) and 3,806.0 ft (top of drum-type spillway gates) above mean sea level. Water is diverted from reservoir through tunnel to Robert C. Kirkwood powerplant 15 miles downstream where flow is diverted from powerplant tailrace in a closed conduit through Hetch Hetchy aqueduct to Moccasin Creek powerplant with flow in excess of aqueduct capacity being spilled to river. At Moccasin Creek diversion dam, water re-enters Hetch Hetchy aqueduct and flows into Crystal Springs Reservoir, which supplies city of San Francisco. Surplus water is spilled into Don Pedro Reservoir at Red Mountain Bar. Flow down river is for State Department of Fish and Game and Raker Act requirements. Hetch Hetchy Reservoir is main storage unit of Hetch Hetchy water-supply system for San Francisco. See schematic diagram of Tuolumne River basin.

COOPERATION.--Gage-height record furnished by city and county of San Francisco.

REVISIONS.--WSP 1930: Drainage area.

CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

3,512	0	3,540	8,700	3,640	97,000	3,740	238,900
3,513	51	3,560	22,900	3,660	119,900	3,760	273,700
3,515	154	3,580	39,500	3,680	146,200	3,780	310,400
3,520	410	3,600	57,400	3,700	175,000	3,800	348,600
3,530	3,300	3,620	76,500	3,720	206,000	3,810.4	369,100

CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	294,600	262,400	231,200	212,400	237,000	250,400	236,200	221,900	322,200	353,900	337,900	291,700
2	293,300	261,700	229,800	211,500	236,400	250,200	235,700	222,200	327,600	353,500	336,600	290,200
3	291,800	260,300	227,700	210,300	235,900	249,500	235,200	223,400	333,100	355,000	335,100	288,700
4	290,400	259,200	227,200	209,700	235,200	248,800	234,700	224,800	338,100	356,000	333,500	287,300
5	289,500	258,200	225,800	208,700	234,700	248,000	234,800	226,300	341,400	357,800	332,000	285,800
6	287,800	257,300	224,500	207,600	234,000	247,100	235,200	227,800	343,500	358,600	330,600	284,500
7	286,400	256,100	223,500	206,500	233,300	246,600	235,900	228,000	345,300	358,000	328,900	283,400
8	284,900	255,000	222,000	205,200	233,000	245,700	236,400	228,000	348,200	357,000	327,400	281,800
9	283,600	254,700	220,600	204,900	233,500	245,000	236,700	228,000	352,300	356,400	326,100	280,400
10	282,000	253,700	219,400	204,900	234,200	244,400	237,000	227,700	352,900	355,800	324,500	279,100
11	280,400	253,100	217,900	204,700	235,000	243,500	237,700	228,300	351,900	355,200	322,800	277,700
12	279,500	252,100	216,500	204,100	236,000	242,600	237,900	227,500	351,600	354,900	321,300	276,000
13	277,800	251,100	215,300	203,500	237,000	241,800	238,100	226,700	351,300	354,500	319,800	274,800
14	276,200	249,900	213,600	203,900	238,100	241,400	237,500	228,000	350,900	354,300	318,300	273,200
15	275,300	249,000	212,100	203,900	238,900	241,300	236,400	232,200	350,700	354,300	317,000	271,700
16	276,400	248,600	210,800	212,900	239,800	240,800	235,000	238,100	351,500	354,100	315,300	270,300
17	276,800	247,300	209,500	217,000	240,800	240,400	233,500	245,700	353,500	353,500	313,800	268,700
18	276,000	246,200	208,100	217,900	241,400	239,900	232,000	252,600	357,200	352,900	312,400	267,300
19	275,500	245,000	207,100	218,400	242,500	239,400	230,800	259,200	360,800	352,500	310,900	265,900
20	274,600	243,800	209,200	218,900	242,800	238,600	229,200	262,900	361,200	351,900	309,300	265,200
21	273,500	242,600	212,900	227,200	243,700	237,900	227,500	266,200	361,000	351,100	307,800	263,600
22	273,000	241,300	214,500	232,500	244,400	237,400	226,000	270,700	360,800	350,400	306,300	262,200
23	271,900	240,900	214,700	234,800	245,200	237,200	224,700	276,400	360,000	349,200	305,100	260,800
24	271,000	239,600	214,700	236,900	245,700	237,000	223,800	281,800	359,000	348,200	303,500	259,200
25	270,000	238,400	217,100	237,500	246,600	237,200	223,400	286,900	358,200	347,000	301,600	257,700
26	269,400	236,700	217,500	237,700	247,400	237,400	223,400	292,800	358,600	346,100	300,100	256,100
27	268,200	236,200	217,000	238,600	248,300	237,400	223,400	297,900	360,800	344,900	298,500	254,900
28	267,100	234,800	216,100	238,600	249,300	237,500	222,900	302,400	359,800	343,500	297,000	253,500
29	265,900	233,500	215,300	238,400	-----	237,500	222,400	306,600	357,400	342,200	295,900	252,100
30	264,500	232,700	215,200	238,100	-----	237,200	221,900	311,500	355,600	340,800	294,600	250,500
31	263,400	-----	213,100	237,500	-----	236,900	-----	317,000	-----	339,500	293,100	-----
MAX	294,600	262,400	231,200	238,600	249,300	250,400	238,100	317,000	361,200	358,600	337,900	291,700
MIN	263,400	232,700	207,100	203,500	233,000	236,900	221,900	322,200	339,500	293,100	250,500	
(a)	3,754.2	3,736.3	3,724.4	3,739.2	3,746.1	3,738.8	3,729.8	3,783.5	3,803.6	3,795.3	3,770.7	3,746.8
(b)	-32,500	-30,700	-19,600	+24,400	+11,800	-12,400	-15,000	+95,100	+38,600	-16,100	-46,400	-42,600

CAL YR 1969 b +103,600

WTR YR 1970 b -45,400

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.



## 11276900 TUOLUMNE RIVER BELOW EARLY INTAKE, NEAR MATHER, CALIF.

LOCATION.--Lat 37°52'54", long 119°58'09", in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.2, T.1 S., R.18 E., Tuolumne County, Stanislaus National Forest, on left bank 0.6 mile upstream from Cherry Creek, 0.7 mile downstream from Robert C. Kirkwood power-plant and Hetch Hetchy aqueduct, and 6.3 miles west of Mather.

DRAINAGE AREA.--487 sq mi.

PERIOD OF RECORD.--October 1966 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,200 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 3,900 cfs June 22 (gage height, 7.30 ft); minimum daily, 43 cfs Nov. 22.

Period of record: Maximum discharge, 11,300 cfs June 4, 1969 (gage height, 9.82 ft); minimum daily, 13 cfs Nov. 18, 19, 25-27, 1966, Feb. 1, 1967.

REMARKS.--Records good. Flow regulated by Hetch Hetchy Reservoir 13 miles upstream (see sta 11275500) and Robert C. Kirkwood powerplant beginning Apr. 26, 1967. Water is diverted to Hetch Hetchy aqueduct from the tailrace of the powerplant through a closed conduit. Flow in excess of aqueduct capacity is diverted to river. See schematic diagram of Tuolumne River basin.

COOPERATION.--Gage-height record and six discharge measurements furnished by city and county of San Francisco.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58	54	56	69	212	193	356	231	1,960	1,760	194	85
2	76	54	55	68	238	405	430	224	1,990	1,280	205	71
3	50	57	55	67	224	395	440	221	2,020	191	238	116
4	49	54	56	67	221	360	445	352	2,080	191	238	67
5	53	56	56	67	215	360	292	1,080	2,170	120	199	47
6	50	90	52	66	202	360	360	1,080	2,560	444	221	47
7	50	82	52	65	194	340	330	1,070	2,600	1,160	205	47
8	50	58	58	70	204	340	375	1,080	2,640	1,160	169	63
9	57	57	63	86	96	330	440	1,080	2,640	1,020	169	67
10	55	59	59	202	96	306	768	971	2,680	716	199	104
11	55	54	70	116	96	286	782	1,090	2,640	644	202	72
12	55	56	77	104	99	302	789	1,090	2,100	485	194	57
13	57	56	56	115	118	290	796	1,080	1,580	365	191	86
14	57	57	67	370	155	259	838	1,080	1,340	306	167	143
15	68	53	82	248	182	182	985	1,090	894	274	135	131
16	88	54	67	831	124	248	999	1,090	550	266	148	135
17	90	88	48	510	194	252	978	1,120	555	270	188	139
18	64	112	57	320	162	252	964	1,160	555	228	172	190
19	59	80	87	270	135	218	815	1,410	1,140	218	177	105
20	57	55	92	263	87	241	950	1,690	2,980	234	163	59
21	55	47	83	713	61	234	957	1,690	3,570	238	148	134
22	55	43	111	430	58	234	866	1,730	3,580	221	79	90
23	55	57	90	286	56	238	638	1,750	3,530	259	46	73
24	55	59	105	310	52	245	420	1,780	3,530	234	122	72
25	54	57	120	274	47	248	370	1,810	3,080	221	146	72
26	54	56	120	270	46	263	283	1,840	2,250	208	147	62
27	54	54	83	298	67	248	335	1,890	2,260	224	144	61
28	54	57	76	282	60	248	315	1,880	2,570	245	108	64
29	54	92	92	245	-----	248	302	1,920	2,520	238	63	71
30	54	53	90	215	-----	248	212	1,930	1,780	238	63	70
31	54	-----	86	196	-----	248	-----	1,860	-----	218	150	-----
TOTAL	1,796	1,861	2,321	7,493	3,701	8,621	17,830	39,369	66,344	13,876	4,990	2,600
MEAN	57.9	62.0	74.9	242	132	278	594	1,270	2,211	448	161	86.7
MAX	90	112	120	831	238	405	999	1,930	3,580	1,760	238	190
MIN	49	43	48	65	46	182	212	221	550	120	46	47
AC-FT	3,560	3,690	4,600	14,860	7,340	17,100	35,370	78,090	131,600	27,520	9,900	5,160

CAL YR 1969 TOTAL 444,875 MEAN 1,219 MAX 10,600 MIN 33 AC-FT 882,400  
WAT YR 1970 TOTAL 170,802 MEAN 468 MAX 3,580 MIN 43 AC-FT 338,800

NOTE.--No gage-height record Oct. 1 to Dec. 11.

## SAN JOAQUIN RIVER BASIN

## 11277200 CHERRY LAKE NEAR HETCH HETCHY, CALIF.

LOCATION.--Lat 37°58'33", long 119°54'47", in SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.5, T.1 N., R.19 E., Tuolumne County, Stanislaus National Forest, on upstream face of Cherry Valley Dam on Cherry Creek, 4.2 miles upstream from Eleanor Creek, 7 miles north of Early Intake, and 7.3 miles northwest of Hetch Hetchy.

DRAINAGE AREA.--117 sq mi.

PERIOD OF RECORD.--August 1956 to current year. Prior to October 1959, published as Lake Lloyd near Hetch Hetchy.

GAGE.--Nonrecording gage read once daily. Datum of gage is at mean sea level (levels by city and county of San Francisco).

EXTREMES (at 0800).--Current year: Maximum contents, 244,200 acre-ft June 29 (elevation, 4,685.9 ft); minimum, 166,200 acre-ft Dec. 19 (elevation, 4,637.7 ft).

Period of record: Maximum contents, 269,300 acre-ft July 1-3, 1957 (elevation, 4,700.6 ft); minimum, 30 acre-ft Dec. 5, 1964 (elevation, 4,438.0 ft).

REMARKS.--Reservoir is formed by a rockfill dam completed in 1956; storage began in December 1955. Usable capacity, 268,810 acre-ft between elevations 4,430 ft (bottom of sluice gates) and 4,700 ft (top of spillway gates) above mean sea level. Additional storage of 20 acre-ft is not available for release. Water is released down Cherry Creek for power development and domestic supply as part of Hetch Hetchy system of city and county of San Francisco. Unmeasured diversion from Lake Eleanor into Cherry Lake began Mar. 6, 1960. Diversion from Cherry Lake through tunnel to Cherry powerhouse near mouth of Cherry Creek began on Aug. 1, 1960. See schematic diagram of Tuolumne River basin.

COOPERATION.--Gage-height record furnished by city and county of San Francisco.

## CAPACITY TABLE (ELEVATION, IN FEET, AND USABLE CONTENTS, IN ACRE-FEET)

4,440	0	4,490	3,020	4,560	60,800	4,660	201,100
4,450	75	4,500	6,030	4,580	85,100	4,680	234,100
4,460	250	4,510	11,700	4,600	111,800	4,700	268,800
4,470	675	4,520	19,700	4,620	139,900	4,705	277,900
4,480	1,530	4,540	38,900	4,640	169,700		

## CONTENTS, IN ACRE-FEET, AT 0800, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	202,600	187,600	177,400	--	197,800	190,600	180,900	178,400	222,000	243,300	219,900	192,400
2	200,800	--	176,700	185,400	197,600	190,900	180,400	178,800	223,600	242,800	218,900	191,400
3	200,100	187,400	175,700	185,000	197,000	190,400	180,100	179,600	224,700	242,700	218,900	190,400
4	198,900	186,600	--	184,600	196,200	190,400	179,900	181,500	225,900	--	217,500	190,400
5	198,100	185,800	174,300	185,000	195,400	190,400	180,100	182,900	227,200	241,800	216,400	189,000
6	197,900	185,400	173,400	184,000	194,700	190,400	180,400	184,700	228,600	242,300	215,300	188,400
7	197,000	185,200	172,900	183,200	194,400	190,400	180,500	185,800	229,600	241,800	214,100	188,700
8	195,800	184,700	173,100	182,600	194,300	190,400	180,700	186,500	230,700	241,300	213,100	188,900
9	194,900	184,600	172,500	182,100	194,600	188,900	180,900	186,800	234,100	240,400	212,000	--
10	194,100	185,200	171,600	182,200	194,300	188,400	181,300	187,600	236,300	239,900	212,000	186,800
11	193,100	--	--	181,800	193,800	187,700	181,800	188,200	236,500	239,100	210,900	186,200
12	--	--	170,200	181,300	--	187,300	182,400	188,400	236,300	238,000	209,600	185,400
13	193,000	184,700	169,400	180,800	--	186,800	183,000	188,400	236,100	238,200	--	184,700
14	192,000	184,300	169,100	180,400	193,300	186,500	183,200	189,200	235,800	237,200	207,300	184,900
15	191,200	183,600	169,400	180,500	193,300	186,300	183,000	190,800	235,400	236,100	206,100	184,000
16	193,100	183,500	168,500	181,900	193,900	--	182,700	193,100	234,600	235,300	205,000	183,000
17	194,400	184,100	167,600	187,300	193,600	186,300	182,400	196,000	234,200	234,400	204,800	182,100
18	194,300	183,300	166,800	189,000	193,100	186,000	181,900	199,200	233,900	233,200	203,700	181,500
19	194,100	182,600	166,200	189,600	--	185,200	181,900	201,400	234,800	232,400	202,400	180,400
20	194,600	181,900	167,600	190,000	193,800	184,600	181,800	203,000	235,600	232,400	201,300	179,100
21	193,900	181,300	173,400	191,200	191,900	183,800	181,300	204,400	236,500	231,400	200,000	177,800
22	193,100	180,500	180,700	197,800	191,700	183,200	--	205,700	238,000	230,200	198,900	178,400
23	192,500	180,200	181,600	200,000	--	183,000	--	207,400	238,700	229,100	197,900	177,400
24	191,900	180,500	182,100	201,200	191,700	182,700	179,800	209,400	239,200	228,100	197,800	--
25	191,200	181,300	--	201,700	191,200	182,600	179,300	211,200	239,600	226,900	196,800	175,900
26	190,900	179,000	185,800	201,600	190,900	182,400	179,300	213,000	239,900	225,900	--	175,100
27	191,200	--	186,000	201,400	190,600	182,100	179,600	214,900	241,300	225,900	--	174,700
28	190,600	--	185,800	200,800	190,400	182,100	179,300	216,400	243,200	224,700	194,400	174,800
29	189,600	177,900	186,800	200,100	-----	181,900	178,800	217,500	244,200	--	193,600	173,900
30	188,900	177,300	186,300	199,300	-----	181,900	178,200	--	243,900	--	193,000	172,900
31	188,200	-----	185,700	198,400	-----	181,500	-----	220,400	-----	221,000	193,100	-----
MAX	202,600	187,600	186,800	201,700	197,800	190,900	183,200	220,400	244,200	243,300	219,900	192,400
MIN	188,200	177,300	166,200	180,400	190,400	181,500	178,200	178,400	222,000	221,000	193,000	172,900
(a)	4,651.9	4,644.9	4,650.3	4,658.3	4,653.3	4,647.6	4,645.5	4,671.8	4,685.7	4,672.2	4,655.0	4,642.1
(b)	-15,800	-10,900	-8,400	+12,700	-8,000	-8,900	-3,300	+42,200	+23,500	-22,900	-27,900	-20,200
CAL YR 1969	b +126,100											
WTR YR 1970	b -31,100											

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

## 11277300 CHERRY CREEK BELOW CHERRY VALLEY DAM, NEAR HETCH HETCHY, CALIF.

LOCATION.--Lat 37°58'04", long 119°54'59", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.5, T.1 N., R.19 E., Tuolumne County, Stanislaus National Forest, on right bank 0.7 mile downstream from Cherry Valley Dam, 3.5 miles upstream from Eleanor Creek, 6.7 miles north of Early intake, and 7.2 miles west of Hetch Hetchy.

DRAINAGE AREA.--118 sq mi.

PERIOD OF RECORD.--November 1956 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 4,337.08 ft above mean sea level (levels by city and county of San Francisco).

EXTREMES.--Current year: Maximum discharge, 181 cfs July 9 (gage height, 4.57 ft); minimum daily, 3.9 cfs many days.

Period of record: Maximum discharge, 3,830 cfs Apr. 25, 1958 (gage height, 9.95 ft); minimum daily, 1.6 cfs Apr. 10, 1957.

REMARKS.--Records good. Flow regulated by Cherry Lake 0.7 mile upstream (see sta 11277200). Diversion between Lake Eleanor and Cherry Lake began Mar. 6, 1960. Diversion from Cherry Lake to Cherry powerhouse began Aug. 1, 1960. See schematic diagram of Tuolumne River basin.

COOPERATION.--Gage-height record and six discharge measurements furnished by city and county of San Francisco.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	3.9	3.9	5.3	9.5	10	5.3	5.3	5.3	15	16	16
2	5.7	3.9	3.9	5.0	8.9	9.2	5.3	5.3	5.3	16	16	16
3	5.5	3.9	3.9	5.0	8.5	8.9	5.0	5.3	5.3	16	16	16
4	5.5	3.9	3.9	5.0	8.5	8.9	5.0	5.5	5.3	16	16	16
5	5.3	4.2	3.9	5.0	8.2	8.9	5.0	5.7	5.3	16	16	16
6	4.2	4.6	3.9	5.0	8.0	8.5	5.0	5.7	5.3	16	16	16
7	4.2	4.4	3.9	5.0	7.7	8.5	5.0	5.7	5.3	16	16	16
8	4.2	4.2	4.2	5.0	7.7	8.5	4.8	5.7	5.3	16	16	16
9	3.9	4.2	4.2	6.0	7.7	8.5	4.8	5.7	5.7	19	16	16
10	3.9	4.2	4.2	6.2	7.4	8.5	5.0	5.5	6.0	16	16	16
11	3.9	4.2	4.2	5.7	7.4	8.5	5.3	5.5	5.7	16	16	14
12	3.9	3.9	4.2	6.0	7.7	8.2	5.3	5.5	5.5	16	16	13
13	3.9	3.9	4.2	6.2	8.2	8.2	5.5	5.5	5.7	16	16	14
14	3.9	3.9	4.2	12	8.2	8.0	5.5	5.5	5.7	16	16	16
15	5.5	3.9	4.2	9.5	8.0	7.7	5.5	5.3	5.7	16	16	16
16	5.7	3.9	4.2	35	8.0	7.7	5.7	5.3	5.7	16	16	16
17	4.8	3.9	4.2	25	8.9	8.0	5.7	5.3	5.5	16	16	16
18	4.6	3.9	4.2	15	8.2	8.0	5.5	5.3	5.5	16	16	16
19	4.4	3.9	5.3	13	8.0	7.7	5.5	5.3	5.5	16	16	16
20	4.4	3.9	5.7	13	8.0	6.7	5.5	5.3	5.3	16	16	16
21	4.2	3.9	6.4	33	7.7	5.5	5.7	5.3	5.3	16	16	16
22	4.2	3.9	5.5	19	7.7	5.5	5.7	5.3	5.3	16	16	16
23	4.2	3.9	5.0	14	7.4	5.5	5.5	5.3	6.4	16	16	16
24	4.2	3.9	5.7	16	7.4	5.3	5.5	5.3	6.4	16	16	16
25	4.2	3.9	8.2	13	7.2	5.3	5.3	5.3	6.4	16	16	16
26	4.2	3.9	6.4	12	7.2	5.3	5.7	5.3	6.4	16	16	16
27	4.2	3.9	6.0	15	7.2	5.0	5.7	5.3	5.7	16	16	16
28	3.9	3.9	5.5	12	8.0	5.0	5.5	5.3	5.5	16	16	16
29	3.9	3.9	5.5	11	-----	5.0	5.5	5.3	5.7	16	16	17
30	3.9	3.9	5.3	10	-----	5.0	5.5	5.3	6.5	16	16	18
31	3.9	-----	5.3	9.8	-----	5.0	-----	5.3	-----	16	16	-----
TOTAL	143.4	119.7	149.3	357.7	222.5	224.5	160.8	167.5	169.5	498	496	476
MEAN	4.63	3.99	4.82	11.5	7.95	7.24	5.36	5.40	5.65	16.1	16.0	15.9
MAX	11	4.6	8.2	35	9.5	10	5.7	5.7	6.5	19	16	18
MIN	3.9	3.9	3.9	5.0	7.2	5.0	4.8	5.3	5.3	15	16	13
AC-FT	284	237	296	710	441	445	319	332	336	988	984	944

CAL YR 1969 TOTAL 31,504.8 MEAN 86.3 MAX 970 MIN 3.9 AC-FT 62,490  
WAT YR 1970 TOTAL 3,184.9 MEAN 8.73 MAX 35 MIN 3.9 AC-FT 6,320

## 11277500 LAKE ELEANOR NEAR HETCH HETCHY, CALIF.

LOCATION.--Lat 37°58'27", long 119°52'48", in NW $\frac{1}{4}$  sec.3, T.1 N., R.19 E., Tuolumne County, Yosemite National Park, 720 ft from left bank on downstream side of dam on Eleanor Creek, 1.7 miles upstream from Miguel Creek, and 5.5 miles northwest of Hetch Hetchy.

DRAINAGE AREA.--78.1 sq mi.

PERIOD OF RECORD.--June 1918 to current year. Prior to October 1930, published in WSP 1315-A. Published as "near Sequoia" 1919-20.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by city and county of San Francisco). Prior to Oct. 1, 1927, nonrecording gage on upstream side of dam at same site and datum.

EXTREMES.--Current year: Maximum contents, 27,400 acre-ft June 9 (elevation, 4,661.3 ft); minimum, 8,570 acre-ft Dec. 18 (elevation, 4,639.8 ft).  
Period of record: Maximum contents, 31,000 acre-ft Dec. 11, 1937, from capacity table then in use (elevation, 4,663.4 ft); no usable contents at times in 1921, 1929-30, 1956-60.

REMARKS.--Reservoir is formed by multiple-arch dam completed in 1918; storage began June 23, 1918. Usable capacity, 26,100 acre-ft between elevations 4,620.9 ft (natural outlet of old lake) and 4,660.0 ft (top of 5-foot flashboards) above mean sea level. Water is released down Eleanor Creek for power development and domestic supply as part of Hetch Hetchy system of city and county of San Francisco. Figures given herein represent usable contents. See schematic diagram of Tuolumne River basin.

COOPERATION.--Gage-height record furnished by city and county of San Francisco.

REVISIONS.--WSP 1445: 1938(M). WSP 1930: Drainage area.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

4,626.2	639	4,634	4,700	4,644	11,900	4,654	20,600
4,627	996	4,636	5,960	4,646	13,500	4,656	22,400
4,628	1,480	4,638	7,330	4,648	15,300	4,658	24,300
4,630	2,450	4,640	8,710	4,650	17,000	4,660	26,100
4,632	3,580	4,642	10,300	4,652	18,800	4,663	29,100

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25,400	20,300	13,600	20,500	24,100	23,700	22,900	21,600	26,900	26,900	26,400	22,200
2	25,200	20,000	13,400	20,300	24,000	23,700	22,800	21,800	26,900	26,900	26,400	21,900
3	25,200	19,700	13,000	20,100	24,100	23,600	22,700	22,100	26,800	26,900	26,400	21,500
4	25,100	19,300	12,700	19,800	24,100	23,600	22,600	22,700	26,900	26,800	26,300	21,000
5	25,100	19,100	12,400	19,500	24,100	23,500	22,600	23,400	26,900	26,800	26,300	20,700
6	25,000	19,000	12,000	19,200	24,000	23,500	22,800	23,800	26,800	26,900	26,300	20,300
7	24,800	18,700	11,800	19,000	23,900	23,400	22,900	23,900	26,800	26,900	26,200	20,100
8	24,400	18,600	11,600	18,800	23,800	23,400	23,100	23,900	26,900	27,000	26,200	19,700
9	24,000	18,400	11,300	19,000	23,800	23,400	23,300	23,900	27,300	27,000	26,100	19,400
10	23,600	18,200	11,000	19,200	23,700	23,300	23,500	24,000	27,100	27,000	26,100	19,100
11	23,300	18,200	10,700	19,100	23,700	23,200	23,700	23,900	26,800	26,900	26,100	18,700
12	22,900	18,100	10,500	19,100	23,800	23,100	23,800	23,800	26,900	26,900	26,100	18,300
13	22,600	18,000	10,100	19,200	23,900	23,000	23,800	23,800	27,000	26,900	26,100	17,900
14	22,200	17,800	9,820	19,900	23,900	23,100	23,700	24,100	27,100	26,900	26,100	17,600
15	22,200	17,600	9,580	20,100	23,800	23,200	23,600	24,500	27,100	26,800	26,000	17,300
16	23,600	17,400	9,260	25,100	23,800	23,300	23,500	24,800	27,100	26,800	26,000	17,000
17	23,900	17,300	8,950	25,400	23,800	23,400	23,400	24,900	27,100	26,800	25,900	16,600
18	23,800	17,200	8,570	24,800	23,700	23,300	23,300	25,200	27,200	26,800	25,900	16,200
19	23,600	16,900	8,790	24,500	23,600	23,200	23,200	25,900	27,300	26,800	25,800	15,800
20	23,500	16,600	12,600	24,400	23,500	23,000	23,100	26,300	27,300	26,800	25,800	15,400
21	23,400	16,400	16,200	26,600	23,400	22,800	22,900	26,700	27,300	26,700	25,700	15,000
22	23,200	16,100	17,900	26,000	23,400	22,800	22,600	26,900	27,300	26,700	25,700	14,700
23	22,900	15,900	18,200	25,200	23,400	22,800	22,300	27,000	27,300	26,600	25,500	14,200
24	22,600	15,600	18,700	25,100	23,400	23,000	22,100	27,100	27,200	26,600	25,300	13,900
25	22,300	15,300	20,800	24,700	23,400	23,200	22,000	27,000	27,200	26,600	24,900	13,500
26	22,100	15,000	21,300	24,500	23,400	23,300	22,100	27,200	27,100	26,600	24,600	13,000
27	21,800	14,700	21,400	24,600	23,400	23,400	22,000	27,000	27,300	26,600	24,200	12,700
28	21,500	14,500	21,300	24,400	23,500	23,400	21,900	26,900	27,200	26,500	23,800	12,400
29	21,200	14,100	21,100	24,300	-----	23,400	21,700	26,900	27,100	26,500	23,400	12,000
30	21,000	13,900	21,000	24,200	-----	23,400	21,700	26,900	27,000	26,500	23,000	11,600
31	20,600	-----	20,800	24,100	-----	23,200	-----	26,900	-----	26,400	22,600	-----
MAX	25,400	20,300	21,400	26,600	24,100	23,700	23,800	27,200	27,300	27,000	26,400	22,200
MIN	20,600	13,900	8,570	18,800	23,400	22,800	21,700	21,600	26,800	26,400	22,600	11,600
(a)	4,654.0	4,646.4	4,654.2	4,657.8	4,657.2	4,656.8	4,655.2	4,660.8	4,660.9	4,660.3	4,656.2	4,643.7
(b)	-4,800	-6,700	+6,900	+3,300	-600	-300	-1,500	+5,200	+100	-800	-3,800	-11,000

CAL YR 1969 b +19,220

WTR YR 1970 b -13,800

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.



## 11278000 ELEANOR CREEK NEAR HETCH HETCHY, CALIF.

LOCATION.--Lat 37°58'09", long 119°52'52", in SW $\frac{1}{4}$  sec.3, T.1 N., R.19 E., Tuolumne County, Yosemite National Park, on right bank 0.5 mile downstream from Lake Eleanor Dam, 1.1 miles upstream from Miguel Creek, and 5.5 miles northwest of Hetch Hetchy.

DRAINAGE AREA.--78.4 sq mi.

PERIOD OF RECORD.--October 1909 to current year. Monthly discharge only for some periods, published in WSP 1315-A. Published as "near Sequoia" 1910-18.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 4,500 ft (from topographic map). November 1909 to November 1915, nonrecording gage and water-stage recorder at site 1 mile upstream at different datum.

AVERAGE DISCHARGE (prior to diversion to Cherry Lake).--50 years (1909-59), 223 cfs (161,400 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 3,390 cfs Jan. 22 (gage height, 7.34 ft); minimum daily, 3.2 cfs Oct. 3.

Period of record: Maximum discharge, 11,700 cfs Nov. 19, 1950 (gage height, 14.95 ft), from rating curve extended above 2,000 cfs on basis of velocity-area studies; no flow at times in 1910, 1930-31, 1933, 1956.

REMARKS.--Records good. Flow regulated by Lake Eleanor 0.5 mile upstream beginning in 1918 (see sta 11277500). Diversion from Lake Eleanor to Cherry Lake began in March 1960. See schematic diagram of Tuolumne River basin.

COOPERATION.--Gage-height record and eight discharge measurements furnished by city and county of San Francisco.

REVISIONS (WATER YEARS).--WSP 1315-A: 1923(M). WSP 1930: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	5.4	4.8	6.8	198	40	4.1	5.6	470	147	15	15
2	3.8	5.4	4.8	6.8	176	61	3.8	5.6	460	132	15	15
3	3.2	5.4	4.8	6.8	167	52	4.1	5.4	440	122	15	15
4	4.6	5.4	4.8	6.8	164	37	4.1	5.4	425	114	15	15
5	5.9	5.4	4.8	6.8	167	28	4.1	6.2	430	94	15	15
6	5.4	5.4	4.6	6.8	157	19	4.1	76	380	66	15	15
7	4.8	5.4	4.6	6.8	105	15	4.1	148	320	58	15	15
8	4.6	5.4	4.8	6.8	83	13	4.1	150	352	63	15	15
9	4.6	5.4	4.6	9.0	77	12	4.1	128	929	65	15	15
10	4.8	5.4	4.6	8.6	71	10	6.5	167	725	65	15	15
11	4.8	5.4	4.6	7.4	60	9.0	33	171	767	64	15	15
12	4.6	5.4	4.6	7.4	71	8.3	64	129	212	60	15	15
13	5.1	5.1	4.6	7.7	96	8.0	78	104	155	57	15	15
14	5.9	5.1	4.6	13	102	8.0	76	162	176	55	15	15
15	7.1	5.4	4.4	9.0	86	8.0	47	312	173	52	15	14
16	10	5.4	4.4	201	76	8.0	26	532	162	51	15	14
17	126	5.4	4.4	1,560	82	8.6	12	678	162	38	15	14
18	147	5.4	4.4	942	65	6.6	7.4	682	175	34	15	15
19	82	5.4	5.9	510	48	8.6	6.2	404	212	34	14	15
20	40	5.4	8.0	465	30	9.3	5.6	274	259	33	14	15
21	15	5.1	8.6	1,700	18	4.1	5.4	347	265	32	15	14
22	8.3	5.1	7.4	2,830	13	4.6	5.4	455	253	24	15	14
23	6.8	5.1	7.1	1,520	10	4.6	5.4	559	238	15	15	14
24	6.5	5.1	8.0	1,210	9.3	4.4	5.4	576	218	15	15	14
25	5.9	5.1	12	802	9.0	4.4	5.4	564	198	15	15	14
26	5.9	5.1	7.7	548	8.6	5.1	5.6	559	188	15	14	14
27	5.6	5.1	7.4	543	8.6	6.2	5.9	588	292	15	13	15
28	5.6	5.1	7.1	464	10	6.2	5.9	554	320	15	14	15
29	5.6	5.1	6.8	329	-----	6.8	5.9	480	218	16	14	15
30	5.4	4.8	6.8	262	-----	7.7	5.9	465	171	15	15	15
31	5.4	-----	6.8	222	-----	5.1	-----	460	-----	15	15	-----
TOTAL	561.2	158.1	182.8	14,224.5	2,167.5	428.6	454.5	9,752.2	9,745	1,596	458	441
MEAN	18.1	5.27	5.90	459	77.4	13.8	15.2	315	325	51.5	14.8	14.7
MAX	147	5.4	12	2,830	198	61	78	682	929	147	15	15
MIN	3.2	4.8	4.4	6.8	8.6	4.1	3.8	5.4	155	15	13	14
AC-FT	1,110	314	363	28,210	4,300	850	902	19,340	19,330	3,170	908	875

CAL YR 1969 TOTAL 61,820.0 MEAN 169 MAX 1,800 MIN 3.2 AC-FT 122,600  
WAT YR 1970 TOTAL 40,169.4 MEAN 110 MAX 2,830 MIN 3.2 AC-FT 79,680

## SAN JOAQUIN RIVER BASIN

11278200 CHERRY CREEK CANAL NEAR EARLY INTAKE, CALIF.

LOCATION.--Lat 37°53'36", long 119°57'17", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.36, T.1 N., R.18 E., Tuolumne County, Stanislaus National Forest, on left bank 1.3 miles northeast of Early Intake and 10 miles southwest of Hetch Hetchy.

PERIOD OF RECORD.--April 1956 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,700 ft (from topographic map).

EXTREMES.--Period of record: Maximum daily discharge, 194 cfs July 30, 1959; no flow at times in 1964 and 1969.

REMARKS.--Records good. Canal diverts from left bank of Cherry Creek in SW $\frac{1}{4}$  sec.31, T.1 N., R.19 E., for domestic use at Early Intake and occasional power development at Early Intake powerhouse as part of Hetch Hetchy system of city and county of San Francisco. See schematic diagram of Tuolumne River basin.

COOPERATION.--Gage-height record and seven discharge measurements furnished by city and county of San Francisco.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	3.6	3.2	3.2	3.8	2.7	1.5	1.6	8.4	13	12	11
2	4.2	3.6	3.2	3.3	3.8	2.6	1.5	1.6	15	13	12	11
3	4.1	3.5	3.2	3.3	3.8	2.5	1.5	1.6	14	13	12	11
4	4.1	3.5	3.2	3.3	3.7	2.5	1.6	1.6	14	13	12	11
5	3.9	3.5	3.0	3.3	3.6	2.5	1.6	1.6	14	12	12	11
6	3.9	3.6	3.0	3.3	3.6	2.5	1.6	1.6	14	12	12	11
7	3.9	3.5	3.0	3.3	3.5	2.5	1.5	2.4	14	12	12	11
8	3.9	3.5	3.0	3.4	3.4	2.4	1.5	3.6	14	12	12	11
9	3.9	3.4	3.0	3.6	3.2	2.4	1.5	3.6	15	12	12	11
10	3.9	3.3	3.0	3.7	3.2	2.3	1.5	3.5	15	12	12	11
11	3.9	3.3	3.0	3.6	3.2	2.4	1.6	3.4	14	12	12	11
12	3.9	3.3	3.0	3.6	3.0	2.4	1.6	3.3	14	12	12	11
13	3.9	3.3	3.0	3.7	3.2	2.3	1.6	3.3	13	12	12	11
14	3.9	3.2	3.0	4.5	3.2	2.2	1.6	3.2	13	12	12	11
15	4.1	3.2	3.0	4.1	3.0	2.2	1.5	2.9	13	12	12	11
16	4.2	3.0	3.0	5.9	2.9	2.2	1.5	2.8	13	12	12	11
17	4.1	3.0	3.0	5.8	2.9	2.1	1.5	2.7	13	12	12	11
18	4.1	3.0	3.0	4.9	2.9	2.0	1.5	2.8	13	12	12	11
19	3.9	2.9	3.2	4.5	2.8	1.9	1.5	2.6	13	12	12	11
20	3.8	2.9	3.2	4.4	2.7	1.8	1.5	2.5	13	12	12	11
21	3.7	2.9	3.2	6.1	2.6	1.8	1.5	2.6	13	12	12	11
22	3.6	2.9	3.0	6.1	2.5	1.8	1.5	2.6	13	12	12	11
23	3.6	3.0	3.0	5.4	2.5	1.8	1.5	2.7	13	12	12	11
24	3.6	3.0	3.0	5.6	2.6	1.8	1.5	2.6	13	12	12	11
25	3.6	3.0	3.2	5.2	2.4	1.8	1.5	2.6	13	12	12	11
26	3.6	3.0	3.2	4.9	2.3	1.8	1.6	2.6	13	12	12	11
27	3.6	3.2	3.2	5.0	2.3	1.7	1.6	2.6	13	12	12	11
28	3.6	3.2	3.2	4.5	2.4	1.7	1.6	2.6	13	12	12	11
29	3.6	3.2	3.2	4.1	-----	1.6	1.6	2.6	13	12	11	11
30	3.6	3.2	3.2	3.9	-----	1.6	1.6	2.6	13	12	11	11
31	3.6	-----	3.2	3.9	-----	1.6	-----	2.5	-----	12	11	-----
TOTAL	119.6	96.7	95.8	133.4	85.0	65.4	46.2	80.8	399.4	376	369	330
MEAN	3.86	3.22	3.09	4.30	3.04	2.11	1.54	2.61	13.3	12.1	11.9	11.0
MAX	4.3	3.6	3.2	6.1	3.8	2.7	1.6	3.6	15	13	12	11
MIN	3.6	2.9	3.0	3.2	2.3	1.6	1.5	1.6	8.4	12	11	11
AC-FT	237	192	190	265	169	130	92	160	792	746	732	655
CAL YR 1969	TOTAL	1,546.16	MEAN	4.24	MAX	9.6	MIN	0	AC-FT	3,070		
WAT YR 1970	TOTAL	2,197.30	MEAN	6.02	MAX	15	MIN	1.5	AC-FT	4,360		

## 11278300 CHERRY CREEK NEAR EARLY INTAKE, CALIF.

LOCATION.--Lat 37°53'40", long 119°57'42", in NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.35, T.1 N., R.18 E., Tuolumne County, Stanislaus National Forest, on right bank 1.2 miles upstream from mouth, 1.3 miles north of Early Intake, and 10.3 miles southwest of Hetch Hetchy.

DRAINAGE AREA.--226 sq mi.

PERIOD OF RECORD.--May 1956 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,272.00 ft above mean sea level (levels by city and county of San Francisco).

EXTREMES.--Current year: Maximum discharge, 3,710 cfs Jan. 22 (gage height, 9.65 ft); minimum daily, 7.6 cfs Oct. 4, 10, 13.

Period of record: Maximum discharge, 16,500 cfs Feb. 1, 1963 (gage height, 14.50 ft), from rating curve extended above 4,600 cfs; minimum daily, 0.30 cfs Apr. 5, 6, 1964.

REMARKS.--Records good. Flow regulated by Cherry Lake 10 miles upstream (see sta 11277200) and Lake Eleanor 9.8 miles upstream (see sta 11277500). Cherry Creek Canal diverts about 1.0 mile upstream from station (see sta 11278200). Diversion from Cherry Lake to Cherry powerhouse began Aug. 1, 1960. Water is returned to creek 1.2 miles below station. See schematic diagram of Tuolumne River basin.

COOPERATION.--Gage-height record and six discharge measurements furnished by city and county of San Francisco.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	9.2	9.7	21	335	190	43	56	480	188	21	18
2	15	9.2	9.7	20	308	205	43	51	470	170	22	18
3	8.0	9.2	9.7	20	292	168	42	46	452	158	21	18
4	7.6	9.2	9.7	19	282	145	40	43	438	151	21	18
5	8.8	9.9	9.7	20	282	132	39	40	442	130	21	18
6	9.7	20	9.7	20	272	119	39	89	410	92	21	18
7	8.4	18	9.7	18	202	110	37	208	377	72	21	18
8	8.0	12	11	20	162	109	37	215	383	79	21	18
9	7.8	11	12	31	152	104	36	186	884	85	21	18
10	7.6	11	10	108	142	104	35	218	714	83	21	18
11	8.0	11	10	58	129	102	48	242	498	81	20	18
12	7.8	10	10	49	138	90	92	190	281	77	20	16
13	7.6	10	9.9	61	192	88	119	151	188	73	20	15
14	8.4	10	9.9	212	212	86	136	194	222	69	20	17
15	19	10	9.9	145	182	83	100	348	222	66	19	18
16	45	11	9.7	852	162	79	73	522	208	63	19	18
17	131	11	9.7	1,910	208	75	56	658	202	54	19	18
18	192	10	9.7	1,140	162	71	48	686	212	43	19	18
19	123	10	13	686	134	65	50	464	252	42	19	18
20	63	10	42	654	109	71	48	326	310	42	19	18
21	31	10	47	2,090	90	59	46	395	322	41	18	18
22	17	10	47	3,040	81	58	47	470	312	38	19	18
23	12	10	23	1,630	76	56	47	558	278	23	19	18
24	11	9.9	30	1,360	73	54	45	578	275	22	19	18
25	10	9.9	81	910	70	52	43	562	252	21	19	18
26	10	9.9	62	662	68	50	47	558	238	21	18	18
27	9.9	9.7	37	706	66	49	52	590	328	21	18	18
28	9.9	9.7	30	602	80	48	49	558	371	21	17	18
29	9.7	9.7	26	484	-----	48	48	504	278	22	18	18
30	9.4	9.7	23	410	-----	48	53	487	212	21	18	21
31	9.4	-----	22	362	-----	46	-----	480	-----	21	18	-----
TOTAL	852.0	320.2	662.7	18,320	4,661	2,764	1,638	10,673	10,511	2,090	606	537
MEAN	27.5	10.7	21.4	591	166	89.2	54.6	344	350	67.4	19.5	17.9
MAX	192	20	81	3,040	335	205	136	686	884	188	22	21
MIN	7.6	9.2	9.7	18	66	46	35	40	188	21	17	15
AC-FT	1,690	635	1,310	36,340	9,250	5,480	3,250	21,170	20,850	4,150	1,200	1,070
CAL YR 1969	TOTAL	115,238.9	MEAN	316	MAX	2,660	MIN	7.6	AC-FT	228,600		
WAT YR 1970	TOTAL	53,634.9	MEAN	147	MAX	3,040	MIN	7.6	AC-FT	106,400		

## SAN JOAQUIN RIVER BASIN

11278400 CHERRY CREEK BELOW DION R. HOLM POWERHOUSE, NEAR MATHER, CALIF.

LOCATION.--Lat 37°53'24", long 119°58'08", in NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.2, T.1 S., R.18 E., Tuolumne County, Stanislaus National Forest, on left bank 600 ft upstream from mouth, 0.5 mile downstream from powerhouse, 1.2 miles northwest of Early Intake, and 5.3 miles west of Mather.

DRAINAGE AREA.--234 sq mi.

PERIOD OF RECORD.--March 1963 to current year. Prior to October 1965, published as "below Cherry powerhouse, near Mather."

GAGE.--Water-stage recorder. Altitude of gage is 2,150 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 5,240 cfs Jan. 22 (gage height, 11.64 ft); minimum daily, 14 cfs Nov. 27.

Period of record: Maximum discharge, 8,530 cfs Dec. 24, 1964 (gage height, 13.55 ft), from rating curve extended above 3,200 cfs; minimum daily, 3.6 cfs Oct. 26, 27, 1964.

REMARKS.--Records good. Flow regulated by Cherry Lake 11 miles upstream (see sta 11277200) and Lake Eleanor 10 miles upstream (see sta 11277500). Cherry Creek Canal (see sta 11278200) diverts about 2 miles upstream from station. See schematic diagram of Tuolumne River basin.

COOPERATION.--Gage-height record and five discharge measurements furnished by city and county of San Francisco.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	623	462	597	183	504	590	833	687	1,240	720	498	560
2	614	15	601	658	910	865	831	653	1,200	700	21	564
3	597	599	596	559	880	820	828	357	1,220	690	540	570
4	455	592	598	172	862	795	653	681	1,190	640	541	570
5	22	596	594	652	844	770	653	675	1,190	219	531	520
6	615	620	488	655	832	765	829	729	1,130	629	536	20
7	610	615	15	658	660	620	831	883	904	601	534	20
8	627	469	597	663	268	435	829	968	1,130	615	515	570
9	666	16	600	701	710	755	830	902	1,650	622	22	570
10	614	596	600	839	700	750	829	855	1,510	618	532	565
11	466	17	597	742	680	765	688	989	1,260	584	531	565
12	17	604	595	864	715	743	665	942	1,020	181	540	510
13	593	604	484	878	765	747	922	903	889	605	544	15
14	595	604	15	1,080	700	642	932	955	798	601	532	570
15	607	460	594	979	205	648	896	1,130	925	602	540	565
16	633	27	595	1,830	725	787	866	1,300	920	594	20	560
17	721	605	603	2,710	780	784	848	1,240	916	593	555	575
18	656	605	595	1,810	720	866	677	1,500	890	541	540	575
19	111	603	599	1,580	690	929	678	1,250	817	37	555	710
20	647	609	525	1,530	660	935	838	1,070	839	574	550	250
21	615	609	55	3,330	545	928	844	1,160	430	583	545	550
22	603	462	635	4,330	95	794	847	1,240	870	574	530	570
23	596	19	609	2,580	620	925	848	1,320	845	563	20	575
24	596	608	622	2,180	610	924	841	1,130	811	560	565	575
25	466	605	90	1,570	605	922	682	1,360	784	527	550	570
26	16	604	653	1,530	600	922	612	1,340	780	22	548	515
27	595	14	516	1,480	595	920	859	1,370	860	554	548	15
28	595	605	32	1,360	540	920	797	1,340	490	561	540	570
29	596	489	610	1,200	-----	699	844	1,280	800	560	520	575
30	597	15	610	1,130	-----	918	856	1,220	740	557	18	575
31	593	-----	614	946	-----	917	-----	1,150	-----	558	528	-----
TOTAL	16,357	13,348	15,534	41,379	18,020	24,800	23,986	32,579	29,048	16,585	14,109	14,514
MEAN	528	445	501	1,335	644	800	800	1,051	968	535	455	484
MAX	721	620	653	4,330	910	935	932	1,500	1,650	720	565	710
MIN	16	14	15	172	95	435	612	357	430	22	18	15
AC-FT	32,440	26,480	30,810	82,080	35,740	49,190	47,580	64,620	57,620	32,900	27,990	28,790
CAL YR 1969	TOTAL 345,941		MEAN 948	MAX 3,570	MIN 14	ACFT 686,200						
WAT YR 1970	TOTAL 260,259		MEAN 713	MAX 4,330	MIN 14	ACFT 516,200						

## 11281000 SOUTH FORK TUOLUMNE RIVER NEAR OAKLAND RECREATION CAMP, CALIF.

LOCATION.--Lat 37°49'18", long 120°00'43", in SE $\frac{1}{4}$  sec.29, T.1 S., R.18 E., Tuolumne County, Stanislaus National Forest, on right bank 75 ft downstream from highway bridge on Big Oak Flat Road, 0.5 mile southwest of Oakland Recreation Camp, and 0.6 mile upstream from Middle Tuolumne River.

DRAINAGE AREA.--87.0 sq mi.

PERIOD OF RECORD.--March 1923 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,800 ft (from topographic map). Prior to Nov. 22, 1931, at site 50 ft upstream at same datum.

AVERAGE DISCHARGE.--47 years, 94.1 cfs (68,180 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 2,190 cfs Jan. 16 (gage height, 6.79 ft); minimum daily, 6.6 cfs Sept. 30.

Period of record: Maximum discharge, 11,900 cfs Dec. 23, 1955 (gage height, 10.9 ft, from floodmarks), from rating curve extended above 1,300 cfs on basis of slope-area measurements at gage heights 7.48 and 10.9 ft; minimum, 0.3 cfs Aug. 23, 1934.

REMARKS.--Records good. No storage or diversion above station. See schematic diagram of Tuolumne River basin.

COOPERATION.--Gage-height record and 10 discharge measurements furnished by city and county of San Francisco.

REVISIONS (WATER YEARS).--WSP 1445: 1923, 1925(M), 1926-28, 1929-30(M), 1932(M), 1935-36(M), 1937-38, 1943(M), 1943(M), 1945(M). WSP 1930: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	22	21	38	144	523	118	128	99	34	13	8.3
2	16	21	22	35	132	325	116	140	91	32	13	8.2
3	16	21	22	33	126	222	120	160	80	31	13	8.2
4	16	21	21	31	122	188	123	183	74	30	13	8.0
5	16	23	21	31	116	178	129	187	69	29	12	8.0
6	17	68	23	34	111	172	141	201	63	27	12	7.9
7	17	48	22	40	107	166	143	167	59	26	12	7.9
8	17	37	23	41	106	164	138	160	62	25	12	7.7
9	17	32	25	124	103	154	144	144	138	24	11	7.7
10	17	30	23	314	99	154	157	166	87	24	11	7.6
11	17	28	23	108	99	144	162	155	70	24	11	7.6
12	17	28	23	88	116	135	155	134	66	23	11	7.4
13	17	28	23	87	149	136	152	144	68	22	11	7.4
14	17	28	22	388	151	146	141	190	63	21	11	7.3
15	30	28	22	229	134	147	129	219	61	21	11	7.6
16	84	28	22	1,220	123	144	128	244	56	20	10	7.9
17	78	28	21	665	180	147	119	245	52	20	10	7.6
18	41	25	22	357	141	143	116	228	50	20	10	7.3
19	33	25	33	244	129	132	125	206	46	19	9.8	7.2
20	30	25	90	228	120	126	116	185	44	18	9.6	7.3
21	28	25	208	690	113	125	113	164	41	18	9.4	7.6
22	28	24	151	607	107	126	109	176	40	17	9.3	7.9
23	26	24	76	342	104	134	107	178	37	17	9.1	7.6
24	26	24	63	468	104	141	106	171	36	17	9.0	7.4
25	25	23	165	290	100	152	108	155	35	16	8.8	7.3
26	24	23	116	232	100	169	125	144	38	16	8.8	7.2
27	23	23	69	270	100	159	120	138	52	16	8.6	7.0
28	23	22	49	222	138	146	111	123	43	15	8.6	7.0
29	22	21	45	188	-----	144	107	113	40	15	8.5	6.7
30	22	22	42	171	-----	140	113	109	37	14	8.5	6.6
31	22	-----	40	152	-----	128	-----	106	-----	14	8.3	-----
TOTAL	798	825	1,548	7,967	3,374	5,210	3,791	5,163	1,797	665	323.3	226.4
MEAN	25.7	27.5	49.9	257	121	168	126	167	59.9	21.5	10.4	7.55
MAX	84	68	208	1,220	180	523	162	245	138	34	13	8.3
MIN	16	21	21	31	99	125	106	106	35	14	8.3	6.6
AC-FT	1,580	1,640	3,070	15,800	6,690	10,330	7,520	10,240	3,560	1,320	641	449

CAL YR 1969 TOTAL 93,646.0 MEAN 257 MAX 3,860 MIN 16 AC-FT 185,700  
WAT YR 1970 TOTAL 31,687.7 MEAN 86.8 MAX 1,220 MIN 6.6 AC-FT 62,850

PEAK DISCHARGE (BASE, 900 CFS)  
DATE TIME G.H. DISCHARGE DATE TIME G.H. DISCHARGE  
1-14 1530 5.33 1,020 1-21 2030 5.30 1,000  
1-16 1200 6.79 2,190

## SAN JOAQUIN RIVER BASIN

## 11282000 MIDDLE TUOLUMNE RIVER AT OAKLAND RECREATION CAMP, CALIF.

LOCATION.--Lat 37°49'42", long 120°00'38", in NW $\frac{1}{4}$  sec.28, T.1 S., R.18 E., Tuolumne County, Stanislaus National Forest, on left bank 1,000 ft downstream from Oakland Recreation Camp, 0.5 mile upstream from South Fork Tuolumne River, and 4 miles east of Buck Meadows Post Office.

DRAINAGE AREA.--73.5 sq mi.

PERIOD OF RECORD.--October 1916 to current year. Monthly discharge only for October 1916, published in WSP 1315-A. Published as Middle Fork of Tuolumne River near Buck Meadows 1917-32 and as "near Buck Meadows" 1933-40.

GAGE.--Water-stage recorder. Altitude of gage is 2,800 ft (from topographic map).

AVERAGE DISCHARGE.--54 years, 75.1 cfs (54,410 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 782 cfs Jan. 16 (gage height, 5.58 ft); minimum daily, 1.9 cfs Sept. 3.

Period of record: Maximum discharge, 4,920 cfs Dec. 23, 1955 (gage height, 11.75 ft from flood profile, 11.05 ft, from floodmarks inside gage well), from rating curve extended above 1,400 cfs on basis of slope-area measurement of maximum flow; no flow Sept. 4-14, 1924, Aug. 12 to Oct. 5, 1931, Sept. 11-17, 1934, Sept. 7-14, 1961.

REMARKS.--Records good. No regulation; small diversion above station for irrigation. See schematic diagram of Tuolumne River basin.

COOPERATION.--Gage-height record and 10 discharge measurements furnished by city and county of San Francisco.

REVISIONS (WATER YEARS).--WSP 1395: 1919(M), 1938(M), 1951(P). WSP 1930: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.0	12	11	21	111	238	99	118	192	40	6.5	2.2
2	4.8	12	12	19	101	156	98	136	176	36	5.9	2.4
3	4.6	12	12	18	98	116	101	177	168	33	5.6	1.9
4	4.5	12	11	17	97	110	103	208	150	32	5.3	2.1
5	4.6	11	11	16	94	107	109	226	138	31	5.0	2.1
6	4.8	34	12	19	89	107	120	230	125	30	4.8	2.2
7	5.0	24	12	28	88	106	127	194	116	27	4.5	2.1
8	5.1	20	12	28	86	106	127	194	112	25	4.4	2.1
9	5.4	17	13	60	85	100	130	180	230	24	4.1	2.1
10	5.4	16	12	120	84	100	141	212	147	24	3.8	2.2
11	5.2	16	12	59	84	92	151	197	116	23	3.7	2.1
12	5.2	16	12	48	95	89	145	168	107	21	3.3	2.1
13	5.4	16	12	47	115	90	144	185	109	20	3.0	2.1
14	5.6	16	12	198	111	95	136	240	103	18	3.2	2.1
15	10	16	11	111	103	97	124	279	96	17	3.0	2.4
16	69	17	11	551	99	97	119	327	89	16	2.9	2.5
17	80	19	10	331	123	100	115	342	80	15	2.8	2.5
18	36	15	12	203	99	98	112	333	74	14	2.7	2.5
19	26	16	14	160	94	92	119	302	67	13	2.7	2.5
20	21	16	35	158	91	90	111	283	59	12	2.6	2.5
21	19	15	70	490	86	89	109	271	59	12	2.5	2.5
22	18	15	109	429	84	91	104	288	53	11	2.4	2.4
23	18	14	58	266	81	97	103	292	48	11	2.1	2.5
24	18	13	47	283	81	104	101	279	45	10	2.2	2.5
25	17	13	88	196	79	114	106	262	43	9.6	2.1	2.5
26	16	14	75	164	79	123	121	258	45	9.0	2.1	2.5
27	15	12	47	169	80	123	115	244	59	8.6	2.1	2.4
28	14	12	30	141	98	116	109	228	57	8.3	2.1	2.4
29	14	10	27	129	-----	116	104	210	47	7.5	2.2	2.2
30	14	11	25	124	-----	115	107	203	44	7.3	2.2	2.2
31	13	-----	23	114	-----	105	-----	197	-----	7.1	2.2	-----
TOTAL	488.6	462	858	4,717	2,615	3,379	3,510	7,263	2,954	572.4	104.0	68.8
MEAN	15.8	15.4	27.7	152	93.4	109	117	234	98.5	18.5	3.35	2.29
MAX	80	34	109	551	123	238	151	342	230	40	6.5	2.5
MIN	4.5	10	10	16	79	89	98	118	43	7.1	2.1	1.9
AC-FT	969	916	1,700	9,360	5,190	6,700	6,960	14,410	5,860	1,140	206	136

CAL YR 1969 TOTAL 68,243.1 MEAN 187 MAX 1,530 MIN 4.5 AC-FT 135,400  
WAT YR 1970 TOTAL 26,991.8 MEAN 74.0 MAX 551 MIN 1.9 AC-FT 53,540

## PEAK DISCHARGE (BASE, 370 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-14	1500	4.73	509	1-21	1700	5.34	692
1-16	0900	5.58	782	5-17	2300	4.60	455

## 11283100 LILY CREEK NEAR PINECREST, CALIF.

LOCATION.--Lat 38°08'41", long 119°53'59", in T.3 N., R.19 E., Tuolumne County, Stanislaus National Forest, on left bank 1,500 ft downstream from Mud Lake and 5.7 miles southeast of Pinecrest.

DRAINAGE AREA.--11.9 sq mi.

PERIOD OF RECORD.--July 1964 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 6,990 ft (from topographic map).

AVERAGE DISCHARGE.--6 years, 48.4 cfs (35,070 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 805 cfs Jan. 21 (gage height, 7.86 ft); no flow many days.

Period of record: Maximum discharge, 1,700 cfs Dec. 23, 1964 (gage height, 10.77 ft), from rating curve extended above 420 cfs; no flow many days in 1970.

Flood of Feb. 1, 1963, reached a stage of 11.7 ft, from floodmarks (discharge, 2,030 cfs).

REMARKS.--Records good. Small regulation by Y-Meadow Reservoir (capacity, 180 acre-ft). No diversions above station. See schematic diagram of Tuolumne River basin. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.13	2.4	2.8	17	24	23	36	75	130	17	.24	
2	.12	2.2	2.5	15	22	26	46	119	113	14	.24	
3	.12	1.9	2.4	14	23	23	56	153	102	12	.22	
4	.16	1.7	2.2	13	27	23	60	175	108	9.8	.20	
5	.24	1.6	2.2	13	29	23	78	193	95	8.8	.16	
6	.30	3.6	2.1	13	27	22	94	153	89	7.3	.15	
7	.46	7.2	1.9	13	30	23	85	113	80	6.3	.14	
8	.62	11	2.1	13	33	23	81	99	110	5.4	.13	
9	.62	14	2.1	13	29	23	101	115	272	4.6	.11	
10	.74	16	2.2	14	25	23	119	131	85	3.9	.10	
11	.89	18	2.4	14	27	23	106	89	57	3.3	.10	
12	.80	21	2.5	13	38	23	88	71	52	2.9	.09	
13	.89	21	2.8	12	28	24	60	129	45	2.4	.08	
14	1.1	19	3.2	11	27	34	51	200	68	2.1	.08	
15	6.1	17	3.0	15	24	44	43	238	41	1.7	.07	
16	106	21	2.9	308	22	45	33	261	40	1.3	.05	
17	50	15	2.7	233	21	47	29	264	51	1.2	.05	
18	26	9.8	2.7	109	20	37	31	232	55	.89	.04	
19	15	7.7	17	61	20	30	35	193	63	.74	.04	
20	12	7.3	251	61	19	27	28	148	54	.62	.04	
21	12	7.2	288	352	19	34	24	156	49	.50	.03	
22	11	6.6	128	380	19	45	24	191	47	.46	.02	
23	10	5.7	50	152	19	56	22	184	41	.42	.01	
24	8.2	5.1	37	82	20	70	26	169	36	.39	0	
25	6.6	4.6	81	57	21	85	45	169	29	.36	0	
26	6.1	4.2	46	46	23	84	47	177	34	.33	0	
27	4.6	3.9	29	39	29	71	36	148	220	.33	0	
28	3.9	3.6	23	31	27	65	29	131	51	.30	0	
29	3.5	3.2	20	28	-----	65	28	127	28	.28	0	
30	3.0	2.9	19	26	-----	49	43	130	21	.26	0	
31	2.7	-----	18	25	-----	36	-----	133	-----	.26	0	-----
TOTAL	293.89	265.4	1,051.7	2,193	692	1,226	1,584	4,866	2,266	110.14	2.39	0
MEAN	9.48	8.85	33.9	70.7	24.7	39.5	52.8	157	75.5	3.55	.077	0
MAX	106	21	288	380	38	85	119	264	272	17	.24	0
MIN	.12	1.6	1.9	11	19	22	22	71	21	.26	0	0
AC-FT	583	526	2,090	4,350	1,370	2,430	3,140	9,650	4,490	218	4.7	0
CAL YR 1969	TOTAL	26,992.59	MEAN	74.0	MAX	702	MIN	.11	AC-FT	53,540		
WAT YR 1970	TOTAL	14,550.52	MEAN	39.9	MAX	380	MIN	0	AC-FT	28,860		

## PEAK DISCHARGE (BASE, 160 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-20	unknown	-	unknown	5-5	2000	5.49	307
12-21	unknown	-	unknown	5-17	2000	6.05	410
1-16	unknown	-	unknown	6-9	0130	5.98	397
1-21	unknown	7.86	805	6-27	0830	8.07	414

## SAN JOAQUIN RIVER BASIN

11283200 BELL CREEK NEAR PINECREST, CALIF.

LOCATION.--Lat 38°09'46", long 119°56'32", in NE $\frac{1}{4}$  sec.36, T.4 N., R.18 E., Tuolumne County, on right bank 1,400 ft downstream from Bell Meadows and 3 miles southeast of Pinecrest.

DRAINAGE AREA.--9.11 sq mi.

PERIOD OF RECORD.--September 1963 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 6,450 ft (from topographic map).

AVERAGE DISCHARGE.--7 years, 28.5 cfs (20,650 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 429 cfs Jan. 21 (gage height, 5.81 ft); minimum daily, 0.06 cfs Sept. 12, 30.

Period of record: Maximum discharge, 934 cfs Dec. 23, 1964 (gage height, 7.54 ft), from rating curve extended above 160 cfs on basis of slope-area measurement at gage height 8.79 ft; no flow at times in most years.

Flood of Feb. 1, 1963, reached a stage of 8.79 ft, from floodmarks (discharge, 1,410 cfs), from slope-area measurement of maximum flow.

REMARKS.--Records good. No storage or diversion above station. See schematic diagram of Tuolumne River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.20	1.1	1.4	7.7	25	19	32	48	69	19	.76	.12
2	.20	1.1	1.3	7.5	24	22	37	63	65	17	.72	.12
3	.20	1.1	1.2	7.5	25	19	41	78	62	16	.72	.12
4	.22	1.0	1.2	6.7	27	16	43	87	61	14	.64	.12
5	.24	1.1	1.2	6.3	27	20	51	97	56	13	.64	.14
6	.24	2.0	1.1	5.8	26	19	57	86	54	12	.64	.14
7	.27	2.8	1.2	5.5	29	20	55	74	51	10	.57	.14
8	.27	3.1	1.3	5.2	30	20	54	66	62	9.3	.48	.12
9	.27	3.5	1.3	8.1	29	17	61	71	101	8.5	.48	.10
10	.27	3.7	1.2	11	26	16	66	81	54	7.9	.42	.08
11	.20	4.1	1.1	8.3	29	15	63	65	42	7.2	.42	.08
12	.22	4.7	1.1	7.9	37	17	59	57	42	6.4	.42	.06
13	.24	4.2	1.2	7.2	31	24	50	72	39	5.9	.36	.10
14	.30	3.8	1.1	11	30	30	43	106	43	5.2	.27	.12
15	10	3.5	1.1	17	28	32	38	127	35	4.7	.27	.09
16	39	4.2	1.1	234	24	32	34	142	30	4.1	.27	.12
17	10	3.0	1.0	91	24	33	31	143	32	3.8	.27	.11
18	5.9	2.3	1.0	52	23	26	32	133	34	3.4	.27	.08
19	4.2	2.0	4.2	42	22	23	32	113	38	2.9	.27	.11
20	4.4	2.0	100	54	20	22	29	92	37	2.5	.22	.13
21	4.5	2.0	106	314	19	27	26	91	37	2.1	.20	.15
22	3.8	1.9	38	168	19	33	25	100	34	1.9	.18	.11
23	3.4	1.8	18	107	19	38	24	101	30	1.9	.18	.10
24	2.6	1.7	15	89	20	45	26	94	26	1.5	.18	.10
25	2.2	1.5	59	60	20	52	34	90	24	1.3	.16	.08
26	1.9	1.5	23	50	23	52	34	92	37	1.3	.16	.08
27	1.7	1.5	15	45	23	46	29	82	92	1.1	.16	.08
28	1.5	1.3	16	37	22	45	26	74	35	1.0	.18	.08
29	1.3	1.3	15	35	-----	46	26	71	26	.95	.16	.08
30	1.3	1.2	12	28	-----	40	36	71	22	.95	.14	.06
31	1.2	-----	8.8	30	-----	34	-----	72	-----	.85	.14	-----
TOTAL	102.24	70.0	451.1	1,558.7	701	900	1,194	2,739	1,370	187.65	10.95	3.12
MEAN	3.30	2.33	14.6	50.3	25.0	29.0	39.8	88.4	45.7	6.05	.35	.10
MAX	39	4.7	106	314	37	52	66	143	101	19	.76	.15
MIN	.20	1.0	1.0	5.2	19	15	24	48	22	.85	.14	.06
AC-FT	203	139	895	3,090	1,390	1,790	2,370	5,430	2,720	372	22	6.2
CAL YR 1969	TOTAL	16,735.76	MEAN	45.9	MAX	255	MIN	.18	ACFT	33,200		
WAT YR 1970	TOTAL	9,287.76	MEAN	25.4	MAX	314	MIN	.06	ACFT	18,420		

## PEAK DISCHARGE (BASE, 125 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-20	0930	4.73	211	5- 5	2000	4.35	152
12-21	1330	5.34	326	5-17	1900	4.75	214
12-25	1000	4.16	128	6- 8	2300	4.32	146
1-16	0800	5.55	371	6-27	0800	4.70	206
1-21	1400	5.81	429				



## 11283500 CLAVEY RIVER NEAR BUCK MEADOWS, CALIF.

LOCATION.--Lat 37°54'02", long 120°04'15", in SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.35, T.1 N., R.17 E., Tuolumne County, on right bank 300 ft upstream from Forest Service road bridge, 1.7 miles downstream from Quilty Creek, and 6 miles north of Buck Meadows Post Office.

DRAINAGE AREA.--144 sq mi.

PERIOD OF RECORD.--October 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,374.08 ft above mean sea level.

AVERAGE DISCHARGE.--11 years, 253 cfs (183,300 acre-ft per year); median of yearly mean discharges, 200 cfs (145,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 6,970 cfs Jan. 21 (gage height, 15.52 ft), from rating curve extended as explained below; minimum daily, 13 cfs Sept. 13, 28-30.  
Period of record: Maximum discharge, 19,200 cfs Feb. 1, 1963 (gage height, 21.40 ft), from rating curve extended above 2,000 cfs on basis of slope-area measurement of maximum flow; minimum, 3.4 cfs Sept. 7, 8, 1961.

REMARKS.--Records excellent. No storage or diversion above station. See schematic diagram of Tuolumne River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	28	30	136	520	634	364	418	353	112	25	15
2	19	28	31	116	477	590	370	468	322	100	24	15
3	18	28	31	105	456	497	403	545	298	93	23	15
4	19	27	30	96	444	461	396	585	285	86	23	15
5	19	29	29	89	432	439	418	616	273	80	22	15
6	19	102	31	91	407	441	458	630	252	75	21	15
7	19	77	30	104	399	442	458	492	234	69	20	15
8	19	64	33	107	399	452	429	478	238	65	19	14
9	19	68	34	233	383	429	443	421	648	62	18	14
10	19	61	32	624	369	421	490	525	370	59	18	14
11	19	61	33	362	364	389	483	449	249	56	17	14
12	19	63	34	319	477	381	451	387	213	53	17	14
13	19	65	33	333	495	418	439	395	211	50	16	13
14	20	63	32	928	455	481	387	537	232	48	16	14
15	57	59	32	649	440	509	362	626	227	45	16	15
16	240	62	32	4,660	415	500	354	712	178	43	16	15
17	213	67	31	3,080	514	511	334	732	178	42	17	14
18	103	52	32	1,470	441	471	335	697	179	40	18	14
19	71	47	92	1,020	414	429	369	607	185	38	17	14
20	56	43	836	1,040	387	410	341	524	179	36	16	17
21	49	42	1,200	4,640	368	411	324	446	161	35	16	15
22	46	41	634	3,260	355	430	308	503	159	33	16	15
23	43	39	297	1,680	351	457	298	513	144	33	16	14
24	41	37	322	1,970	352	485	305	497	131	28	15	14
25	39	36	961	1,200	346	530	336	449	120	28	15	14
26	36	35	506	951	355	543	400	462	128	28	15	14
27	34	34	305	1,120	363	503	350	445	459	27	15	14
28	33	32	211	870	425	466	321	384	267	27	15	13
29	31	31	186	717	-----	472	312	367	165	27	15	13
30	30	31	163	638	-----	443	344	354	131	26	15	13
31	29	-----	143	567	-----	394	-----	355	-----	25	15	-----
TOTAL	1,417	1,452	6,426	33,175	11,603	14,439	11,382	15,619	7,169	1,569	547	430
MEAN	45.7	48.4	207	1,070	414	466	379	504	239	50.6	17.6	14.3
MAX	240	102	1,200	4,660	520	634	490	732	648	112	25	17
MIN	18	27	29	89	346	381	298	354	120	25	15	13
AC-FT	2,810	2,880	12,750	65,800	23,010	28,640	22,580	30,980	14,220	3,110	1,080	853
CAL YR 1969	TOTAL	203,439		MEAN 557		MAX 6,780	MIN 18			AC-FT 403,500		
WTR YR 1970	TOTAL	105,228		MEAN 288		MAX 4,660	MIN 13			AC-FT 208,700		

## PEAK DISCHARGE (BASE, 1,400 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1800	12.16	3,230	1-21	1500	15.52	6,970
12-25	1430	10.21	1,860	1-24	0500	12.12	3,200
1-14	1445	10.29	1,900	1-27	0945	9.33	1,440
1-16	1030	15.44	6,860				

NOTE.--No gage-height record July 25 to Sept. 10.

## SAN JOAQUIN RIVER BASIN

11284400 BIG CREEK ABOVE WHITES GULCH, NEAR GROVELAND, CALIF

LOCATION.--Lat 37°50'31", long 120°11'02", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.23, T.1 S.; R.16 E., Tuolumne County, on right bank 500 ft upstream from Whites Gulch and 2.5 miles east of Groveland.

DRAINAGE AREA.--16.4 sq mi.

PERIOD OF RECORD.--May 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,561.79 ft above mean sea level (levels by Boise-Cascade Corp).

EXTREMES.--Current year: Maximum discharge, 1,230 cfs Jan. 16 (gage height, 5.80 ft); no flow many days.

Period of record: Maximum discharge, 1,230 cfs Jan. 16, 1970 (gage height, 5.80 ft); no flow many days each year.

Flood of December 1964 reached a stage of 6.4 ft, from floodmarks (discharge not determined).

REMARKS.--Records good. No storage or diversion above station. See schematic diagram of Tuolumne River basin.

## DISCHARGE, IN CUBIC FEET PER SECCND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.20	.40	1.8	10	184	4.0	3.1	.87	.62	.06	0
2	0	.20	.40	1.8	8.3	118	4.0	2.9	.72	.49	.05	0
3	0	.19	.41	1.8	7.3	45	3.9	2.9	.65	.32	.03	0
4	0	.19	.43	1.7	6.8	40	3.8	2.7	.56	.26	.03	0
5	0	.31	.43	1.6	6.1	39	3.7	2.7	.53	.20	.01	0
6	0	.56	.43	1.6	5.6	32	3.6	2.6	.45	.15	0	0
7	0	1.2	.45	1.6	5.3	25	3.5	2.7	.43	.13	0	0
8	0	.80	.46	1.6	5.0	23	3.5	2.7	.65	.12	0	0
9	0	.58	.67	5.8	4.8	20	3.4	2.7	2.0	.11	0	0
10	0	.47	.69	32	5.1	19	3.3	2.6	1.3	.11	0	0
11	0	.42	.66	14	5.4	16	3.3	2.5	1.0	.11	0	0
12	0	.40	.61	9.3	9.1	13	3.3	2.4	.92	.10	0	0
13	0	.38	.58	7.7	25	12	4.7	2.4	.91	.10	0	0
14	0	.37	.56	218	34	11	8.4	2.4	.94	.09	0	0
15	.25	.37	.54	54	18	9.8	6.7	2.3	.97	.09	0	0
16	1.5	.39	.54	562	14	8.8	5.6	2.2	.84	.09	0	0
17	1.1	.37	.54	111	57	8.0	4.7	2.1	.79	.09	0	0
18	.80	.34	.94	47	30	7.1	4.1	2.1	.70	.08	0	0
19	.58	.35	3.5	26	22	6.5	4.3	2.1	.60	.08	0	0
20	.46	.37	2.5	23	17	6.1	4.0	2.1	.56	.08	0	0
21	.40	.37	24	176	14	5.9	4.0	2.0	.49	.08	0	0
22	.35	.37	5.0	67	11	5.7	4.1	1.9	.41	.08	0	0
23	.32	.37	9.0	32	9.9	5.4	3.7	1.7	.33	.08	0	0
24	.29	.37	4.0	86	8.7	5.2	3.3	1.5	.27	.08	0	0
25	.27	.38	15	37	7.4	5.0	3.2	1.4	.26	.08	0	0
26	.26	.40	5.8	24	6.6	5.0	4.0	1.2	.67	.07	0	0
27	.25	.40	4.6	32	6.3	4.6	5.1	1.3	1.3	.06	0	0
28	.23	.40	3.5	22	13	4.4	4.0	1.2	.91	.06	0	0
29	.22	.40	2.7	17	-----	4.5	3.5	1.2	.78	.06	0	0
30	.21	.40	2.3	14	-----	4.4	3.3	1.1	.72	.06	0	0
31	.21	-----	2.0	12	-----	4.2	-----	.98	-----	.06	0	-----
TOTAL	7.70	12.32	93.64	1,642.3	372.7	697.6	124.0	65.68	22.53	4.19	0.18	0
MEAN	.25	.41	3.02	53.0	13.3	22.5	4.13	2.12	.75	.14	.006	0
MAX	1.5	1.2	24	562	57	184	8.4	3.1	2.0	.62	.06	0
MIN	0	.19	.40	1.6	4.8	4.2	3.2	.98	.26	.06	0	0
AC-FT	15	24	186	3,260	739	1,380	246	130	45	8.3	.4	0

CAL YR 1969 TOTAL -- MEAN -- MAX -- MIN -- AC-FT --  
WTR YR 1970 TOTAL 3,042.84 MEAN 8.34 MAX 562 MIN 0 AC-FT 6,040

## PEAK DISCHARGE (BASE, 150 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-14	1500	5.23	818	1-24	0345	3.72	180
1-16	0845	5.80	1,230	3- 1	1930	4.43	408
1-21	1130	4.24	334				

## 11284500 BIG CREEK NEAR GROVELAND, CALIF.

LOCATION.--Lat 37°51'30", long 120°12'19", in NE¼NW¼ sec.15, T 1 S., R.16 E., Tuolumne County, on right bank 0.4 mile downstream from Pine Mountain Dam and 1.9 miles northeast of Groveland.

DRAINAGE AREA.--24.7 sq mi.

PERIOD OF RECORD.--October 1931 to September 1933, July 1959 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,425 ft (from topographic map). Prior to Oct. 1, 1969, at site 1,700 ft upstream at different datum.

AVERAGE DISCHARGE (adjusted for storage in Pine Mountain Lake).--13 years, 12.5 cfs (9,060 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 550 cfs Mar. 1 (gage height, 3.38 ft); minimum daily, 0.01 cfs many days.

Period of record: Maximum discharge, 4,530 cfs Feb. 1, 1963 (gage height, 7.71 ft, site and datum then in use), from rating curve extended above 1,500 cfs on basis of slope-area measurement of maximum flow; no flow for several months in most years. Maximum discharge since construction of Pine Mountain Dam in 1969, 550 cfs Mar. 1, 1970 (gage height, 3.38 ft); minimum daily, 0.01 cfs many days in 1970.

Flood of December 1955 reached a stage of 7.6 ft, from floodmarks, at site 1,700 ft upstream at different datum (discharge, 4,300 cfs).

REMARKS.--Records good. Flow regulated by Pine Mountain Lake beginning Oct. 15, 1969 (capacity, 7,700 acre-ft). Some diversion for irrigation of golf course. See schematic diagram of Tuolumne River basin.

## DISCHARGE, IN CUBIC FEET PER SECCND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	.01	.01	.04	.18	111	5.8	4.6	.51	.17	.15	.17
2	.04	.01	.01	.04	.18	219	5.7	3.9	.48	.16	.14	.16
3	.03	.01	.01	.03	.18	75	5.6	3.6	.36	.17	.14	.16
4	.03	.01	.01	.03	.18	78	5.4	3.5	.30	.16	.14	.16
5	.03	.06	.01	.03	.18	67	5.3	3.2	.24	.13	.14	.16
6	.03	.34	.01	.03	.16	46	5.3	3.0	.23	.16	.16	.16
7	.03	.18	.01	.05	.16	34	4.7	2.5	.29	.16	.17	.14
8	.03	.04	.02	.06	.15	33	4.6	2.7	.41	.17	.17	.17
9	.04	.03	.02	.51	.15	26	4.3	3.3	1.5	.20	.17	.18
10	.04	.03	.02	.21	.17	25	4.4	3.3	1.6	.19	.17	.17
11	.04	.03	.02	.13	.18	20	4.3	2.8	1.4	.19	.17	.17
12	.04	.02	.02	.15	.30	17	4.2	2.8	1.5	.18	.17	.17
13	.04	.02	.02	.13	.70	16	9.1	2.9	1.5	.18	.17	.18
14	.06	.02	.02	2.3	.29	15	16	2.9	.93	.19	.17	.18
15	.17	.03	.01	.37	.24	15	11	2.7	.81	.19	.17	.18
16	1.6	.03	.01	3.9	.73	13	9.2	2.4	.74	.19	.17	.17
17	.78	.02	.01	.77	.90	12	7.5	2.4	.62	.17	.17	.17
18	.09	.02	.01	.34	.43	12	6.2	1.5	.52	.17	.17	.17
19	.03	.03	.11	.29	.35	9.9	7.2	1.3	.44	.17	.17	.18
20	.03	.03	.14	.25	.31	9.2	6.0	1.1	.40	.17	.17	.17
21	.02	.03	1.1	1.4	.30	8.9	6.4	1.0	.31	.16	.17	.18
22	.02	.02	.09	.46	.30	9.9	6.5	1.0	.22	.15	.17	.17
23	.01	.02	.06	.39	.30	9.6	4.8	.98	.19	.14	.17	3.0
24	.02	.02	.20	.74	.26	8.0	4.5	.88	.18	.14	.17	.11
25	.02	.02	.48	.31	.26	7.4	4.4	.85	.19	.15	.17	.05
26	.02	.02	.09	.27	.26	7.1	6.7	.65	.42	.14	.17	.04
27	.02	.02	.06	.42	.26	6.7	9.6	.55	.25	.14	.17	.03
28	.01	.01	.06	.26	.66	6.5	6.6	.54	.18	.14	.17	.02
29	.02	.01	.05	.22	-----	6.4	5.1	.58	.17	.15	.17	.02
30	.02	.01	.05	.22	-----	6.2	4.5	.59	.17	.15	.17	.02
31	.01	-----	.04	.18	-----	6.0	-----	.57	-----	.15	.17	-----
TOTAL	3.40	1.15	2.78	14.53	8.72	935.8	190.9	64.59	17.06	5.08	5.12	7.01
MEAN	.11	.038	.090	.47	.31	30.2	6.36	2.08	.57	.16	.17	.23
MAX	1.6	.34	1.1	3.9	.90	219	16	4.6	1.6	.20	.17	3.0
MIN	.01	.01	.01	.03	.15	6.0	4.2	.54	.17	.13	.14	.02
AC-FT	6.7	2.3	5.5	29	17	1,860	379	128	34	10	10	14
(a)	--	206	729	5,870	7,140	--	--	--	--	--	--	7,160

CAL YR 1969 TOTAL 13,652.45 MEAN 37.4 MAX 1,630 MIN .01 AC-FT 27,080 MEAN b 38.4 AC-FT b 27,810  
WTR YR 1970 TOTAL 1,256.14 MEAN 3.44 MAX 219 MIN .01 AC-FT 2,490 MEAN b 13.3 AC-FT b 9,650

a Contents, in acre-feet, at end of month in Pine Mountain Lake.

b Adjusted for change in contents in Pine Mountain Lake.

## SAN JOAQUIN RIVER BASIN

11284700 NORTH FORK TUOLUMNE RIVER NEAR LONG BARN, CALIF.

LOCATION.--Lat 38°05'56", long 120°05'55", in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.22, T.3 N., R.17 E., Tuolumne County, Stanislaus National Forest, on right bank 0.6 mile upstream from small tributary, 1.5 miles east of Long Barn, and 3.8 miles upstream from Wrights Creek.

DRAINAGE AREA.--23.1 sq mi.

PERIOD OF RECORD.--August 1962 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,650 ft (from topographic map).

AVERAGE DISCHARGE.--8 years, 30.3 cfs (21,950 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 751 cfs Jan. 21 (gage height, 5.84 ft); minimum daily, 0.66 cfs Sept. 30.

Period of record: Maximum discharge, 1,670 cfs Jan. 21, 1969 (gage height, 7.61 ft), from rating curve extended above 650 cfs on basis of slope-area measurement at gage height 9.8 ft; minimum daily, 0.2 cfs Sept. 18-25, 1962.

Flood of Dec. 23, 1955, reached a stage of 9.8 ft, from floodmarks (discharge, 2,560 cfs by slope-area measurement).

REMARKS.--Records excellent. No storage or diversions above station. See schematic diagram of Tuolumne River basin.

## DISCHARGE, IN CUBIC FEET PER SECCND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	1.9	4.6	12	72	86	37	35	12	7.5	1.7	.93
2	1.2	1.9	3.6	11	69	76	36	36	12	6.5	1.7	1.2
3	1.2	1.9	3.8	9.6	66	68	35	38	11	6.1	1.7	1.6
4	1.3	1.9	4.7	8.8	61	64	33	41	10	5.7	1.7	.95
5	1.4	4.4	4.5	8.3	56	62	33	43	9.4	5.2	1.4	.89
6	1.5	13	2.4	8.6	52	61	33	45	8.8	4.8	1.5	.93
7	1.6	7.1	2.7	9.2	49	61	33	43	8.4	4.5	1.4	.91
8	1.5	5.8	2.9	9.2	47	63	32	42	11	4.1	1.4	.91
9	1.5	4.7	2.8	47	44	60	32	39	21	4.1	1.2	.87
10	1.5	4.0	2.8	82	42	60	33	39	13	3.9	1.2	.85
11	1.5	3.7	3.1	43	41	56	34	37	11	3.7	1.2	.80
12	1.6	3.5	3.0	39	50	53	33	34	11	3.7	1.1	.81
13	1.5	3.4	2.9	42	53	54	35	33	12	3.5	1.0	.84
14	1.7	3.3	2.7	138	51	57	36	34	13	3.2	1.0	.90
15	6.9	3.2	3.1	94	50	58	35	35	12	2.9	1.0	.95
16	13	4.2	2.6	525	51	56	35	37	10	2.9	.95	.81
17	8.0	3.9	3.5	339	68	56	33	38	9.5	2.7	1.0	.86
18	4.7	3.3	2.7	176	58	52	32	37	8.1	2.7	1.1	.80
19	3.6	3.2	12	128	53	50	35	33	8.0	2.6	1.0	.79
20	3.1	3.1	34	128	50	47	32	30	7.1	2.5	.99	.87
21	2.8	2.9	68	498	47	46	31	27	6.9	2.2	.96	.83
22	2.6	2.8	33	305	45	45	31	25	6.4	2.1	.96	.86
23	2.2	2.7	19	186	43	45	30	24	5.8	2.2	.96	.86
24	2.1	2.7	34	254	42	46	29	22	5.5	2.1	.93	.81
25	2.1	2.8	73	165	40	47	29	20	5.4	2.1	.93	.80
26	2.1	2.7	39	133	40	47	33	19	10	2.0	.90	.73
27	2.1	2.5	23	157	39	45	32	18	21	1.9	.93	.75
28	2.0	3.8	19	123	55	44	33	17	12	1.8	.89	.76
29	1.9	4.2	17	101	-----	43	32	15	9.4	1.8	.91	.77
30	2.0	4.9	15	89	-----	42	33	14	8.2	1.8	.92	.66
31	1.9	-----	13	78	-----	39	-----	13	-----	1.7	.92	-----
TOTAL	83.4	113.4	457.4	3,946.7	1,434	1,689	990	963	308.9	104.5	35.45	26.30
MEAN	2.69	3.78	14.8	127	51.2	54.5	33.0	31.1	10.3	3.37	1.14	.88
MAX	13	13	73	525	72	86	37	45	21	7.5	1.7	1.6
MIN	1.2	1.9	2.4	8.3	39	39	29	13	5.4	1.7	.89	.66
AC-FT	165	225	907	7,830	2,840	3,350	1,960	1,910	613	207	70	52

CAL YR 1969 TOTAL 21,349.5 MEAN 58.5 MAX 1,170 MIN 1.2 AC-FT 42,350  
WTR YR 1970 TOTAL 10,152.05 MEAN 27.8 MAX 525 MIN .66 AC-FT 20,140

## PEAK DISCHARGE (BASE, 150 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1545	4.27	197	1-16	1615	5.81	739
1- 9	2345	4.15	169	1-21	1530	5.84	751
1-14	1130	4.51	261	1-24	0400	4.82	357

## 11287500 DON PEDRO RESERVOIR NEAR LA GRANGE, CALIF.

LOCATION.--Lat 37°42'45", long 120°24'14", in NW¼SE¼SW¼ sec.35, T.2 S., R.14 E., Tuolumne County, 300 ft from left bank on upstream face of Don Pedro Dam on Tuolumne River, 1 mile downstream from Rogers Creek, and 5.5 miles upstream from La Grange.

DRAINAGE AREA.--1,533 sq mi (revised).

PERIOD OF RECORD.--September 1923 to current year. 1923-24 (year-end contents only) and October 1924 to September 1930 monthend contents, published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Turlock Irrigation District). Prior to Feb. 1, 1941, nonrecording gage at same site and datum.

EXTREMES.--Current year: Maximum contents, 290,800 acre-ft June 25 (elevation, 605.7 ft); minimum, 58,500 acre-ft Dec. 10 (elevation, 505.5 ft).

Period of record: Maximum contents, 292,400 acre-ft Jan. 26, 1969 (elevation, 606.2 ft); minimum, 29,200 acre-ft Sept. 1-3, 5, 1934; minimum elevation, 475.0 ft Sept. 1, 2, 1934.

REMARKS.--Reservoir is formed by concrete gravity-type dam, completed Jan. 1, 1923; storage began Nov. 14, 1922. Total capacity, 290,400 acre-ft at elevation 605.55 ft (top of drum type spillway gates), of which 30,000 acre-ft below elevation 476 ft (mutually agreed-upon minimum) is not available for release. Water passes through powerplant at dam and down Tuolumne River to La Grange Dam, 4 miles downstream, where it is diverted into Turlock and Modesto Canals for irrigation. This reservoir is operated jointly by Turlock and Modesto Irrigation Districts. Figures given herein represent total contents. See schematic diagram of Tuolumne River basin.

COOPERATION.--Gage-height record furnished by Turlock and Modesto Irrigation Districts.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

476	30,000	510	64,200	550	135,800	590	242,400
480	33,000	520	78,100	560	159,900	600	272,900
490	41,900	530	94,100	570	185,600	607	295,000
500	52,200	540	113,500	580	213,400		

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	103,400	75,500	59,900	78,700	177,700	165,400	180,600	179,600	264,800	290,500	239,800	146,700
2	100,000	74,400	59,500	78,600	178,500	171,800	180,300	179,000	265,500	290,500	237,100	143,400
3	96,500	72,800	59,600	79,900	179,300	177,500	180,300	178,200	265,500	288,900	234,200	140,500
4	92,900	72,800	59,500	80,500	179,800	178,200	179,800	177,700	265,500	287,700	231,800	138,400
5	89,000	72,500	59,500	79,600	180,600	181,100	179,000	179,600	266,700	285,100	229,500	137,000
6	83,600	73,700	60,200	79,600	180,900	182,500	178,800	181,700	269,200	283,600	227,200	135,600
7	81,900	74,400	60,600	79,800	180,900	182,500	178,500	183,300	271,000	283,600	224,600	132,300
8	81,400	74,600	58,900	80,100	179,600	182,200	178,200	185,100	273,800	283,600	222,200	128,600
9	81,000	73,800	58,600	81,100	177,700	181,900	178,000	187,300	278,500	283,600	219,400	126,800
10	80,700	72,200	58,500	87,400	176,200	181,700	178,200	188,300	282,900	283,300	215,600	125,000
11	80,800	71,400	58,600	91,000	174,300	180,900	178,800	190,500	286,100	282,300	213,400	123,400
12	80,700	69,900	59,200	93,800	173,100	179,800	179,000	192,100	287,000	280,700	210,500	121,700
13	79,200	68,900	60,200	97,400	172,500	178,800	179,600	193,800	284,500	278,900	208,000	119,900
14	78,600	68,600	60,900	112,800	173,100	177,700	180,600	195,700	284,500	277,300	205,400	117,700
15	78,300	68,600	60,000	119,000	171,500	176,400	181,400	198,500	286,100	275,700	202,600	116,900
16	80,100	67,800	60,000	156,900	170,500	176,400	182,500	202,100	286,100	274,200	199,500	116,600
17	82,000	65,900	60,000	170,500	173,800	176,900	183,000	205,400	286,400	272,600	195,400	116,900
18	83,900	65,500	60,500	170,700	174,100	177,200	183,500	209,700	286,700	270,700	192,700	116,600
19	84,200	65,500	61,100	167,400	173,600	177,700	183,300	213,600	286,700	268,200	189,700	115,800
20	83,600	65,800	64,500	163,900	172,800	178,200	183,800	217,600	289,300	265,800	187,000	114,900
21	83,600	65,900	70,400	182,500	171,300	178,500	184,300	221,400	290,200	263,900	184,000	114,100
22	83,200	66,700	74,100	195,400	169,200	178,800	184,800	225,700	289,900	262,100	181,400	114,100
23	82,800	66,900	73,800	197,100	166,900	179,000	184,600	230,100	289,900	260,200	178,000	114,100
24	82,000	65,300	74,700	199,500	164,900	179,600	184,300	233,900	290,500	258,100	173,600	113,500
25	81,100	64,700	77,900	196,000	163,100	180,300	183,500	238,300	290,200	256,000	170,500	113,200
26	79,300	64,200	79,300	191,300	161,100	180,900	182,700	242,400	290,200	253,200	164,900	113,000
27	77,300	63,500	79,600	188,300	158,900	181,100	182,200	246,600	290,500	250,500	163,400	112,200
28	76,700	62,400	78,700	183,500	157,700	181,400	181,700	250,800	289,900	248,400	160,400	110,800
29	76,500	62,400	77,000	179,300	-----	181,100	181,100	254,800	289,900	246,300	156,900	110,800
30	76,100	62,000	76,800	179,000	-----	181,100	180,100	258,700	290,500	244,200	154,500	111,000
31	75,800	-----	77,900	179,300	-----	181,100	-----	262,100	-----	242,200	150,100	-----
MAX	103,400	75,500	79,600	199,500	180,900	182,500	184,800	262,100	290,500	290,500	239,800	146,700
MIN	75,800	62,000	58,500	78,600	157,700	165,400	178,000	264,800	242,200	150,100	110,800	
(a)	518.4	508.3	519.8	567.6	559.1	568.3	567.9	596.5	605.6	589.9	556.0	538.8
(b)	-30,500	-13,800	+15,900	+101,400	-21,600	+23,400	-1,000	+82,000	+28,400	-48,300	-92,100	+39,100

CAL YR 1969 b +12,100

WTR YR 1970 b +4,700

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

## SAN JOAQUIN RIVER BASIN

11288000 TUOLUMNE RIVER ABOVE LA GRANGE DAM, NEAR LA GRANGE, CALIF.

LOCATION.--Lat 37°42'33", long 120°24'44", in NE¼NE¼ sec.3, T.3 S., R.14 E., Tuolumne County, on left bank 0.5 mile downstream from Don Pedro Dam, 3.5 miles upstream from La Grange Dam, and 5 miles upstream from La Grange.

DRAINAGE AREA.--1,532 sq mi.

PERIOD OF RECORD.--August 1895 to September 1970 (discontinued). Monthly discharge only for some periods, published in WSP 1315-A. Published as "at La Grange," 1895-1912, as "near La Grange" or "at La Grange Dam, near La Grange," 1913-17. August 1895 to September 1917 at La Grange Dam, 3.5 miles downstream, records equivalent if flow of Sierra and San Francisco Power Co.'s canal (abandoned in 1926) and Modesto and Turlock Canals are added to flow at La Grange Dam.

GAGE.--Water-stage recorder. Altitude of gage is 330 ft (from topographic map). Prior to Mar. 31, 1908, and Sept. 25 to Dec. 5, 1908, nonrecording gage at site 5 miles downstream below point of re-entrance of Sierra and San Francisco Power Co.'s canal, at different datum. Apr. 1 to Sept. 24, 1908, and Dec. 5, 1908, to Feb. 29, 1916, nonrecording gage at site 3.5 miles downstream at La Grange Dam, diversion point of Turlock and Modesto Canals, at different datum.

AVERAGE DISCHARGE (adjusted for Hetch Hetchy diversion to San Francisco).--74 years (1896-70), 2,558 cfs (1,853,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 8,000 cfs Jan. 25 (gage height, 13.75 ft); minimum daily, 500 cfs Dec. 20.

Period of record: Maximum discharge, 61,000 cfs Dec. 8, 1950 (gage height, 43.8 ft); minimum daily, 2.1 cfs Dec. 27, 1922.

REMARKS.--Records excellent. Flow regulated by Don Pedro powerplant, Don Pedro Reservoir 0.5 mile upstream (see sta 11287500), Hetchy Reservoir (see sta 11275500), Cherry Lake (see sta 11277200), and Lake Eleanor (see sta 11277500). Tuolumne Canal (see sta 11297500) diverts water from the Stanislaus River basin into the Tuolumne River basin for power, irrigation, and domestic supply in the vicinity of Sonora upstream from station. Diversion through Hetch Hetchy aqueduct to San Francisco began Oct. 19, 1934; an average of 285 cfs was diverted during 1970 water year. See schematic diagram of Tuolumne River basin.

COOPERATION.--Eight discharge measurements furnished by city and county of San Francisco.

REVISIONS (WATER YEARS).--WSP 843: 1917(M). WSP 1315-A: 1897-1916, 1923-26 (yearly summaries only). WSP 1930: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2,850	1,600	1,550	788	3,550	2,660	2,770	2,720	2,990	3,450	2,570	2,850
2	2,870	1,600	1,380	1,250	2,750	2,770	2,760	2,730	4,120	3,200	2,560	2,850
3	2,880	1,530	1,110	875	2,740	2,720	2,760	2,730	4,380	2,670	2,570	2,600
4	2,900	1,510	1,180	773	2,740	2,670	2,760	2,730	4,390	2,430	2,580	2,020
5	2,940	1,830	1,170	1,510	2,740	2,670	2,760	2,730	3,720	2,440	2,590	1,840
6	2,720	1,700	829	1,360	2,740	3,110	2,770	2,730	3,390	2,450	2,600	1,840
7	1,430	1,520	729	1,410	2,740	3,430	2,770	2,740	3,400	2,450	2,600	2,120
8	1,320	1,380	1,360	1,180	2,740	3,430	2,770	2,690	3,390	2,450	2,610	2,280
9	1,310	1,370	1,290	1,100	2,740	3,460	2,750	2,700	3,390	2,450	2,620	2,010
10	1,170	1,530	1,270	707	2,740	3,520	2,760	2,690	3,390	2,440	2,630	2,010
11	914	1,400	1,130	730	2,680	3,530	2,760	2,680	3,390	2,460	2,650	2,020
12	878	1,490	952	1,090	2,750	3,520	2,760	2,670	4,040	2,460	2,660	1,730
13	813	1,750	723	981	2,750	3,520	2,760	2,680	4,930	2,450	2,680	1,580
14	798	1,580	1,120	1,570	2,760	3,520	2,740	2,660	3,220	2,450	2,700	1,590
15	1,190	1,400	1,110	2,670	2,750	3,500	2,720	2,630	2,390	2,460	2,700	1,590
16	1,320	1,400	1,260	3,620	2,720	3,010	2,740	2,610	2,390	2,470	2,720	1,370
17	1,330	1,680	1,170	7,420	2,760	2,760	2,740	2,580	2,400	2,470	2,740	1,180
18	1,460	1,530	972	7,560	2,760	2,760	2,740	2,570	2,390	2,470	2,750	1,420
19	1,520	1,400	953	7,520	2,750	2,760	2,730	2,560	2,390	2,470	2,760	1,380
20	1,630	1,400	500	7,480	2,750	2,760	2,730	2,550	2,760	2,390	2,790	1,380
21	1,590	1,120	535	7,550	2,750	2,760	2,730	2,540	4,470	2,480	2,800	1,340
22	1,530	801	1,460	7,860	2,760	2,760	2,730	2,490	5,550	2,490	2,820	1,320
23	1,390	717	2,040	7,930	2,750	2,750	2,720	2,490	5,220	2,480	2,830	1,330
24	1,320	1,340	1,990	7,930	2,760	2,760	2,720	2,470	4,930	2,490	2,830	1,310
25	1,300	1,450	1,990	7,920	2,760	2,760	2,720	2,470	5,050	2,500	2,830	1,310
26	1,280	1,430	1,980	7,890	2,750	2,760	2,720	2,460	3,990	2,490	2,840	1,310
27	1,310	1,180	1,910	7,830	2,760	2,760	2,730	2,440	4,220	2,500	2,840	1,310
28	1,280	1,160	1,910	7,770	2,530	2,760	2,720	2,430	4,270	2,520	2,840	1,310
29	1,500	1,070	1,990	6,940	-----	2,760	2,720	2,410	4,690	2,520	2,840	1,180
30	1,630	1,060	1,600	4,460	-----	2,760	2,720	2,400	3,220	2,540	2,200	1,130
31	1,600	-----	1,170	3,640	-----	2,760	-----	2,400	-----	2,540	2,850	-----
TOTAL	49,973	41,928	40,333	129,314	77,470	92,430	82,280	80,380	112,470	78,530	83,600	50,510
MEAN	1,612	1,398	1,301	4,171	2,767	2,982	2,743	2,593	3,749	2,533	2,697	1,684
MAX	2,940	1,830	2,040	7,930	3,550	3,530	2,770	2,740	5,550	3,450	2,850	2,850
MIN	798	717	500	707	2,530	2,660	2,720	2,400	2,390	2,390	2,200	1,130
AC-FT	99,120	83,160	80,000	256,500	153,700	183,300	163,200	159,400	223,100	155,800	165,800	100,200

CAL YR 1969 TOTAL 1,709,683 MEAN 4,684 MAX 27,100 MIN 500 AC-FT 3,391,000  
WTR YR 1970 TOTAL 919,218 MEAN 2,518 MAX 7,930 MIN 500 AC-FT 1,823,000

## 11289000 MODESTO CANAL NEAR LA GRANGE, CALIF.

LOCATION.--Lat 37°40'04", long 120°27'26", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.17, T.3 S., R.14 E., Stanislaus County, on right bank 0.5 mile northeast of La Grange and 1 mile downstream from intake at La Grange Dam.

PERIOD OF RECORD.--April 1903 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. V-notch sharp-crested weir since Mar. 19, 1963. Datum of gage is 272.4 ft above mean sea level (levels by Modesto Irrigation District). Prior to July 1904, nonrecording gage at approximately present site at different datum. July 1904 to March 1920, nonrecording gage in concrete well 0.9 mile upstream and 460 ft below intake, set by water surface elevation to read same as previous gage. March 1920 to February 1924, nonrecording gage and February 1924 to March 1932, water-stage recorder, 0.9 mile upstream and 500 ft below intake at different datum.

AVERAGE DISCHARGE.--67 years, 400 cfs (289,800 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 1,820 cfs July 1, 1935; no flow at times.

REMARKS.--Records excellent. Canal diverts from right bank of Tuolumne River at La Grange Dam for irrigation in Modesto and Waterford Irrigation Districts. See schematic diagram of Tuolumne River basin.

COOPERATION.--Six discharge measurements furnished by city and county of San Francisco.

REVISIONS (WATER YEARS).--WSP 1315-A: 1904-9 (monthly figures only).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	469	6.8	1.5	.05	.05	.1	852	869	1,020	984	769	885
2	403	6.8	1.3	.04	.05	.1	907	872	1,190	978	767	890
3	398	9.1	1.1	.91	.05	.1	950	873	1,300	850	766	867
4	397	11	1.0	1.1	.05	.1	950	870	1,420	780	783	852
5	397	11	.87	1.3	.05	.1	950	880	1,340	795	794	866
6	397	9.4	.78	1.2	.05	1.6	951	872	1,280	807	801	860
7	433	6.9	.60	1.2	.05	4.9	951	888	1,280	809	801	872
8	426	6.9	.62	1.2	.04	4.8	949	927	1,280	810	803	864
9	442	7.0	.51	1.3	.04	146	978	916	1,260	810	807	620
10	436	7.0	.51	1.2	.04	354	994	912	1,060	825	815	587
11	426	9.6	.46	1.1	.04	686	999	911	951	838	815	595
12	407	11	.37	.96	.04	1,050	1,010	910	986	840	821	596
13	441	11	.38	1.3	.05	1,060	1,020	911	1,000	835	828	594
14	457	11	.36	1.7	.05	1,060	1,010	909	950	818	834	595
15	161	11	.35	1.7	.05	1,060	1,010	903	903	793	832	683
16	7.0	11	.35	1.8	.04	1,030	1,020	926	916	795	827	716
17	6.9	11	.25	1.1	.04	1,020	1,020	934	908	798	834	694
18	6.8	11	.06	.21	.04	1,280	1,020	928	846	798	822	699
19	6.7	11	.06	.25	.04	1,220	1,020	926	802	797	812	711
20	6.7	11	.09	.24	.04	997	1,020	930	868	796	815	726
21	6.7	11	.11	.32	.04	922	978	905	1,260	782	812	719
22	6.7	10	.06	.18	.04	880	943	933	1,370	772	817	712
23	6.9	10	.05	.19	.04	818	932	995	1,440	773	816	652
24	6.9	11	.06	.16	.04	775	931	967	1,180	773	796	564
25	6.9	11	.07	.12	.04	774	932	960	937	776	810	543
26	6.9	11	.06	.06	.04	834	933	968	971	776	809	541
27	6.9	11	.05	.05	.04	854	895	959	1,010	778	807	541
28	6.9	6.9	.05	.05	.04	858	868	951	1,020	781	830	562
29	6.8	2.1	.05	.05	-----	850	868	946	1,030	759	841	566
30	6.8	1.7	.05	.05	-----	852	869	938	998	759	762	547
31	6.9	-----	.05	.05	-----	851	-----	936	-----	762	884	-----
TOTAL	6,199.4	276.2	12.18	21.14	1.22	20,242.8	28,730	28,525	32,776	25,047	25,130	20,719
MEAN	200	9.21	.39	.68	.044	653	958	920	1,093	808	811	691
MAX	469	11	1.5	1.8	.05	1,280	1,020	995	1,440	984	884	890
MIN	6.7	1.7	.05	.04	.04	.10	852	869	802	759	762	541
AC-FT	12,300	548	24	42	2.4	40,150	56,990	56,580	65,010	49,680	49,850	41,100
CAL YR 1969	TOTAL	185,045.05	MEAN	507	MAX	1,570	MIN	.04	AC-FT	367,000		
WTR YR 1970	TOTAL	187,679.94	MEAN	514	MAX	1,440	MIN	.04	AC-FT	372,300		

## 11289500 TURLOCK CANAL NEAR LA GRANGE, CALIF.

LOCATION.--Lat 37°39'57", long 120°26'24", in NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.21, T.3 S., R.14 E., Stanislaus County, on right bank 2,400 ft downstream from intake at La Grange Dam and 1.2 miles east of La Grange.

PERIOD OF RECORD.--October 1898 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 265 ft (from topographic map). July 1, 1899 to Sept. 14, 1915, nonrecording gage at different sites and datums near canal intake. Sept. 15, 1915, to Apr. 15, 1924, nonrecording gage and Apr. 16, 1924, to winter of 1936-37, water-stage recorder, both at present site at datum 0.25 ft higher.

AVERAGE DISCHARGE.--72 years, 599 cfs (434,000 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 2,280 cfs June 12, 1949; no diversion for irrigation during some periods in some years. Prior to 1939, unmeasured small discharge during winter called zero.

REMARKS.--Records excellent. Canal diverts from left bank of Tuolumne River at La Grange Dam for irrigation in Turlock Irrigation District and to supply town of La Grange. During fall and winter some unmeasured flow is diverted from canal at tunnel 0.3 mile above gage, passed through La Grange powerplant and returned to river. See schematic diagram of Tuolumne River basin.

COOPERATION.--Six discharge measurements furnished by city and county of San Francisco.

REVISIONS (WATER YEARS).--WSP 1315-A: 1899-1908 (monthly figures only). WSP 1445: 1917-20, 1922.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	828	5.7	3.7	169	5.3	5.8	1,750	1,760	1,600	1,710	1,610	1,800
2	774	5.3	3.7	518	5.2	5.8	1,710	1,760	1,830	1,510	1,620	1,790
3	773	5.1	3.7	251	5.2	5.1	1,660	1,760	1,840	1,510	1,630	1,570
4	822	4.8	281	120	5.2	5.1	1,660	1,580	1,830	1,480	1,620	1,030
5	862	4.9	490	86	5.6	4.5	1,660	1,210	1,790	1,450	1,610	843
6	863	4.3	202	99	5.6	4.6	1,670	1,440	1,930	1,460	1,620	866
7	754	4.6	82	99	5.5	4.6	1,670	1,520	1,930	1,470	1,620	1,150
8	706	4.4	727	98	5.6	4.0	1,670	1,310	1,930	1,470	1,620	1,360
9	599	4.4	624	73	5.6	3.7	1,650	1,160	1,890	1,470	1,630	1,220
10	585	4.4	639	24	5.5	3.7	1,630	1,130	1,610	1,440	1,650	1,290
11	370	4.4	467	23	4.6	3.7	1,610	1,130	1,290	1,440	1,650	1,300
12	244	4.4	301	22	4.5	3.7	1,610	1,130	1,210	1,450	1,660	985
13	122	4.2	112	23	4.7	4.2	1,610	1,130	1,230	1,450	1,670	899
14	29	4.0	87	11	4.8	6.4	1,590	1,120	1,060	1,460	1,680	873
15	27	4.0	431	.83	4.8	6.4	1,590	1,110	775	1,500	1,690	809
16	18	4.0	562	1.5	4.8	365	1,600	1,070	1,170	1,500	1,700	555
17	17	4.0	415	.75	5.3	588	1,610	1,050	1,350	1,500	1,720	390
18	16	3.9	280	.50	5.2	424	1,610	1,020	1,410	1,500	1,750	638
19	16	3.8	345	.26	5.2	424	1,610	1,010	1,400	1,500	1,760	551
20	15	3.9	23	0	5.2	643	1,610	1,330	1,480	1,410	1,780	561
21	15	3.7	22	.34	5.2	782	1,640	1,560	1,770	1,530	1,790	555
22	13	3.7	935	.06	5.1	785	1,680	1,370	1,940	1,540	1,800	511
23	13	3.7	1,440	0	5.2	980	1,690	1,450	1,900	1,540	1,830	571
24	13	3.7	1,430	0	5.2	1,160	1,690	1,450	1,900	1,540	1,830	690
25	13	3.7	1,430	8.1	5.2	1,170	1,690	1,350	1,940	1,540	1,820	685
26	13	3.7	1,420	9.4	5.2	1,360	1,690	1,420	1,600	1,540	1,830	684
27	13	3.7	1,350	8.1	5.2	1,600	1,740	1,430	1,800	1,550	1,830	683
28	13	3.7	1,350	7.4	5.3	1,750	1,760	1,420	1,790	1,570	1,820	665
29	13	3.7	1,370	6.5	-----	1,750	1,760	1,410	1,850	1,600	1,790	538
30	13	3.7	1,170	5.7	-----	1,630	1,760	1,400	1,380	1,600	1,270	474
31	11	-----	458	5.6	-----	1,640	-----	1,370	-----	1,600	1,800	-----
TOTAL	8,583	126.0	18,454.1	1,671.04	145.0	17,122.3	49,880	41,360	48,425	46,830	52,700	26,536
MEAN	277	4.20	595	53.9	5.18	552	1,663	1,334	1,614	1,511	1,700	885
MAX	863	5.7	1,440	518	5.6	1,750	1,760	1,760	1,940	1,710	1,830	1,800
MIN	11	3.7	3.7	0	4.5	3.7	1,590	1,010	775	1,410	1,270	390
AC-FT	17,020	250	36,600	3,310	288	33,960	98,940	82,040	96,050	92,890	104,500	52,630
CAL YR 1969	TOTAL	295,426.15	MEAN	809	MAX	2,020	MIN	0	AC-FT	586,000		
WTR YR 1970	TOTAL	311,832.44	MEAN	854	MAX	1,940	MIN	0	AC-FT	618,500		



## 11290000 TUOLUMNE RIVER AT MODESTO, CALIF.

LOCATION.--Lat 37°37'38", long 120°59'11", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.33, T.3 S., R.9 E., Stanislaus County, on left bank at bridge on Ninth Street in Modesto and 0.2 mile downstream from Dry Creek.

DRAINAGE AREA.--1,884 sq mi.

PERIOD OF RECORD.--1878-84, 1891-94, 1897 (gage heights only), January 1895 to December 1896, April 1940 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level, unadjusted (levels by Modesto Irrigation District). Prior to July 11, 1947, at site 1,700 ft downstream at same datum, July 11, 1947, to Nov. 16, 1953, at site 1,000 ft downstream at same datum.

AVERAGE DISCHARGE.--31 years (1895-96, 1940-70), 1,476 cfs (1,069,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 8,620 cfs Jan. 22 (elevation, 52.65 ft); minimum daily, 199 cfs Aug. 18.  
1895-96, 1940 to current year: Maximum discharge observed, 57,000 cfs Dec. 9, 1950 (elevation, 69.19 ft); minimum, 85 cfs Oct. 25, 1961.

REMARKS.--Records good. Flow regulated by reservoirs and powerplants above station. In addition to diversions into Modesto and Turlock Canals (see sta 11289000, 11289500), there are diversions for irrigation of about 1,300 acres between station above LaGrange Dam and at Modesto. See REMARKS for sta 11288000 for Tuolumne River above LaGrange Dam. Records of water temperatures for the water year 1970 are published in Part 2 of this report. See schematic diagram of Tuolumne River basin.

## DISCHARGE, IN CUBIC FEET PER SECCND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,730	1,980	1,280	766	3,860	2,610	419	381	238	950	238	256
2	1,790	2,000	1,690	758	3,590	3,200	388	344	292	925	257	231
3	1,890	1,970	1,560	838	3,050	3,410	342	330	967	902	257	209
4	1,990	2,260	1,340	776	2,950	2,900	338	321	1,160	585	218	228
5	2,080	2,290	1,160	757	2,850	3,260	331	344	1,150	385	231	217
6	2,090	2,520	916	1,370	2,810	3,320	314	661	857	322	231	224
7	2,090	2,430	816	1,390	2,790	3,320	311	565	379	285	212	231
8	1,510	2,270	803	1,430	2,770	3,460	319	468	300	264	218	218
9	848	2,070	836	1,300	2,750	3,430	326	575	261	257	231	212
10	833	2,020	832	1,260	2,730	3,260	312	853	332	264	231	212
11	682	2,190	811	898	2,710	3,140	310	902	991	231	224	235
12	566	2,130	822	819	2,650	2,730	336	894	2,040	270	238	210
13	511	2,170	792	1,100	2,710	2,480	355	937	1,740	264	218	224
14	845	2,380	777	1,380	2,710	2,470	379	935	956	238	224	218
15	1,410	2,150	774	2,990	2,760	2,440	370	919	633	224	244	210
16	1,760	1,960	793	3,660	2,760	2,410	377	898	353	231	224	224
17	1,300	1,890	845	6,010	2,770	1,570	354	889	285	224	218	218
18	1,410	2,000	847	7,300	2,870	1,310	346	863	250	238	199	240
19	1,510	1,670	845	7,390	2,840	1,140	359	825	401	244	218	245
20	1,480	1,500	819	7,350	2,770	1,350	353	820	1,220	238	212	270
21	1,800	1,420	790	7,410	2,730	1,250	318	605	2,050	205	231	257
22	1,980	1,330	604	8,350	2,720	1,220	331	347	1,800	224	238	241
23	2,000	1,030	700	8,060	2,720	1,220	336	315	1,840	238	238	252
24	2,180	929	837	7,840	2,710	1,070	367	326	2,130	231	238	246
25	2,280	1,500	809	7,760	2,700	965	367	270	1,470	238	244	238
26	2,360	1,640	805	7,720	2,700	959	345	292	1,490	238	250	238
27	2,330	1,630	909	7,690	2,700	761	368	345	1,440	231	238	253
28	2,290	1,410	838	7,730	2,700	481	356	287	1,680	231	230	253
29	2,140	1,350	794	7,710	-----	444	335	257	1,000	231	243	256
30	2,040	1,290	854	6,720	-----	406	368	224	975	218	233	263
31	1,990	-----	757	4,660	-----	356	-----	250	-----	224	253	-----
TOTAL	51,715	55,379	28,055	131,192	79,380	62,342	10,430	17,242	30,680	10,050	7,179	7,029
MEAN	1,668	1,846	905	4,232	2,835	2,011	348	556	1,023	324	232	234
MAX	2,360	2,520	1,690	8,350	3,860	3,460	419	937	2,130	950	257	270
MIN	511	929	604	757	2,650	356	310	224	238	205	199	209
AC-FT	102,600	109,800	55,650	260,200	157,500	123,700	20,690	34,200	60,850	19,930	14,240	13,940
CAL YR 1969	TOTAL	1,281,181	MEAN	3,510	MAX	26,300	MIN	252	AC-FT	2,541,000		
WTR YR 1970	TOTAL	490,673	MEAN	1,344	MAX	8,350	MIN	199	AC-FT	973,200		

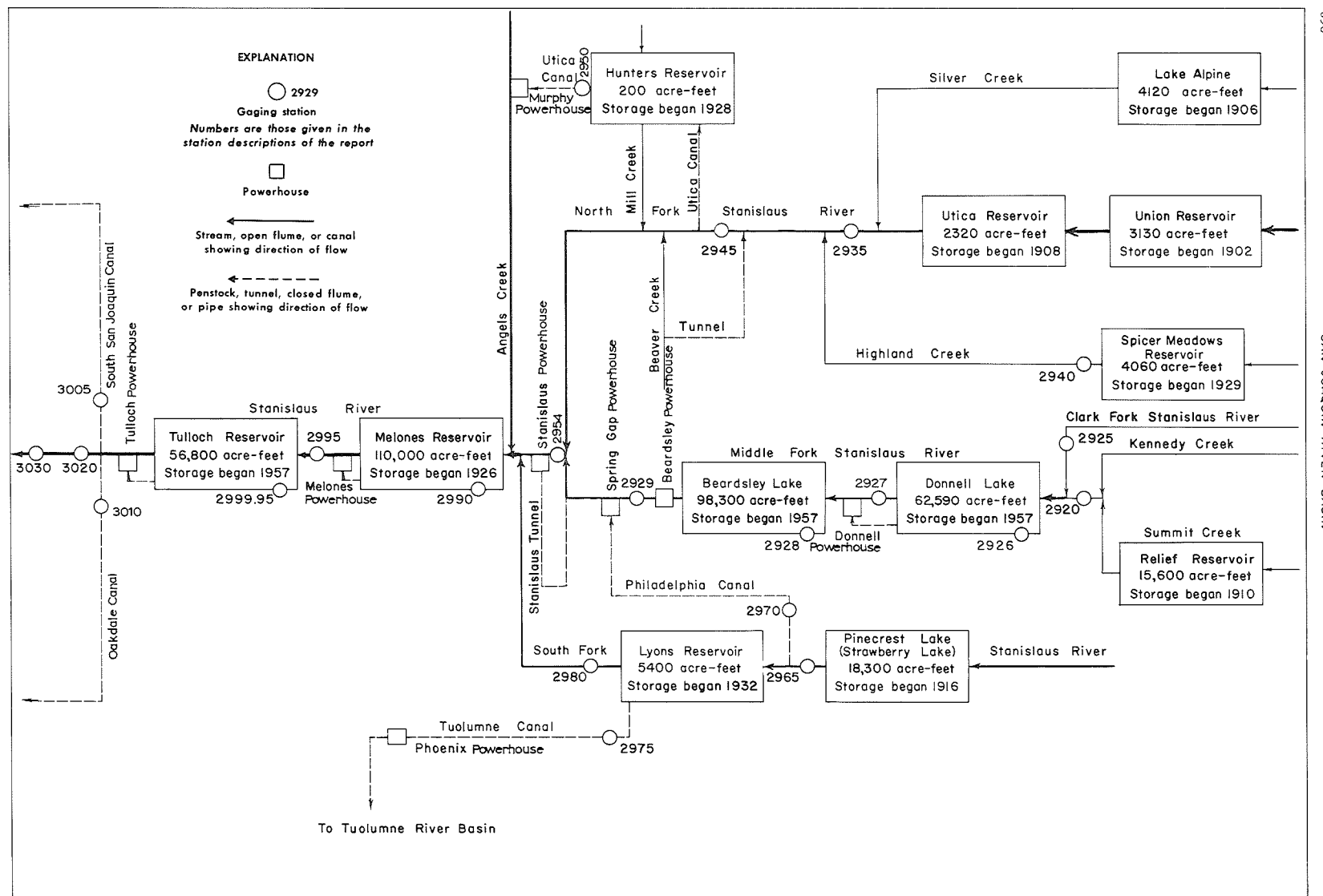


FIGURE 8.—Schematic diagram showing diversions and storage in Stanislaus River basin.

LOCATION.--Lat 38°17'51", long 119°44'25", in SW<sup>1</sup><sub>4</sub>NE<sup>1</sup><sub>4</sub> sec.11, T.5 N., R.20 E., Tuolumne County, Stanislaus National Forest, on right bank at upper end of Kennedy Meadows, 1.3 miles upstream from Deadman Creek, 1.6 miles downstream from Relief Reservoir, and 5.8 miles southwest of Dardanelle.

REVISIONS (WATER YEARS).--WSP 1315-A: 1939(M). WSP 1930: Drainage area.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	116	111	17	22	33	31	50	80	614	246	76	174
2	182	135	17	21	32	30	55	92	610	256	75	174
3	132	33	17	20	31	29	53	110	614	267	122	177
4	27	31	17	17	31	29	55	128	650	298	186	175
5	25	27	19	15	31	29	62	156	634	360	177	174
6	24	23	16	15	31	28	70	159	594	338	174	177
7	23	21	16	18	32	28	75	138	567	291	198	182
8	23	21	16	20	32	28	76	129	590	265	227	180
9	22	20	17	24	32	28	81	128	556	237	194	177
10	21	21	17	25	31	28	91	132	380	219	73	174
11	21	21	16	21	32	27	91	121	308	215	196	169
12	20	22	17	20	34	27	86	114	288	194	252	164
13	20	22	16	20	33	30	79	118	227	193	263	121
14	21	21	16	24	31	34	74	144	175	202	279	60
15	71	22	16	23	29	35	65	191	162	213	274	59
16	182	22	16	103	29	38	61	241	227	193	272	43
17	125	20	16	64	28	39	57	534	313	175	270	32
18	56	20	16	46	26	37	54	679	397	174	265	31
19	47	20	23	39	24	37	53	614	513	161	263	31
20	42	20	59	38	24	37	49	516	534	141	259	30
21	33	19	79	133	24	39	48	475	553	139	256	27
22	22	19	59	129	23	43	45	538	531	130	252	25
23	22	18	39	94	23	49	43	590	531	118	248	25
24	22	18	34	71	23	57	44	571	516	108	243	25
25	22	18	45	62	24	64	46	564	475	98	239	25
26	21	18	34	53	26	68	48	475	462	94	237	25
27	21	17	28	51	28	62	62	415	630	89	233	25
28	20	18	26	44	30	68	74	352	385	87	229	23
29	20	17	25	42	-----	65	75	469	267	87	204	21
30	20	17	24	38	-----	61	78	534	231	84	179	21
31	19	-----	23	36	-----	56	-----	571	-----	80	175	-----
TOTAL	1,442	832	796	1,348	807	1,261	1,900	10,078	13,534	5,752	6,590	2,746
MEAN	46.5	27.7	25.7	43.5	28.8	40.7	63.3	325	451	186	213	91.5
MAX	182	135	79	133	34	68	91	679	650	360	279	182
MIN	19	17	16	15	23	27	43	80	162	80	73	21
AC-FT	2,860	1,650	1,580	2,670	1,600	2,500	3,770	19,990	26,840	11,410	13,070	5,450
CAL YR 1969	TOTAL	81,576	MEAN	223	MAX	1,290	MIN	16	AC-FT	161,800		
WTR YR 1970	TOTAL	47,086	MEAN	129	MAX	679	MIN	15	AC-FT	93,400		

## SAN JOAQUIN RIVER BASIN

## 11292500 CLARK FORK STANISLAUS RIVER NEAR DARDANELLE, CALIF.

LOCATION.--Lat 38°21'50", long 119°52'13", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.22, T.6 N., R.19 E., Tuolumne County, Stanislaus National Forest, on right bank 0.5 mile upstream from mouth, and 2.6 miles northwest of Dardanelle.

DRAINAGE AREA.--67.5 sq mi.

PERIOD OF RECORD.--October 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is 5,507.3 ft above mean sea level (river-profile survey).

AVERAGE DISCHARGE.--20 years, 152 cfs (110,100 acre-ft per year) median of yearly mean discharges, 140 cfs (101,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 876 cfs Jan. 21 (gage height, 6.68 ft); minimum daily, 27 cfs Sept. 29, 30.

Period of record: Maximum discharge, 4,350 cfs Nov. 20, 1950 (gage height, 11.88 ft), from rating curve extended above 1,300 cfs on basis of slope-area measurement of maximum flow; minimum, 11 cfs Apr. 3, 1958.

REMARKS.--Records excellent except those for the winter period, which are fair. No storage or diversion above station. See schematic diagram of Stanislaus River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	41	31	54	136	115	156	162	579	270	59	31
2	37	40	30	52	133	109	163	186	593	276	58	31
3	37	40	30	50	130	106	168	227	603	272	56	31
4	37	40	32	47	129	106	174	270	634	270	55	30
5	38	40	31	45	126	104	191	315	590	272	53	31
6	38	45	33	47	124	104	209	318	554	258	52	32
7	37	42	30	54	125	106	215	286	544	238	51	31
8	37	43	31	61	126	106	215	282	525	229	50	30
9	36	42	30	65	125	104	224	292	538	211	48	30
10	36	43	31	59	124	104	246	302	438	194	47	29
11	35	43	32	52	125	100	242	276	386	178	46	29
12	36	44	31	51	127	101	238	264	360	162	45	29
13	36	44	32	51	125	109	226	288	322	151	44	29
14	37	43	30	53	120	117	209	351	298	149	43	30
15	79	43	30	61	117	120	194	432	284	150	42	30
16	135	45	30	305	117	122	185	541	298	127	41	30
17	68	35	30	194	116	127	175	614	332	113	41	29
18	54	39	30	136	111	125	170	628	373	106	41	29
19	50	39	45	117	109	121	166	583	427	103	40	29
20	49	39	158	129	106	122	158	531	446	97	39	30
21	50	39	168	478	106	129	153	522	464	92	38	30
22	52	37	111	537	105	138	144	566	446	88	37	29
23	51	35	83	318	105	151	140	596	435	82	36	29
24	50	36	75	276	105	169	142	579	418	79	36	28
25	48	36	100	226	105	182	151	593	383	76	36	28
26	46	35	79	202	109	183	158	631	380	72	35	28
27	45	35	69	196	112	178	144	610	418	71	35	28
28	44	32	64	172	113	178	140	554	336	68	35	28
29	42	34	62	162	-----	182	139	547	292	66	34	27
30	42	31	60	154	-----	170	146	566	274	65	33	27
31	41	-----	56	144	-----	160	-----	576	-----	62	31	-----
TOTAL	1,461	1,180	1,684	4,548	3,311	4,048	5,381	13,488	12,970	4,647	1,337	882
MEAN	47.1	39.3	54.3	147	118	131	179	435	432	150	43.1	29.4
MAX	135	45	168	537	136	183	246	631	634	276	59	32
MIN	35	31	30	45	105	100	139	162	274	62	31	27
AC-FT	2,200	2,340	3,340	9,020	6,570	8,030	10,670	26,750	25,730	9,220	2,650	1,750

CAL YR 1969 TOTAL 95,160 MEAN 261 MAX 1,500 MIN 30 ACFT 188,700  
WAT YR 1970 TOTAL 54,937 MEAN 151 MAX 634 MIN 27 ACFT 109,000

## PEAK DISCHARGE (BASE, 600 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-21	2100	6.68	876	6-21	2130	5.83	600
5-17	2100	6.52	808				

## 11292600 DONNELL LAKE NEAR DARDANELLE, CALIF.

LOCATION.--Lat 38°19'46", long 119°57'37", in SE¼ sec.35, T.6 N., R.18 E., Tuolumne County, on left bank in hoist house of Donnell Dam on Middle Fork Stanislaus River, 1.2 miles downstream from Niagara Creek, and 6.9 miles west of Dardanelle.

DRAINAGE AREA.--230 sq mi.

PERIOD OF RECORD.--October 1957 to current year. Prior to October 1962, published as Donnell's Reservoir near Dardanelle.

GAGE.--Water-stage recorder. Datum of gage is 4.84 ft above mean sea level (levels by Oakdale and South San Joaquin Irrigation Districts).

EXTREMES.--Current year: Maximum contents, 64,300 acre-ft June 19, 27, July 5, 6 (gage height, 4,915.9 ft); minimum, 4,920 acre-ft Mar. 19 (gage height, 4,735.9 ft).  
Period of record: Maximum contents, 64,900 acre-ft May 8, 1963 (gage height, 4,917.3 ft); minimum since reservoir first filled, 4,800 acre-ft Apr. 19, 1965 (gage height, 4,735.3 ft).

REMARKS.--Lake is formed by concrete arch-type dam completed in 1957. Usable capacity, 62,590 acre-ft between gage heights 4,720.0 ft (minimum operating head) and 4,917.0 ft (top of spillway gates). Lake is for power and conservation storage. Water passes through a 7.2-mile tunnel to a powerplant and down the Middle Fork Stanislaus River to Beardsley Lake (see sta 11292800). Records, including extremes, represent total contents at 2400 hours of which 2,150 acre-ft is below minimum operating head. See schematic diagram of Stanislaus River basin.

CAPACITY TABLE (GAGE HEIGHT, IN FEET, AND CONTENTS, IN ACRE-FEET)

4,735	4,730	4,790	19,100
4,740	5,830	4,800	22,100
4,750	8,220	4,820	28,400
4,760	10,800	4,850	38,700
4,770	13,400	4,880	49,800
4,780	16,200	4,917.3	64,900

CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50,600	30,400	14,400	9,900	33,600	10,900	6,130	22,800	63,600	64,100	56,800	44,600
2	50,100	30,000	13,700	9,360	32,900	10,100	5,900	23,700	63,700	64,200	56,400	44,000
3	49,700	29,300	13,000	9,610	32,200	9,230	5,900	25,500	63,700	64,200	55,900	43,500
4	49,000	28,600	12,300	9,870	31,500	8,370	7,020	27,000	63,700	64,200	55,800	42,900
5	48,300	28,200	11,600	9,230	30,700	7,680	8,290	29,100	63,700	64,300	55,400	42,300
6	47,600	27,600	11,700	8,620	29,900	6,830	8,870	30,600	63,400	64,300	55,000	41,800
7	46,800	26,800	11,800	7,970	29,200	6,400	9,840	31,700	63,700	64,200	54,700	41,200
8	46,100	26,100	11,100	7,430	28,400	7,020	10,800	32,300	63,900	64,200	54,400	40,600
9	45,500	25,300	10,400	7,040	27,600	6,640	11,800	32,900	64,000	64,100	54,200	40,000
10	44,800	25,000	9,720	7,500	26,800	5,880	12,900	33,700	63,500	63,800	53,500	39,400
11	44,000	24,300	9,020	7,870	26,000	5,520	13,900	34,100	63,500	63,500	53,000	38,800
12	43,600	23,500	8,270	8,240	25,300	5,140	15,100	34,600	63,800	63,100	52,800	38,900
13	42,700	22,800	8,420	8,620	24,600	4,990	16,300	35,200	63,900	62,900	52,600	39,200
14	41,900	22,000	8,540	9,230	23,800	5,030	17,000	36,500	63,800	62,600	52,400	38,600
15	41,300	21,300	7,850	9,720	23,000	4,970	17,400	38,400	63,700	62,500	52,300	37,800
16	41,500	20,700	7,040	14,000	22,200	5,120	17,800	41,100	64,000	62,200	52,100	37,000
17	41,100	20,000	6,340	16,400	21,400	4,990	18,100	44,700	64,200	62,000	51,800	36,300
18	40,600	19,300	5,630	17,700	20,500	5,160	18,600	48,500	64,200	61,700	51,600	35,500
19	39,900	18,500	5,120	18,900	19,600	4,920	19,600	51,900	64,300	61,400	51,400	34,700
20	39,200	17,700	7,120	20,200	18,700	5,100	19,900	54,700	64,200	61,100	51,000	33,300
21	38,600	16,900	8,970	27,500	17,700	5,600	20,000	57,000	64,200	60,900	50,800	33,100
22	37,800	17,000	9,020	32,400	16,800	5,580	20,000	59,800	64,200	60,700	50,200	32,200
23	37,100	17,200	8,800	34,800	15,900	5,650	20,100	62,900	64,200	60,300	49,600	31,500
24	36,300	16,500	8,640	35,900	15,000	5,740	20,200	63,700	64,200	60,000	49,100	30,700
25	35,600	15,900	10,300	36,100	14,100	5,900	20,600	63,800	64,200	59,700	48,500	29,900
26	35,000	15,300	10,200	36,100	13,200	5,880	21,700	63,700	64,200	59,400	48,000	29,000
27	34,200	15,400	10,700	36,000	12,400	5,760	21,900	63,600	64,300	59,000	47,400	28,200
28	33,400	14,800	11,100	35,700	11,600	5,780	22,100	63,300	64,100	58,500	46,800	27,900
29	32,600	14,900	10,600	35,300	-----	5,850	22,300	63,200	64,100	58,100	46,200	28,000
30	31,800	15,100	10,100	34,800	-----	5,970	22,500	63,800	64,100	57,600	45,600	28,100
31	31,000	-----	9,560	34,200	-----	6,220	-----	63,500	-----	57,100	-----	-----
MAX	50,600	30,400	14,400	36,100	33,600	10,900	22,500	63,800	64,300	64,300	56,800	44,600
MIN	31,000	14,800	5,120	7,040	11,600	4,920	5,900	22,800	63,400	57,100	45,000	27,900
(a)	4,827.9	4,775.9	4,755.3	4,837.3	4,763.2	4,741.7	4,801.3	4,914.0	4,915.4	4,898.6	4,867.4	4,818.9
(b)	-20,300	-15,900	-5,540	+24,640	-22,600	-5,380	+16,280	+41,000	+600	-7,000	-12,100	-16,900
CAL YR 1969	b	-8,740	MAX	64,500	MIN	4,950						
WTR YR 1970	b	-23,200	MAX	64,300	MIN	4,920						

a Gage height, in feet, at end of month.  
b Change in contents, in acre-feet.

## 11292700 MIDDLE FORK STANISLAUS RIVER AT HELLS HALF ACRE BRIDGE, NEAR PINECREST, CALIF.

LOCATION.--Lat 38°14'49", long 120°01'51", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.31, T.5 N., R.18 E., Tuolumne County, on left bank 200 ft upstream from Donnell powerhouse, 800 ft downstream from Hells Half Acre bridge, 1.1 miles upstream from Cow Creek, and 4.7 miles northwest of Pinecrest.

DRAINAGE AREA.--287 sq mi.

PERIOD OF RECORD.--February 1956 to current year. Prior to October 1965, published as Middle Fork Stanislaus River at Hells Half Acre bridge.

GAGE.--Water-stage recorder. Datum of gage is 3,418.31 ft above mean sea level (river-profile survey). Prior to Aug. 9, 1961, at site 1,600 ft upstream at different datum.

AVERAGE DISCHARGE.- 14 years, 260 cfs (188,400 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 5,340 cfs Jan. 21 (gage height, 10.84 ft); minimum daily, 13 cfs Nov. 19, Dec. 1.

Period of record: Maximum discharge, 10,200 cfs Dec. 24, 1964 (gage height, 13.64 ft in gage well, 14.2 ft outside, from floodmarks), from rating curve extended above 5,200 cfs on basis of slope-area measurement at gage height 12.20 ft; minimum, 3.3 cfs Nov. 9, 10, 1957.

Maximum stage known since at least 1905, 23 ft Dec. 23, 1955, from floodmarks at present site (discharge, 26,600 cfs by slope-area measurement).

REMARKS.--Records good. Flow regulated by Relief Reservoir since 1909 (capacity, 15,600 acre-ft), by Donnell Lake (see sta 11292600), and by diversion around station through Donnell powerhouse. See schematic diagram of Stanislaus River basin. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	36	13	74	308	204	180	189	1,390	140	34	33
2	32	36	18	68	285	192	186	223	1,360	56	33	33
3	32	36	18	62	272	178	186	260	1,450	150	33	33
4	32	35	18	58	260	175	186	288	1,530	130	33	33
5	32	21	18	55	249	172	201	306	1,460	203	33	33
6	32	29	18	55	237	172	216	300	1,340	220	33	33
7	32	24	18	55	231	177	216	265	1,100	154	32	33
8	33	22	20	55	229	183	210	248	1,110	62	31	32
9	34	20	20	80	223	175	216	255	1,450	42	31	32
10	33	18	20	177	217	174	230	272	1,110	40	31	32
11	33	18	20	122	215	161	228	244	665	38	35	31
12	33	16	20	118	255	160	221	228	387	37	34	34
13	33	15	18	141	255	178	217	238	318	35	34	34
14	34	15	18	367	237	206	199	275	309	34	33	34
15	48	15	18	262	235	215	186	306	226	33	33	34
16	86	18	18	2,210	223	210	178	339	84	32	33	34
17	63	18	17	1,140	231	215	167	348	197	39	33	34
18	49	15	17	640	206	199	167	321	496	38	33	33
19	45	13	36	514	194	187	180	285	755	37	33	33
20	42	15	352	660	187	182	167	250	922	36	33	33
21	41	17	385	3,470	180	183	159	232	892	36	33	33
22	40	17	192	1,690	175	194	149	230	892	35	32	33
23	40	16	114	904	172	208	144	225	800	35	32	33
24	39	16	166	940	169	227	151	1,100	770	35	32	33
25	39	15	509	635	166	239	170	1,480	680	34	32	33
26	39	15	243	522	172	237	189	1,670	630	34	32	33
27	38	15	161	630	174	221	167	1,500	1,060	33	32	35
28	37	14	117	493	183	215	152	1,360	756	32	31	36
29	37	14	104	414	-----	219	154	1,280	350	32	31	35
30	37	14	90	375	-----	208	170	1,040	167	32	31	36
31	37	-----	81	336	-----	192	-----	1,530	-----	34	31	-----
TOTAL	1,214	588	2,877	17,312	6,140	6,058	5,542	17,087	24,656	1,928	1,007	1,001
MEAN	39.2	19.6	92.8	558	219	195	185	551	822	62.2	32.5	33.4
MAX	86	36	509	3,470	308	239	230	1,670	1,530	220	35	36
MIN	32	13	13	55	166	160	144	189	84	32	31	31
AC-FT	2,410	1,170	5,710	34,340	12,180	12,020	10,990	33,890	48,910	3,820	2,000	1,990
CAL YR 1969	TOTAL	226,959	MEAN	622	MAX	4,650	MIN	13	ACFT	450,200		
WAT YR 1970	TOTAL	85,410	MEAN	234	MAX	3,470	MIN	13	ACFT	169,400		

## 11292800 BEARDSLEY LAKE NEAR STRAWBERRY, CALIF.

LOCATION.--Lat 38°12'17", long 120°04'31", in NW¼ sec.14, T.4 N., R.17 E., Tuolumne County, Stanislaus National Forest, in hoist house of Beardsley Dam on Middle Fork Stanislaus River, 2.4 miles upstream from Spring Gap powerhouse, 3.9 miles west of Strawberry, and 4.7 miles west of Pinecrest.

DRAINAGE AREA --309 sq mi.

PERIOD OF RECORD.--June 1957 to current year. Prior to October 1960, published as Lake Hartley near Strawberry.

GAGE.--Water-stage recorder. Datum of gage is 7.84 ft above mean sea level (levels by Oakdale and South San Joaquin Irrigation Districts).

EXTREMES.--Current year: Maximum contents, 97,900 acre-ft July 12, 14-17 (gage height, 3,397.1 ft); minimum, 53,100 acre-ft Jan. 4 (gage height, 3,327.7 ft).

Period of record: Maximum contents, 98,700 acre-ft June 27, 1957 (gage height, 3,398.2 ft); minimum since reservoir first filled, 20,000 acre-ft Jan. 27, 28, 1962 (gage height, 3,261.3 ft).

REMARKS.--Reservoir is formed by rockfill, earth-core dam completed in 1957. Capacity, 98,500 acre-ft between gage heights 3,145.0 ft (tunnel invert) and 3,398.0 ft (top of spillway gates). No dead storage. Reservoir is used for power and conservation storage. Water passes through powerplant and down Middle Fork Stanislaus River to Melones Reservoir (see sta 11299000). Records, including extremes, represent contents at 2400 hours. See schematic diagram of Stanislaus River basin.

## CAPACITY TABLE (GAGE HEIGHT, IN FEET, AND CONTENTS, IN ACRE-FEET)

3,261	19,900	3,350	66,400
3,290	33,100	3,370	79,200
3,320	48,800	3,398	98,500

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83,000	72,800	58,800	54,000	78,400	78,400	78,600	71,300	96,500	97,700	95,900	95,200
2	82,900	72,300	58,600	54,100	78,400	78,400	78,400	71,000	95,200	97,800	95,700	95,200
3	82,500	72,100	58,500	53,600	78,400	78,400	78,700	70,400	94,200	97,800	95,600	95,200
4	82,100	71,700	58,400	53,100	78,400	78,400	77,800	70,400	97,300	97,800	95,400	95,300
5	81,600	71,200	58,400	53,300	78,400	78,300	77,100	70,200	97,200	97,800	95,300	95,500
6	81,200	70,900	57,500	53,600	78,400	78,300	77,100	70,600	97,400	97,800	95,200	95,400
7	80,900	70,700	56,600	54,000	78,400	78,200	76,800	71,300	97,400	97,800	95,200	95,400
8	80,500	70,400	56,500	54,300	78,400	77,300	76,500	72,300	97,600	97,800	95,200	95,400
9	80,000	70,100	56,400	54,800	78,400	77,400	76,300	73,000	97,400	97,800	95,100	95,500
10	79,600	69,500	56,300	54,400	78,400	77,900	76,300	73,700	97,300	97,800	95,000	95,700
11	79,200	69,200	56,300	54,000	78,400	77,900	76,100	74,400	97,500	97,800	95,000	95,700
12	78,400	68,900	56,200	53,600	78,400	77,900	75,300	74,900	97,600	97,900	95,000	95,100
13	78,200	68,700	55,400	53,300	78,400	77,800	75,400	75,500	97,700	97,800	94,900	94,200
14	77,900	68,400	54,500	53,600	78,400	77,700	75,200	76,100	97,700	97,900	94,800	94,000
15	77,700	68,000	54,400	53,600	78,400	77,800	75,200	76,900	97,700	97,900	94,700	94,000
16	77,600	67,700	54,400	58,500	78,400	77,600	75,000	77,600	97,700	97,900	94,500	94,100
17	77,400	67,500	54,300	60,900	78,600	77,800	74,900	78,400	97,800	97,900	94,500	94,100
18	77,100	67,100	54,200	62,000	78,400	77,500	74,500	79,000	97,800	97,800	94,400	94,200
19	76,700	66,900	54,100	62,600	78,400	77,600	73,700	79,700	97,800	97,800	94,200	94,200
20	76,500	66,700	54,000	63,500	78,400	77,300	73,600	80,200	97,700	97,800	94,200	94,200
21	76,100	66,500	54,000	70,700	78,400	76,700	73,600	80,800	97,800	97,600	94,100	94,200
22	75,800	65,400	54,300	73,400	78,400	76,800	73,300	81,400	97,700	97,500	94,200	94,200
23	75,500	64,200	54,500	74,500	78,400	76,900	73,100	82,000	97,800	97,400	94,400	94,200
24	75,300	63,800	54,700	76,900	78,400	77,100	72,900	84,300	97,700	97,300	94,600	94,200
25	75,000	63,400	54,900	78,400	78,400	77,500	72,500	87,600	97,700	97,100	94,700	94,200
26	74,500	63,000	55,300	78,700	78,400	78,000	71,800	91,200	97,800	96,900	94,800	94,300
27	74,300	61,900	54,700	78,800	78,400	78,200	71,600	94,600	97,700	96,800	94,900	94,200
28	74,000	61,400	54,000	78,700	78,400	78,200	71,600	96,200	97,700	96,700	95,100	93,600
29	73,700	60,200	54,200	79,600	-----	78,200	71,400	96,900	97,700	96,400	95,200	92,900
30	73,400	59,100	54,300	78,600	-----	78,100	71,300	97,200	97,800	96,300	95,300	92,000
31	73,100	-----	54,500	78,500	-----	77,900	-----	97,500	-----	96,200	95,400	-----
MAX	83,000	72,800	58,800	78,800	78,600	78,400	78,700	97,500	97,800	97,900	95,900	95,700
MIN	73,100	59,100	54,000	53,100	78,400	76,700	71,300	70,200	94,200	96,200	94,100	92,000
(a)	3,360.7	3,338.0	3,330.1	3,369.0	3,368.8	3,368.1	3,357.9	3,396.6	3,397.0	3,394.7	3,393.6	3,388.8
(b)	-9,900	-14,000	-4,600	-	-100	-500	-6,600	+26,200	+300	-1,600	-800	-3,400
CAL YR 1969	b +17,600		MAX 98,300		MIN 32,700							
WTR YR 1970	b +9,000		MAX 97,900		MIN 53,100							

a Gage height, in feet, at end of month.

b Change in contents, in acre-feet.

LOCATION.--Lat 38°11'36", long 120°05'53", in NW¼ sec.22, T.4 N., R.17 E., Tuolumne County, on right bank 0.5 mile downstream from Beardsley powerhouse afterbay dam, 1.5 miles downstream from Beardsley Dam, and 5.7 miles west of Pinecrest.

PERIOD OF RECORD.--December 1956 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,044.7 ft above mean sea level (river-profile survey).

AVERAGE DISCHARGE.--13 years, 627 cfs (454,300 acre-ft per year).

Period of record: Maximum discharge, 6,630 cfs May 24, 1969 (gage height, 11.07 ft); minimum daily, 3.0 cfs Oct. 10, 11, 1958.

REMARKS.--Records good. No diversion above station. Flow regulated by Relief Reservoir (capacity, 15,600 acre-ft), Donnell Lake since April 1957 (see sta 11292600), and by Beardsley Lake since January 1957 (see sta 11292800). See schematic diagram of Stanislaus River basin.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	512	629	568	339	1,110	1,010	652	624	2,540	843	493	500
2	544	629	465	339	1,070	992	652	629	2,780	683	488	500
3	647	634	476	336	1,070	964	647	629	2,700	826	484	500
4	647	634	472	336	1,050	953	647	629	765	790	480	514
5	647	634	468	336	1,040	887	647	624	2,210	865	479	507
6	647	634	465	336	1,020	926	642	629	1,990	904	479	511
7	647	634	465	336	1,020	785	642	612	1,770	810	479	534
8	647	634	462	333	1,010	678	642	404	1,740	740	479	508
9	647	629	462	333	1,010	652	642	596	2,280	715	479	479
10	647	629	462	333	1,010	652	642	620	1,860	715	479	481
11	642	629	462	333	997	656	638	634	1,290	701	479	479
12	642	629	462	333	1,040	652	638	634	1,060	692	479	472
13	642	624	462	336	1,080	647	620	638	936	710	479	469
14	647	620	462	345	1,050	647	638	638	958	596	479	470
15	647	620	462	339	1,040	647	638	638	887	580	479	470
16	652	620	462	385	1,020	647	638	638	770	580	479	469
17	647	620	465	354	992	647	634	638	795	580	480	469
18	642	620	468	226	1,070	660	629	638	1,200	580	491	469
19	642	620	465	336	1,000	647	629	642	1,400	548	500	469
20	642	620	465	388	986	647	629	608	1,600	516	500	469
21	642	616	462	496	975	647	629	642	1,540	504	499	469
22	642	616	462	720	970	647	629	652	1,680	500	497	469
23	642	616	465	696	958	647	629	647	1,390	500	496	469
24	638	612	465	665	958	647	624	647	1,480	500	507	470
25	638	612	472	740	953	647	624	647	1,340	496	516	472
26	638	612	462	1,220	948	670	620	620	1,230	496	500	468
27	638	612	458	1,480	948	775	624	612	1,800	496	500	469
28	648	612	462	1,400	942	848	536	1,200	1,420	496	500	469
29	638	608	462	1,260	-----	838	604	1,610	1,010	497	500	468
30	624	608	462	1,210	-----	821	634	1,600	780	497	500	469
31	620	-----	458	1,140	-----	715	-----	2,100	-----	497	500	-----
TOTAL	19,675	18,666	14,490	17,759	28,337	22,898	18,939	23,319	45,201	19,453	15,179	14,431
MEAN	635	622	467	573	1,012	739	631	752	1,507	628	490	481
MAX	652	634	568	1,480	1,110	1,010	652	2,100	2,780	904	516	534
MIN	512	608	458	226	942	647	536	404	765	496	479	468
AC-FT	39,030	37,020	28,740	35,220	56,210	45,420	37,570	46,250	89,660	38,590	30,110	28,620



## 11293500 NORTH FORK STANISLAUS RIVER BELOW SILVER CREEK, CALIF.

LOCATION.--Lat 38°26'22", long 120°00'53", in SE $\frac{1}{4}$  sec.20, T.7 N., R.18 E., Alpine County, Stanislaus National Forest, on right bank 100 ft downstream from Silver Creek, and 5.6 miles northeast of Big Meadow.

DRAINAGE AREA.--27.8 sq mi.

PERIOD OF RECORD.--October 1952 to current year.

GAGE.--Water-stage recorder. Datum of gage is 6,677.3 ft above mean sea level (river-profile survey).

AVERAGE DISCHARGE.--18 years, 76.8 cfs (55,640 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,600 cfs Jan. 21 (gage height, 8.62 ft), from rating curve extended above 610 cfs; minimum daily, 1.9 cfs Dec. 5-8.

Period of record: Maximum discharge, 2,780 cfs Dec. 24, 1964 (gage height, 11.16 ft, from floodmarks), from rating curve extended above 500 cfs; minimum daily, 0.3 cfs Oct. 10, 1958.

Flood of Nov. 20, 1950, reached a stage of 11.17 ft, from Pacific Gas and Electric Co. recorder chart (discharge, 2,790 cfs).

REMARKS.--Flow regulated by Lake Alpine, Union, and Utica Reservoirs (combined capacity, 9,600 acre-ft). No diversion above station. See schematic diagram of Stanislaus River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

REVISIONS.--WSP 1930: 1954(M), drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	18	6.3	10	50	60	86	152	259	44	63	31
2	54	18	4.4	9.2	50	50	112	223	247	38	63	31
3	54	18	3.7	8.5	50	45	130	342	230	34	63	30
4	54	18	2.0	7.5	55	40	166	407	222	30	63	30
5	53	18	1.9	6.5	57	38	202	466	191	27	63	30
6	52	20	1.9	6.3	54	40	233	403	187	24	63	30
7	52	21	1.9	6.2	58	45	231	310	167	21	63	30
8	51	24	1.9	7.2	65	50	222	290	218	18	63	30
9	51	26	2.0	8.5	64	45	233	293	510	24	63	29
10	50	28	2.1	9.3	58	45	277	345	228	29	62	29
11	49	31	2.3	8.9	62	40	250	241	151	27	61	29
12	49	30	2.5	8.9	70	39	230	214	122	26	53	28
13	45	25	3.8	9.5	65	51	217	268	96	32	42	27
14	42	19	4.5	12	60	80	176	432	129	37	34	27
15	51	16	3.8	14	54	95	128	535	103	37	33	29
16	66	24	3.5	320	50	94	110	620	84	40	32	32
17	56	15	3.1	179	46	102	94	665	84	42	32	30
18	49	11	3.3	220	44	80	92	595	85	43	32	28
19	47	9.7	22	145	42	64	113	475	87	43	32	29
20	45	9.6	256	159	40	59	93	364	82	43	31	32
21	44	9.1	221	832	40	72	84	349	94	47	31	29
22	43	9.2	58	1,250	39	94	74	415	77	51	31	28
23	40	8.8	28	398	41	126	69	415	61	54	31	28
24	30	8.5	19	237	43	151	76	391	53	57	31	28
25	21	8.2	72	151	45	169	123	391	44	57	31	28
26	21	8.1	36	116	51	160	160	375	126	57	31	28
27	21	8.0	21	114	60	140	116	335	406	58	31	28
28	20	7.9	16	71	64	135	89	274	147	59	31	30
29	19	7.8	13	55	-----	147	80	253	82	61	31	37
30	19	7.6	12	50	-----	127	102	253	55	62	31	37
31	18	-----	11	50	-----	94	-----	262	-----	64	31	-----
TOTAL	1,321	482.5	839.9	4,479.5	1,477	2,577	4,368	11,353	4,627	1,286	1,352	892
MEAN	42.6	16.1	27.1	145	52.8	83.1	146	366	154	41.5	43.6	29.7
MAX	66	31	256	1,250	70	169	277	665	510	64	63	37
MIN	18	7.6	1.9	6.2	39	38	69	152	44	18	31	27
AC-FT	2,620	957	1,670	8,890	2,930	5,110	8,660	22,520	9,180	2,550	2,680	1,770
CAL YR 1969	TOTAL	54,529.4	MEAN	149	MAX	1,030	MIN	1.9	AC-FT	108,200		
WTR YR 1970	TOTAL	35,054.9	MEAN	96.0	MAX	1,250	MIN	1.9	AC-FT	69,530		

## PEAK DISCHARGE (BASE, 300 CFS)

YEAR DISCHARGE (CUBIC FEET)				YEAR DISCHARGE (CUBIC FEET)			
DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1300	7.05	755	5- 5	2000	6.72	590
1-16	1500	6.25	395	5-17	2200	7.32	890
1-21	2200	8.62	1,600	6- 9	0430	6.78	620
4- 9	1900	6.02	310	6-27	0600	6.77	615

## SAN JOAQUIN RIVER BASIN

## 11294000 HIGHLAND CREEK BELOW SPICER MEADOWS RESERVOIR, CALIF.

LOCATION.--Lat 38°23'34", long 119°59'50", in SW $\frac{1}{4}$  sec.3, T.6 N., R.18 E., Tuolumne County, Stanislaus National Forest, on right bank 500 ft downstream from Spicer Meadows Reservoir dam, 5.5 miles upstream from mouth, and 7 miles east of Big Meadow.

DRAINAGE AREA.--42.4 sq mi.

PERIOD OF RECORD.--October 1952 to current year.

GAGE.--Water-stage recorder. Datum of gage is 6,374.8 ft above mean sea level (river-profile survey).

AVERAGE DISCHARGE.--18 years, 123 cfs (89,110 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 2,750 cfs Jan. 21 (gage height, 8.04 ft), from rating curve extended above 1,200 cfs; minimum daily, 1.2 cfs Dec. 11, 12.  
Period of record: Maximum discharge, 9,860 cfs Jan. 31, 1963 (gage height, 11.88 ft), from rating curve extended above 1,200 cfs; no flow Sept. 28 to Dec. 1, Dec. 4-6, 1964.  
Flood of Nov. 20, 1950, reached a stage of 11.50 ft, from Pacific Gas and Electric Co. recorder chart (discharge, 8,800 cfs).

REMARKS.--Flow regulated by Spicer Meadows Reservoir 500 ft upstream (capacity, 4,060 acre-ft). See schematic diagram of Stanislaus River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

REVISIONS (WATER YEARS).--WSP 1930: 1953.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	UCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	66	6.0	60	118	111	159	204	474	103	5.3	5.6
2	12	64	2.9	53	107	98	182	284	466	95	5.3	7.6
3	12	64	2.4	48	111	82	202	378	450	90	5.2	7.6
4	12	62	1.8	46	116	78	218	441	444	80	5.2	7.4
5	12	61	1.6	42	115	75	264	510	414	77	5.2	7.4
6	12	60	1.6	41	110	77	298	462	396	68	5.2	7.4
7	12	59	1.5	44	119	91	296	366	366	59	5.1	7.4
8	12	58	1.5	46	125	91	286	360	402	51	5.1	7.4
9	17	57	1.5	63	121	79	306	378	602	42	4.6	7.4
10	20	56	1.4	84	111	76	351	405	369	43	4.6	7.4
11	20	55	1.2	62	121	68	333	321	286	40	4.7	7.4
12	20	53	1.2	59	153	71	306	294	252	36	4.7	7.4
13	24	26	1.3	59	131	99	280	363	216	34	7.7	7.4
14	28	14	1.3	72	115	145	240	502	194	30	3.7	7.4
15	28	14	1.3	62	110	153	210	634	176	28	2.5	7.4
16	29	14	2.0	756	101	153	186	765	188	25	2.5	7.3
17	29	14	2.9	426	96	162	166	835	204	22	2.4	7.4
18	29	14	3.0	246	77	133	162	785	226	20	2.4	7.4
19	29	14	3.7	188	82	114	176	654	244	19	2.8	7.4
20	29	14	3.9	250	76	111	154	538	240	18	3.1	7.6
21	29	14	290	1,570	76	128	140	530	228	17	2.9	7.6
22	31	14	274	1,430	76	162	126	594	214	16	2.9	7.6
23	35	14	154	558	76	198	116	594	196	16	2.9	7.6
24	34	14	128	417	82	240	124	562	182	16	2.9	7.6
25	43	14	329	274	83	260	166	562	158	16	3.4	7.6
26	53	14	166	228	98	250	198	590	189	16	3.9	7.4
27	52	14	108	210	110	224	162	530	390	16	3.9	7.3
28	56	14	78	160	116	216	136	474	208	16	4.1	4.3
29	59	14	76	151	-----	232	133	450	153	16	4.0	2.2
30	63	14	70	139	-----	206	157	470	120	11	3.8	2.2
31	66	-----	63	125	-----	168	-----	466	-----	5.2	4.0	-----
TOTAL	919	979	1,780.0	7,969	2,932	4,351	6,233	15,301	8,647	1,141.2	126.0	208.1
MEAN	29.6	32.6	57.4	257	105	140	208	494	288	36.8	4.06	6.94
MAX	66	66	329	1,570	153	260	351	835	602	103	7.7	7.6
MIN	12	14	1.2	41	76	68	116	204	120	5.2	2.4	2.2
AC-FT	1,820	1,940	3,530	15,810	5,820	8,630	12,360	30,350	17,150	2,260	250	413

CAL YR 1969 TOTAL 81,370.4 MEAN 223 MAX 1,360 MIN 1.2 AC-FT 161,400  
WTR YR 1970 TOTAL 50,586.3 MEAN 139 MAX 1,570 MIN 1.2 AC-FT 100,300

## PEAK DISCHARGE (BASE, 500 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1630	6.16	1,080	5-5	2130	5.46	714
12-25	1230	5.08	562	5-17	2030	6.42	1,230
1-16	1430	6.60	1,360	6-9	0300	5.52	740
1-21	2000	8.04	2,750	6-27	0700	4.98	522

## 11294500 NORTH FORK STANISLAUS RIVER NEAR AVERY, CALIF.

LOCATION.--Lat 38°14'45", long 120°17'20", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.35, T.5 N., R.15 E., Calaveras County, Stanislaus National Forest, on right bank 700 ft upstream from intake of Utica Canal, 3.3 miles upstream from Beaver Creek, and 5.1 miles northeast of Avery.

DRAINAGE AREA.--163 sq mi.

PERIOD OF RECORD.--July 1914 to September 1925, November 1928 to current year. Yearly discharge only for some years, published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is 3,388.3 ft above mean sea level (river-profile survey). Prior to September 1922, nonrecording gage at same site at datum 0.05 ft lower.

AVERAGE DISCHARGE.--53 years, 419 cfs (303,600 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 12,700 cfs Jan. 21 (gage height, 11.07 ft); minimum daily, 15 cfs Dec. 7.

Period of record: Maximum discharge, 36,000 cfs Jan. 31, 1963 (gage height, 15.00 ft, from floodmarks), from rating curve extended above 14,000 cfs on basis of slope-area measurement at gage height 13.8 ft; minimum daily, 5.5 cfs Dec. 6, 7, 1929.

REMARKS.--Flow regulated at low and medium stages by Lake Alpine, Spicer Meadows, Union and Utica Reservoirs (combined capacity, 13,600 acre-ft). Diversion of a maximum of 10 cfs during summer from Beaver Creek into river above station. See schematic diagram of Stanislaus River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

REVISIONS (WATER YEARS).--WSP 1215: 1938(M). WSP 1515: 1915(M), 1932(M), 1936(M), 1938, 1940(M).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	91	36	228	631	623	554	706	1,050	234	79	38
2	74	90	35	198	566	554	635	994	1,040	205	78	38
3	73	99	24	180	558	468	717	1,330	976	186	78	41
4	72	88	19	172	554	438	763	1,560	953	169	80	42
5	73	102	18	156	554	425	903	1,720	823	155	85	42
6	72	164	16	153	521	419	1,050	1,690	807	142	85	42
7	72	122	15	156	528	464	1,060	1,320	711	127	84	42
8	71	112	16	155	547	488	1,020	1,270	777	112	84	41
9	71	112	18	314	535	448	1,050	1,210	1,660	102	83	40
10	74	112	17	683	510	435	1,200	1,470	1,000	105	82	40
11	76	114	19	374	499	397	1,140	1,140	706	101	80	39
12	76	116	20	348	715	382	1,070	1,030	586	94	78	38
13	76	117	20	394	711	458	1,020	1,140	499	88	70	38
14	76	87	21	908	606	614	865	1,570	539	91	62	38
15	123	69	22	570	574	697	715	1,850	485	89	51	38
16	292	74	21	4,590	535	648	657	2,140	422	86	44	38
17	166	82	20	2,580	610	706	582	2,290	419	87	42	42
18	120	61	18	1,470	488	594	566	2,170	422	85	42	40
19	101	53	97	1,180	464	510	657	1,910	431	83	41	39
20	94	49	1,380	1,500	428	481	578	1,580	428	80	40	38
21	90	49	1,860	8,590	416	513	521	1,440	403	77	40	44
22	88	47	1,010	6,290	400	590	478	1,590	385	83	40	39
23	87	44	532	2,450	394	711	448	1,600	335	85	39	39
24	85	43	661	2,350	419	838	468	1,510	307	87	38	38
25	73	42	1,660	1,420	413	930	582	1,470	266	89	38	38
26	76	41	838	1,140	441	903	782	1,470	262	88	38	37
27	82	41	495	1,300	478	823	627	1,370	1,140	87	39	38
28	81	40	346	959	521	753	513	1,170	594	86	39	38
29	85	38	299	813	-----	844	488	1,090	385	87	39	40
30	85	37	278	768	-----	777	551	1,050	285	87	38	44
31	90	-----	241	674	-----	631	-----	1,060	-----	85	38	-----
TOTAL	2,844	2,326	10,072	43,063	14,616	18,562	22,260	44,910	19,096	3,362	1,794	1,189
MEAN	91.7	77.5	325	1,389	522	599	742	1,449	637	108	57.9	39.6
MAX	292	164	1,860	8,590	715	930	1,200	2,290	1,660	234	85	44
MIN	70	37	15	153	394	382	448	706	262	77	38	37
AC-FT	5,640	4,610	19,980	85,420	28,990	36,820	44,150	89,080	37,880	6,670	3,560	2,360
CAL YR 1969	TOTAL 285,014	MEAN 781	MAX 4,530	MIN 15	AC-FT 565,300							
WTR YR 1970	TOTAL 184,094	MEAN 504	MAX 8,590	MIN 15	AC-FT 365,200							

## PEAK DISCHARGE (BASE, 2,000 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1600	8.57	5,700	1-21	1900	11.07	12,700
12-25	1230	6.97	3,060	5-5	2300	6.24	2,220
1-16	1200	9.19	7,070	5-18	0115	6.81	2,860

## 11295400 STANISLAUS RIVER NEAR HATHAWAY PINES, CALIF.

LOCATION.--Lat 38°08'29", long 120°22'19", in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.6, T.3 N., R.15 E., Calaveras County, on right bank 1,000 ft upstream from Stanislaus powerhouse and 3.6 miles south of Hathaway Pines.

DRAINAGE AREA.--629 sq mi.

PERIOD OF RECORD.--July 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,030.00 ft above mean sea level (levels by Pacific Gas and Electric Co.).

EXTREMES (River only).--Current year: Maximum discharge, 17,300 cfs Jan. 21 (gage height, 17.98 ft, recorded, 18.6 ft, from floodmarks); minimum daily, 28 cfs Sept. 4.  
 Period of record: Maximum discharge, 17,300 cfs Jan. 21, 1970 (gage height, 17.98 ft, recorded, 18.6 ft, from floodmarks); minimum daily, 19 cfs Aug. 17, 1968.  
 (Combined flow).--Current year: Maximum discharge, 17,900 cfs Jan. 21; minimum daily, 568 cfs Aug. 23.  
 Period of record: Maximum discharge, 17,900 cfs Jan. 21, 1970; minimum daily, 134 cfs Oct. 22, 1968.

REMARKS.--Records excellent. Many diversions above station for hydro-electric powerplants. Small diversions for domestic water supply. Stanislaus tunnel diverts from left bank of Middle Fork Stanislaus River 13.7 miles upstream from station in SE $\frac{1}{4}$  sec.24, T.4 N., R.16 E., to Stanislaus powerplant 1,000 ft downstream from station. See schematic diagram of Stanislaus River basin. For records of combined discharge of river and tunnel, see following page.

COOPERATION.--Records of diversion to Stanislaus powerplant furnished by Pacific Gas and Electric Co.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	180	194	170	315	1,760	1,760	952	1,040	3,150	670	71	33
2	51	198	113	252	1,580	1,620	952	1,220	3,450	506	64	30
3	180	198	92	220	1,540	1,400	1,040	1,620	3,280	526	61	29
4	190	198	84	208	1,500	1,340	1,040	1,950	1,820	534	55	28
5	192	212	81	186	1,460	1,250	1,170	2,130	2,330	562	47	34
6	184	408	68	182	1,390	1,250	1,390	2,190	2,340	590	44	35
7	147	374	59	208	1,350	1,160	1,440	1,690	2,070	490	44	33
8	147	270	61	180	1,340	1,110	1,360	1,570	1,950	407	44	41
9	147	245	78	299	1,350	1,020	1,310	1,330	3,630	376	44	43
10	147	242	80	1,240	1,330	1,020	1,510	1,790	2,610	338	44	44
11	146	240	80	630	1,250	970	1,440	1,500	1,660	350	44	44
12	146	250	70	558	1,540	935	1,360	1,370	1,250	308	43	40
13	146	262	64	680	1,720	988	1,360	1,360	1,010	362	43	35
14	146	282	63	2,480	1,590	1,100	1,200	1,840	1,040	222	42	32
15	194	208	65	1,470	1,470	1,190	1,050	2,200	1,010	188	40	33
16	540	208	56	9,600	1,420	1,200	1,010	2,520	820	184	39	34
17	411	212	48	6,610	1,770	1,270	925	2,740	715	182	38	36
18	292	245	52	4,650	1,580	1,170	910	2,670	1,180	164	37	36
19	255	240	69	2,320	1,410	1,040	1,020	2,340	1,340	156	35	36
20	242	232	1,930	2,770	1,320	994	964	1,910	1,620	98	37	36
21	220	228	2,640	12,400	1,260	935	905	1,700	1,480	85	37	36
22	215	190	1,700	9,220	1,210	988	845	1,860	1,640	76	36	36
23	212	184	720	5,560	1,200	1,130	835	1,900	1,280	75	36	36
24	210	184	1,220	6,400	1,200	1,290	840	1,790	1,370	75	35	36
25	208	180	2,890	4,030	1,190	1,380	870	1,730	1,230	74	43	36
26	205	194	1,530	3,100	1,170	1,360	1,080	1,700	1,010	74	43	37
27	205	176	766	3,650	1,180	1,360	988	1,620	2,360	73	36	36
28	202	176	528	2,780	1,200	1,280	870	1,760	1,700	73	36	35
29	200	170	460	2,200	-----	1,350	785	2,290	1,010	72	36	35
30	196	168	411	2,150	-----	1,320	905	2,240	665	72	36	34
31	186	-----	351	1,890	-----	1,090	-----	2,640	-----	71	36	-----
TOTAL	6,342	6,718	16,599	88,438	39,280	37,270	32,326	58,210	52,020	8,033	1,326	1,069
MEAN	205	274	535	2,853	1,403	1,202	1,078	1,878	1,734	259	42.8	35.6
MAX	540	408	2,890	12,400	1,770	1,760	1,510	2,740	3,630	670	71	44
MIN	51	168	48	180	1,170	935	785	1,040	665	71	35	28
AC-FT	12,580	13,330	32,920	175,400	77,910	73,930	64,120	115,500	103,200	15,930	2,630	2,120
CAL YR 1969	TOTAL 664,197		MEAN 1,820	MAX 11,100	MIN 47	ACFT 1,317,000						
WAT YR 1970	TOTAL 347,631		MEAN 952	MAX 12,400	MIN 28	ACFT 689,500						

## 11295400 STANISLAUS RIVER NEAR HATHAWAY PINES, CALIF.--Continued

COMBINED DISCHARGE, IN CUBIC FEET PER SECOND, OF STANISLAUS RIVER AND STANISLAUS POWERPLANT AT STANISLAUS, NEAR HATHAWAY PINES, CALIF., WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	723	737	713	796	2,320	2,320	1,510	1,600	3,710	1,230	628	589
2	594	741	656	692	2,130	2,180	1,510	1,780	4,010	1,060	621	584
3	736	741	635	649	2,090	1,990	1,600	2,180	3,840	1,080	618	583
4	742	741	627	633	2,050	1,900	1,600	2,510	2,160	1,090	612	584
5	741	755	624	612	2,010	1,800	1,730	2,690	2,900	1,120	604	590
6	733	953	611	604	1,940	1,800	1,950	2,750	2,910	1,150	601	589
7	695	867	602	623	1,900	1,710	2,000	2,250	2,640	1,050	601	592
8	693	813	604	597	1,890	1,660	1,920	2,060	2,520	966	601	600
9	693	788	621	725	1,900	1,570	1,870	1,900	4,200	933	601	602
10	692	785	623	1,700	1,880	1,570	2,070	2,360	3,170	895	601	603
11	691	783	623	1,070	1,800	1,520	2,000	2,070	2,220	907	601	601
12	691	793	613	1,000	2,090	1,490	1,920	1,940	1,810	865	599	597
13	689	805	607	1,140	2,270	1,540	1,920	1,920	1,570	919	599	592
14	689	825	606	3,020	2,140	1,650	1,760	2,400	1,600	779	598	589
15	737	751	608	1,990	2,020	1,740	1,610	2,760	1,570	745	596	590
16	1,080	751	599	10,200	1,970	1,750	1,570	3,080	1,380	741	595	590
17	954	755	591	7,180	2,330	1,820	1,480	3,300	1,270	739	594	592
18	835	788	595	5,150	2,130	1,720	1,470	3,230	1,740	721	591	592
19	798	783	610	2,810	1,960	1,590	1,580	2,900	1,900	715	591	592
20	785	775	2,480	3,340	1,870	1,550	1,520	2,470	2,180	655	593	592
21	763	771	3,180	13,000	1,810	1,490	1,460	2,260	2,040	642	593	592
22	758	733	2,240	9,780	1,760	1,540	1,400	2,420	2,200	633	593	592
23	755	727	1,260	6,120	1,750	1,680	1,390	2,460	1,840	634	593	592
24	753	725	1,770	6,960	1,750	1,850	1,400	2,350	1,930	634	591	592
25	751	723	3,440	4,590	1,740	1,940	1,430	2,290	1,790	633	600	592
26	748	737	2,080	3,660	1,720	1,920	1,640	2,260	1,570	633	600	591
27	748	719	1,310	4,210	1,730	1,920	1,550	2,180	2,920	632	593	592
28	745	719	1,070	3,340	1,750	1,840	1,430	2,220	2,260	632	593	589
29	743	713	1,000	2,760	-----	1,910	1,340	2,850	1,570	631	593	589
30	739	711	954	2,710	-----	1,880	1,460	2,800	1,220	629	593	588
31	729	-----	894	2,440	-----	1,650	-----	3,200	-----	628	592	-----
TOTAL	23,223	23,008	33,446	104,101	54,700	54,490	49,090	75,440	68,640	25,321	18,579	17,752
MEAN	749	767	1,079	3,358	1,954	1,758	1,636	2,434	2,288	817	599	592
MAX	1,080	953	3,440	13,000	2,330	2,320	2,070	3,300	4,200	1,230	628	603
MIN	594	711	591	597	1,720	1,490	1,340	1,600	1,220	628	591	583
AC-FT	46,060	45,640	66,340	206,500	108,500	108,100	97,370	149,600	136,100	50,220	36,850	35,210
CAL YR 1969	TOTAL	861,675	MEAN	2,361	MAX	11,700	MIN	590	ACFT	1,709,000		
WAT YR 1970	TOTAL	547,790	MEAN	1,501	MAX	13,000	MIN	583	ACFT	1,087,000		

## SAN JOAQUIN RIVER BASIN

## 11296500 SOUTH FORK STANISLAUS RIVER AT STRAWBERRY, CALIF.

LOCATION.--Lat 38°11'51", long 120°00'27", in SW $\frac{1}{4}$  sec.16, T.4 N., R.18 E., Tuolumne County, Stanislaus National Forest, on right bank 0.3 mile downstream from bridge on State Highway 108 at Strawberry, 0.6 mile downstream from Herring Creek, and 1.2 miles downstream from Pinecrest Lake.

DRAINAGE AREA, --44.8 sq mi.

PERIOD OF RECORD.--October 1911 to January 1917, August 1938 to current year. Monthly discharge only for October 1913 and yearly estimates for 1912-13, published in WSP 1315-A. Published as "near Confidence", 1911-13.

GAGE.--Water-stage recorder. Datum of gage is 5,235.1 ft above mean sea level (river-profile survey).  
October 1911 to January 1917, nonrecording gage at site 1 mile downstream at different datum.

AVERAGE DISCHARGE.--37 years (1911-16, 1938-70), 128 cfs (92,740 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,060 cfs May 17 (gage height, 5.26 ft); minimum daily, 17 cfs Oct. 7-14.

Period of record: Maximum discharge, 3,900 cfs Nov. 21, 1950 (gage height, 9.25 ft), from rating curve extended above 1,100 cfs on basis of contracted-opening measurement of maximum flow at bridge 0.3 mile below station; minimum, 1.3 cfs Nov. 22, 23, 1946.

REMARKS.--Flow regulated at low and medium stages by Pinecrest Lake 1.2 miles upstream beginning in 1916 (capacity, 18,300 acre-ft). No diversion above station. See schematic diagram of Stanislaus River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

REVISIONS (WATER YEARS).--WSP 1215: 1945(M). WSP 1515: 1916, 1943(M). WSP 1930: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	62	66	64	50	57	79	155	635	107	47	27
2	63	62	66	62	51	59	85	139	585	93	47	27
3	63	63	64	60	50	57	89	239	558	92	47	27
4	64	66	64	60	50	56	95	330	600	78	47	44
5	63	66	64	60	47	56	108	380	547	70	47	49
6	33	68	64	62	51	56	120	389	511	63	47	49
7	17	67	64	62	54	57	120	317	477	59	47	49
8	17	66	64	62	56	58	118	298	533	60	47	82
9	17	66	63	68	54	56	127	298	848	62	47	101
10	17	66	63	66	53	56	137	368	447	60	47	101
11	17	66	63	63	53	54	161	296	325	60	47	101
12	17	66	63	63	59	54	201	242	286	63	47	101
13	17	67	62	63	57	58	165	304	189	63	47	101
14	17	67	62	68	54	63	163	494	183	62	47	101
15	36	67	60	66	57	64	146	659	173	63	47	101
16	90	67	60	232	59	64	134	759	181	63	47	101
17	58	66	60	137	57	67	117	839	232	58	37	101
18	59	64	59	82	57	64	100	750	283	53	27	101
19	66	64	63	64	56	62	103	651	353	51	27	103
20	60	64	134	74	56	60	98	573	347	50	27	103
21	62	64	163	443	54	62	92	566	330	49	27	103
22	62	64	114	414	53	66	87	659	301	49	27	101
23	69	66	93	204	54	74	81	671	258	49	27	103
24	66	66	78	143	56	84	81	647	226	47	27	103
25	60	64	103	105	56	96	100	635	193	46	27	101
26	69	64	82	81	57	100	123	704	235	47	27	101
27	66	64	71	75	58	96	114	667	725	47	28	101
28	62	63	68	60	59	95	93	573	244	46	29	100
29	62	63	70	54	-----	98	67	558	157	47	29	100
30	60	64	67	52	-----	92	98	573	123	47	28	100
31	60	-----	64	47	-----	82	-----	619	-----	47	28	-----
TOTAL	1,515	1,952	2,301	3,216	1,528	2,123	3,402	15,412	11,085	1,851	1,174	2,583
MEAN	48.4	65.1	74.2	104	54.6	68.5	113	497	370	59.7	37.9	86.1
MAX	90	68	163	443	59	100	201	839	848	107	47	103
MIN	17	62	59	47	47	54	67	155	123	46	27	27
AC-FT	3,910	3,870	4,560	6,380	3,030	4,210	6,750	30,570	21,990	3,670	2,330	5,120
CAL YR 1969	TOTAL	76,035.4	MEAN	208	MAX	1,290	MIN	6.8	AC-FT	150,800		
WTR YR 1970	TOTAL	48,142.0	MEAN	132	MAX	848	MIN	17	AC-FT	95,490		

## 11297000 PHILADELPHIA CANAL NEAR STRAWBERRY, CALIF.

LOCATION.--Lat 38°10'39", long 120°02'46", in NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.30, T.4 N., R.18 E., Tuolumne County, Stanislaus National Forest, on right bank 250 ft downstream from diversion dam on South Fork Stanislaus River, and 2.8 miles southwest of Strawberry.

PERIOD OF RECORD.--October 1939 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 4,960 ft above mean sea level (river-profile survey).

AVERAGE DISCHARGE.--31 years, 43.0 cfs (31,150 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 64 cfs in 1941, 1961-63, 1965; no flow at times in some years.

REMARKS.--Records excellent. Canal diverts from right bank of South Fork Stanislaus River for power development in Spring Gap powerplant of Pacific Gas and Electric Co.; tailrace empties into Middle Fork Stanislaus River above station at Sand Bar Flat. See schematic diagram of Stanislaus River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	S&P
1	60	60	56	55	55	56	58	60	60	59	45	9.5
2	60	60	56	55	55	56	59	59	59	59	45	7.4
3	60	60	56	55	55	52	59	58	58	59	45	9.2
4	60	61	56	55	55	51	59	59	59	58	45	8.9
5	60	58	55	55	55	55	60	56	59	58	45	9.2
6	16	55	56	55	55	55	59	54	58	58	45	8.9
7	.78	55	55	55	56	55	58	51	59	57	45	7.9
8	.78	55	56	55	57	55	58	56	61	58	45	37
9	.35	58	55	56	57	55	59	59	59	59	45	59
10	.01	58	55	56	56	55	58	58	54	59	45	59
11	.01	56	55	55	56	55	58	55	57	59	45	59
12	.01	56	55	55	58	55	58	53	58	59	45	59
13	.01	56	55	55	56	57	55	59	58	59	45	59
14	.01	56	55	55	54	59	55	61	59	58	45	59
15	.01	56	46	53	55	59	55	59	59	58	45	58
16	41	56	41	58	55	59	54	58	59	58	45	58
17	56	55	41	54	55	59	57	58	62	52	34	58
18	58	55	30	52	55	59	56	55	63	45	22	58
19	59	55	25	53	55	58	57	55	63	45	24	58
20	59	55	27	55	55	58	57	56	62	45	24	58
21	60	55	27	54	54	58	56	59	60	45	24	59
22	59	55	26	49	54	58	56	60	58	45	24	60
23	59	56	40	53	54	59	58	59	57	45	24	60
24	59	56	54	54	55	59	58	58	57	45	24	60
25	59	56	56	53	55	59	59	58	59	45	24	60
26	59	56	55	54	55	59	60	59	62	45	24	60
27	59	56	55	54	55	59	60	59	58	45	24	59
28	59	55	54	54	55	59	59	58	55	45	24	58
29	59	55	54	54	-----	59	56	59	58	45	24	58
30	59	55	54	55	-----	58	58	59	58	45	24	58
31	59	-----	55	55	-----	58	-----	59	-----	45	17	-----
TOTAL	1,240.97	1,691	1,516	1,686	1,547	1,768	1,729	1,786	1,768	1,617	1,081	1,392.0
MEAN	40.0	56.4	48.9	54.4	55.3	57.0	57.6	57.6	58.9	52.2	34.9	46.4
MAX	60	61	56	58	58	59	60	61	63	59	45	60
MIN	.01	55	25	49	54	51	54	51	54	45	17	7.4
AC-FT	2,460	3,350	3,010	3,340	3,070	3,510	3,430	3,540	3,510	3,210	2,140	2,760
CAL YR 1969	TOTAL	19,333.77	MEAN	53.0	MAX	63	MIN	.01	AC-FT	38,350		
WAT YR 1970	TOTAL	18,821.97	MEAN	51.6	MAX	63	MIN	.01	AC-FT	37,330		

## 11297500 TUOLUMNE CANAL NEAR LONG BARN, CALIF.

LOCATION.--Lat 38°05'35", long 120°10'03", in SW<sup>1</sup>/<sub>4</sub> sec.24, T.3 N., R.16 E., Tuolumne County, Stanislaus National Forest, on left bank 300 ft downstream from intake, 350 ft downstream from Lyons Reservoir on South Fork Stanislaus River, 2 miles west of Long Barn, and 15 miles northeast of Sonora.

PERIOD OF RECORD.--October 1937 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 4,110.0 ft above mean sea level (river-profile survey). Prior to June 1938, at site 200 ft downstream at different datum.

AVERAGE DISCHARGE.--33 years, 25.6 cfs (18,550 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 56 cfs May 30, 1963; no flow at times in some years.

REMARKS.--Records excellent. Canal diverts from left bank of South Fork Stanislaus River into Tuolumne River basin for power and domestic supply in vicinity of Sonora. See schematic diagram of Stanislaus River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	25	15	12	34	45	41	49	39	44	46	43
2	27	25	15	12	34	30	41	53	39	44	46	43
3	27	12	15	12	34	34	42	49	41	43	44	43
4	27	8.8	15	12	35	36	43	42	43	43	44	43
5	27	24	15	12	35	37	44	40	42	43	44	42
6	27	27	15	12	34	36	43	40	45	38	44	41
7	27	18	15	12	35	35	42	40	46	35	44	41
8	27	26	21	12	33	35	43	40	46	35	44	41
9	27	26	25	13	34	35	43	40	44	36	44	41
10	27	20	25	13	36	37	44	41	39	36	43	41
11	27	15	25	13	38	37	40	41	41	35	43	41
12	27	15	25	13	40	37	41	41	43	35	42	41
13	27	15	25	22	44	38	43	41	44	35	43	41
14	27	15	25	26	36	39	43	35	44	35	43	41
15	27	15	16	25	32	39	44	41	43	35	43	41
16	27	15	13	18	32	38	44	42	43	35	43	41
17	27	15	13	12	37	41	43	43	49	35	42	39
18	27	15	13	12	31	42	43	42	44	35	43	39
19	27	15	13	21	35	42	43	41	40	35	43	39
20	13	15	13	30	34	41	43	43	43	35	43	39
21	10	15	14	34	33	41	43	43	43	35	43	39
22	10	15	13	34	34	41	47	44	44	37	42	38
23	9.2	15	12	33	30	40	50	43	44	38	42	37
24	14	15	13	33	33	41	53	43	43	38	43	37
25	25	15	13	31	35	44	52	43	44	38	43	37
26	25	15	13	33	38	46	53	44	44	37	42	37
27	13	15	13	33	40	41	54	43	44	39	43	37
28	9.2	15	13	33	41	41	51	43	42	41	43	34
29	9.9	15	13	33	-----	41	45	43	43	41	43	33
30	9.4	15	12	34	-----	41	41	43	44	44	42	33
31	13	-----	12	34	-----	41	-----	43	-----	46	43	-----
TOTAL	673.7	511.8	498	679	987	1,212	1,342	1,319	1,293	1,181	1,340	1,183
MEAN	21.7	17.1	16.1	21.9	35.3	39.1	44.7	42.5	43.1	38.1	43.2	39.4
MAX	27	27	25	34	44	46	54	53	49	46	46	43
MIN	9.2	8.8	12	12	30	30	40	35	39	35	42	33
AC-FT	1,340	1,020	988	1,350	1,960	2,400	2,660	2,620	2,560	2,340	2,660	2,350
CAL YR 1969	TOTAL	12,227.5	MEAN	33.5	MAX	52	MIN	8.8	AC-FT	24,250		
WAT YR 1970	TOTAL	12,219.5	MEAN	33.5	MAX	54	MIN	8.8	AC-FT	24,240		



## 11298000 SOUTH FORK STANISLAUS RIVER NEAR LONG BARN, CALIF.

LOCATION.--Lat 38°05'33", long 120°10'02", in SW $\frac{1}{4}$  sec.24, T.3 N., R.16 E., Tuolumne County, Stanislaus National Forest, on left bank 600 ft downstream from Lyons Dam, 2 miles west of Long Barn, and 15 miles northeast of Sonora.

DRAINAGE AREA.--66.9 sq mi.

PERIOD OF RECORD.--October 1937 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder and masonry control. Datum of gage is 4,073.4 ft above mean sea level (river-profile survey).

AVERAGE DISCHARGE.--33 years, 87.9 cfs (63,680 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,320 cfs June 9 (gage height, 5.75 ft); minimum daily, 1.5 cfs Aug. 4, 5.

Period of record: Maximum discharge, 4,900 cfs Nov. 21, 1950 (gage height, 9.3 ft), from rating curve extended above 1,100 cfs on basis of computation of maximum flow over Lyons Dam; no flow at times in 1937-39, 1952.

REMARKS.--Flow regulated by Lyons Reservoir 600 ft upstream (capacity, 5,400 acre-ft) and Pinecrest Lake (capacity, 18,300 acre-ft). Tuolumne Canal (see sta 11297500) diverts at Lyons Dam; other diversions, see schematic diagram of Stanislaus River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

REVISIONS (WATER YEARS).--WSP 1215: 1938(M). WSP 1930: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	1.7	2.1	2.1	30	65	4.7	15	599	2.6	3.6	2.1
2	2.1	1.7	1.9	2.1	27	81	3.6	71	526	2.8	3.6	2.1
3	2.1	2.1	1.9	2.1	21	62	3.3	111	472	2.8	2.1	2.1
4	2.1	2.4	1.9	2.1	12	56	3.9	205	490	2.8	1.5	2.1
5	2.1	2.4	2.1	2.1	6.6	48	6.9	260	502	2.8	1.5	2.1
6	2.1	2.4	2.4	2.1	4.4	44	19	332	454	2.4	1.9	2.1
7	2.1	2.1	2.4	2.1	3.3	40	28	241	429	2.6	2.1	2.1
8	2.1	2.1	2.1	2.1	3.3	40	26	229	327	2.4	2.1	2.1
9	2.1	2.1	1.9	2.4	3.9	37	26	186	826	2.1	2.1	2.1
10	2.1	2.1	1.9	2.4	3.3	37	40	271	536	2.4	2.6	2.1
11	2.1	2.1	1.9	2.1	2.6	30	48	239	349	2.4	2.6	2.1
12	2.1	2.1	1.9	2.1	2.9	24	96	175	166	2.4	2.6	2.1
13	2.1	2.1	1.9	2.1	3.1	20	94	166	107	2.4	2.6	2.1
14	2.1	2.1	1.9	2.8	19	20	73	329	103	2.4	2.6	2.1
15	2.4	2.1	2.1	2.4	19	21	66	508	42	2.4	2.6	2.1
16	2.6	2.1	2.1	454	19	19	60	681	3.6	2.4	2.6	2.1
17	2.4	2.1	2.1	652	62	16	43	765	12	2.4	2.6	2.1
18	2.1	2.1	2.1	308	47	12	30	770	239	2.4	2.1	2.1
19	2.1	2.1	2.4	173	32	6.9	24	615	224	2.4	1.9	2.1
20	1.9	2.1	2.6	138	25	5.6	21	511	222	2.1	2.1	2.1
21	2.4	2.1	2.6	656	21	5.3	16	454	239	1.9	2.1	2.1
22	2.1	2.1	2.4	775	16	5.3	12	539	224	2.1	2.1	2.1
23	2.1	2.1	2.1	364	16	4.1	7.3	607	201	2.1	2.1	2.4
24	2.4	2.1	2.4	362	12	2.1	3.3	575	110	2.1	2.1	2.4
25	2.1	2.1	2.6	222	8.7	2.1	2.4	542	98	2.1	2.1	2.4
26	2.1	2.1	2.4	156	7.6	12	2.4	607	103	2.1	2.1	2.4
27	2.1	2.1	2.1	170	6.6	19	13	472	611	2.1	2.1	2.4
28	2.1	2.1	2.1	117	5.9	17	18	372	437	2.1	2.1	2.4
29	2.1	2.1	2.1	81	-----	17	4.4	357	98	2.1	2.1	2.4
30	2.1	2.1	2.1	66	-----	15	3.1	475	2.4	2.8	2.1	2.4
31	2.1	-----	2.1	45	-----	9.4	-----	514	-----	3.6	2.1	-----
TOTAL	66.6	63.1	66.6	4,772.1	440.2	792.8	798.3	12,194	8,752.0	74.5	70.5	65.4
MEAN	2.15	2.10	2.15	154	15.7	25.6	26.6	393	292	2.40	2.27	2.18
MAX	2.6	2.4	2.6	775	62	81	96	770	826	3.6	3.6	2.4
MIN	1.9	1.7	1.9	2.1	2.6	2.1	2.4	15	2.4	1.9	1.5	2.1
AC-FT	132	125	132	9,470	873	1,570	1,580	24,190	17,360	148	140	130

CAL YR 1969 TOTAL 69,201.2 MEAN 190 MAX 1,340 MIN 1.7 AC-FT 137,300  
WTR YR 1970 TOTAL 28,156.1 MEAN 77.1 MAX 826 MIN 1.5 AC-FT 55,850

## SAN JOAQUIN RIVER BASIN

## 11299000 MELONES RESERVOIR AT MELONES DAM, CALIF.

LOCATION.--Lat 37°57'12", long 120°30'49", in NW¼SE¼ sec.11, T.13 N., R.13 E., Tuolumne County, at gate tower near left bank at Melones Dam on Stanislaus River, 0.1 mile downstream from Bear Creek, and 7.5 miles southwest of Sonora.

DRAINAGE AREA.--904 sq mi.

PERIOD OF RECORD.--1926 (year-end content only, published in WSP 1315-A), June 1927 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Pacific Gas and Electric Co.). Prior to Feb. 28, 1961, nonrecording gage at same site and datum.

EXTREMES.--Current year: Maximum contents, 114,600 acre-ft June 9 (elevation, 736.1 ft); minimum, 4,320 acre-ft Oct. 12 (elevation, 619.2 ft).

Period of record: Maximum contents observed, 115,800 acre-ft May 27, 1951 (elevation, 736.7 ft); minimum observed, 3,220 acre-ft Dec. 7, 1957 (elevation, 613.5 ft).

REMARKS.--Reservoir is formed by concrete overflow dam; storage began Aug. 21, 1926; dam completed in December 1926. Capacity for power development 1 mile below dam is 106,100 acre-ft between elevations 628.0 ft (minimum operating level) and 735.0 ft (top of drum-type spillway gates) above mean sea level; usable capacity for irrigation, 110,000 acre-ft between elevation 610.0 ft (floor of outlet tunnel) and 735.0 ft above mean sea level. Figures given herein represent total contents, of which 2,630 acre-ft is not available for release. Released water flows down Stanislaus River to Tulloch Reservoir (see sta 11299995). See schematic diagram of Stanislaus River basin.

COOPERATION.--Record of elevation furnished by Oakdale Irrigation District. Capacity table furnished by Pacific Gas and Electric Co. in connection with a Federal Power Commission project.

REVISIONS.--WSP 1930: Drainage area.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

610	2,630	635	8,750	660	21,500	700	59,100
615	3,500	640	10,700	665	25,000	710	72,200
620	4,480	645	12,900	670	28,900	720	86,900
625	5,650	650	15,400	680	37,600	730	103,500
630	7,070	655	18,300	690	47,600	736.7	115,800

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTUBER 1969 TO SEPTEMBER 1970

DAY	UCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11,100	39,300	32,700	55,000	94,000	95,700	94,700	102,300	114,100	111,700	65,300	16,300
2	10,900	39,400	31,100	55,100	93,800	94,800	95,700	102,600	114,300	110,600	63,300	16,000
3	9,870	40,600	29,400	55,000	93,600	94,100	96,000	103,800	114,300	109,500	61,500	15,700
4	8,220	42,200	28,700	54,900	93,500	94,000	96,500	105,800	112,400	108,600	59,500	15,400
5	6,710	43,300	28,300	54,800	93,500	93,800	96,700	108,600	111,900	107,500	58,000	15,000
6	5,400	44,300	28,100	54,500	93,300	93,500	97,700	111,500	112,800	106,600	56,300	14,700
7	5,990	44,600	27,800	54,400	93,100	93,300	98,500	113,000	113,900	105,500	54,300	14,400
8	6,220	43,700	27,700	54,300	93,100	93,300	99,200	113,700	113,900	104,200	52,400	14,100
9	6,110	42,400	28,100	54,300	93,100	93,000	99,900	113,700	114,500	102,800	50,500	13,900
10	5,130	41,100	28,300	57,500	93,100	92,800	100,900	114,100	113,500	101,400	48,700	13,500
11	4,590	40,000	28,700	58,800	93,000	92,800	101,800	114,100	113,000	99,900	47,000	13,300
12	4,320	39,700	28,900	59,900	93,500	92,500	102,800	114,100	112,800	98,400	45,100	13,000
13	5,470	39,800	29,100	61,200	93,800	92,500	103,800	113,900	112,800	97,000	42,900	12,700
14	7,740	39,900	29,300	72,300	93,800	92,500	104,600	114,300	112,800	95,300	41,500	12,300
15	10,200	39,900	29,600	75,700	93,600	92,700	104,900	113,900	112,800	94,000	39,700	12,000
16	13,000	40,000	29,800	101,600	94,000	92,800	105,100	113,900	112,100	92,500	38,100	11,800
17	15,600	40,200	30,100	99,400	94,500	92,800	105,100	114,100	111,300	90,900	36,100	11,400
18	17,700	40,300	30,300	96,300	94,100	92,800	105,100	114,300	111,500	89,400	34,300	11,800
19	19,600	40,300	30,700	95,000	93,800	92,800	104,900	113,900	112,600	87,900	32,600	13,100
20	21,400	40,300	34,700	95,200	93,500	92,300	104,700	113,200	113,700	86,000	30,800	14,400
21	23,000	40,300	41,100	105,600	93,300	92,200	104,700	113,000	113,900	84,700	29,100	14,900
22	24,900	40,500	44,900	100,100	93,100	92,200	104,600	114,300	114,100	82,900	27,200	14,900
23	26,500	40,500	44,800	97,000	93,000	92,300	104,000	114,300	113,900	81,200	25,400	14,900
24	28,300	40,500	46,200	97,500	93,000	92,500	103,600	114,100	113,900	79,500	23,800	14,700
25	30,000	40,400	51,800	96,000	93,000	92,800	103,100	113,900	113,500	77,800	22,100	14,400
26	31,700	39,800	53,900	95,500	92,800	93,100	103,100	113,900	113,200	76,100	20,400	14,100
27	33,300	38,300	54,200	96,500	92,800	93,500	103,100	113,900	114,500	74,400	18,700	13,800
28	35,000	36,900	53,600	95,500	93,000	93,600	103,000	113,400	114,300	72,800	17,600	13,600
29	36,700	35,400	53,600	95,000	-----	93,800	102,400	113,200	113,500	70,900	17,300	13,200
30	37,600	34,200	54,400	94,700	-----	93,800	102,300	113,200	112,600	69,000	17,000	12,900
31	39,200	-----	54,600	94,300	-----	93,800	-----	113,700	-----	67,100	16,700	-----
MAX	39,200	44,600	54,600	105,600	94,500	95,700	105,100	114,300	114,500	111,700	65,300	16,300
MIN	4,320	34,200	27,700	54,300	92,800	92,200	94,700	102,300	111,300	67,100	16,700	11,400
(a)	681.7	676.2	696.2	724.6	723.8	724.3	729.3	735.6	735.0	706.3	652.2	645.0
(b)	+27,700	-5,000	+20,400	+39,700	-1,300	+800	+8,500	+11,400	-1,100	-45,500	-50,400	-3,800

CAL YR 1969 b-20,200

WTR YR 1970 b +1,400

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

## 11299995 TULLOCH RESERVOIR NEAR KNIGHTS FERRY, CALIF.

LOCATION.--Lat 37°52'34", long 120°36'12", in SW $\frac{1}{4}$  sec.1, T.1 S., R.12 E., Tuolumne County, in center of dam on Stanislaus River, 1.9 miles upstream from Goodwin Dam, and 5.3 miles northeast of Knights Ferry.

DRAINAGE AREA.--980 sq mi.

PERIOD OF RECORD.--November 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Oakdale and South San Joaquin Irrigation Districts).

EXTREMES.--Current year: Maximum contents, 67,500 acre-ft June 9 (elevation, 510.4 ft); minimum, 18,100 acre-ft Oct. 31 (elevation, 449.0 ft).

Period of record: Maximum contents, 69,500 acre-ft Jan. 7, 1965 (elevation, 512.0 ft); minimum, 4,580 acre-ft Oct. 3, 1960 (elevation, 404.0 ft).

REMARKS.--Reservoir is formed by gravity-type concrete dam completed in October 1957. Usable capacity, 56,840 acre-ft between elevations 431.0 ft (normal minimum water surface) and 511.0 ft (top of radial gates) above mean sea level. Dead storage, 11,560 acre-ft. Reservoir is used for conservation and power. Water passes down Stanislaus River, some first passing through powerplant at dam. Part of flow is diverted at Goodwin Dam to Oakdale Canal (see sta 11301000) and South San Joaquin Canal (see sta 11300500). Records, including extremes, represent total contents at 2400 hours. See schematic diagram of Stanislaus River basin.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

404	4,580	460	23,600
411	6,020	475	33,100
420	8,200	490	45,300
430	11,100	512	69,500
445	16,400		

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53,000	18,400	57,200	57,300	43,000	56,000	66,500	66,100	65,500	67,000	66,000	55,100
2	51,900	19,100	58,800	55,100	43,600	56,600	66,300	66,100	66,100	67,100	66,000	53,900
3	51,300	19,600	60,400	55,100	42,600	55,700	66,200	66,200	66,000	67,000	66,100	52,700
4	51,400	19,300	61,100	55,200	41,100	55,800	66,300	66,200	65,200	67,000	66,000	51,800
5	51,300	19,700	61,400	55,200	40,000	55,300	66,500	66,300	65,000	66,800	66,000	51,100
6	50,800	21,300	61,600	56,300	39,300	55,100	66,500	66,000	65,200	66,600	66,000	50,400
7	49,800	23,100	61,800	57,300	38,800	55,000	66,500	65,000	65,100	66,500	65,800	49,800
8	48,800	26,000	61,800	57,200	38,700	54,800	66,500	64,500	66,200	66,200	65,600	49,100
9	47,700	28,900	61,700	57,000	38,600	54,700	66,500	64,200	67,500	66,200	65,600	48,400
10	46,200	31,900	61,700	57,300	38,600	54,700	66,500	64,600	66,800	66,300	65,500	47,700
11	44,300	34,500	61,400	57,400	38,500	54,600	66,300	65,100	66,600	66,600	65,500	47,000
12	42,500	36,400	61,000	57,400	38,600	54,700	66,200	65,000	66,600	67,000	65,400	46,400
13	40,000	37,500	60,800	57,500	39,700	54,900	66,300	64,600	66,300	67,000	65,200	45,700
14	36,700	38,900	60,400	61,400	42,100	55,200	66,300	64,700	66,200	66,800	65,100	45,000
15	35,100	40,100	60,100	61,800	44,000	55,800	66,500	65,800	66,100	66,800	65,000	44,200
16	34,200	41,300	59,900	64,600	45,500	56,400	66,500	65,400	66,100	67,000	64,900	43,600
17	33,300	42,500	59,500	66,200	48,700	56,900	66,500	65,100	66,300	66,800	64,700	43,000
18	32,300	43,700	59,300	64,100	51,000	57,400	66,500	65,400	66,600	66,700	64,500	41,900
19	31,300	44,900	59,300	58,600	52,300	57,700	66,300	65,000	66,700	66,700	64,200	39,700
20	30,300	46,200	59,200	54,000	52,800	57,800	66,200	64,600	67,000	66,800	64,100	37,700
21	29,200	46,700	59,500	63,200	53,100	57,900	66,200	64,700	67,000	66,700	63,900	36,400
22	28,200	47,000	60,600	64,500	53,100	58,000	66,100	65,700	67,000	66,600	63,600	35,800
23	27,200	47,300	62,400	63,300	53,000	59,200	66,000	66,700	66,800	66,500	63,300	35,100
24	26,100	47,600	63,200	62,400	52,800	61,000	65,800	65,700	67,000	66,500	63,000	34,600
25	25,000	47,800	63,500	58,300	52,800	63,000	65,700	64,600	66,800	66,300	62,700	34,200
26	23,900	48,600	63,800	51,500	53,100	64,200	65,600	64,400	66,800	66,200	62,300	33,800
27	22,700	50,300	63,500	46,800	53,300	64,700	65,500	64,100	67,200	66,000	62,000	33,400
28	21,600	51,900	63,000	44,000	53,500	65,200	65,800	63,500	67,100	65,800	61,100	32,900
29	20,400	53,700	62,600	41,900	-----	65,800	66,100	63,400	67,000	65,800	59,400	32,500
30	19,200	55,400	61,400	41,400	-----	66,100	66,000	64,100	67,100	65,800	57,700	32,100
31	18,100	-----	59,300	42,400	-----	66,100	-----	65,000	-----	66,000	56,400	-----
MAX	53,000	55,400	63,800	66,200	53,500	66,100	66,500	66,700	67,500	67,100	66,100	55,100
MIN	18,100	18,400	57,200	41,400	38,500	54,600	65,500	63,400	65,000	65,800	56,400	32,100
(a)	449.0	500.1	503.6	486.7	498.3	509.3	509.2	508.4	510.1	509.2	501.0	473.6
(b)	-35,600	+37,300	+3,900	-16,900	+11,100	+12,600	-100	-1,000	+2,100	-1,100	-9,600	-24,300
CAL YR 1969	b +3,300		MAX 67,100		MIN 15,700							
WTR YR 1970	b -21,600		MAX 67,500		MIN 18,100							

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

## SAN JOAQUIN RIVER BASIN

## 11300500 SOUTH SAN JOAQUIN CANAL NEAR KNIGHTS FERRY, CALIF.

LOCATION.--Lat 37°51'16", long 120°38'14", in Rancheria del Rio Estanislao Grant, Tuolumne County, on left bank 0.8 mile downstream from headgate at Goodwin Dam and 3.0 miles northeast of Knights Ferry.

PERIOD OF RECORD.--May 1914 to current year. Monthly and yearly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 334.18 ft above mean sea level (levels by Oakdale Irrigation District). Prior to Mar. 12, 1915, nonrecording gage 100 ft downstream. Mar. 12, 1915, to July 1, 1921, nonrecording gage at present site and datum.

AVERAGE DISCHARGE.--56 years, 417 cfs (302,100 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 1,310 cfs July 16, 1967; no flow at times in each year except 1951, 1969.

REMARKS.--Records excellent. Canal diverts from right bank of Stanislaus River at Goodwin Dam for irrigation in Oakdale and South San Joaquin Irrigation Districts. See schematic diagram of Stanislaus River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	288	2.8	3.2	.80	3.2	.40	.1	1,190	1,060	1,130	1,090	939
2	289	2.8	7.6	.50	3.2	.03	512	1,190	1,210	1,110	1,090	939
3	300	2.6	18	.50	3.4	0	1,060	1,200	1,240	1,120	1,100	937
4	326	2.6	20	.40	3.2	.18	1,080	1,190	1,240	1,130	1,100	729
5	319	2.8	24	.20	3.2	.10	1,080	1,180	1,240	1,130	1,100	658
6	294	2.6	26	1.8	3.2	0	1,090	1,160	1,240	1,150	1,100	658
7	294	1.6	26	3.0	3.2	0	1,110	1,180	1,230	1,160	1,100	661
8	294	1.8	26	3.6	3.2	0	1,120	1,180	1,240	1,160	1,100	662
9	584	1.8	25	3.4	3.0	0	1,140	1,180	1,230	1,100	1,100	664
10	753	2.0	25	3.6	3.0	0	1,150	1,180	1,230	1,090	1,100	666
11	692	2.0	25	3.2	2.0	0	1,170	1,180	1,220	1,080	1,100	666
12	654	2.0	25	3.2	0	0	1,180	1,190	1,230	1,080	1,100	665
13	652	2.0	25	3.2	0	0	1,190	1,190	1,230	1,080	1,100	665
14	652	2.2	25	4.6	0	0	1,190	1,190	1,230	1,080	1,100	668
15	282	2.4	25	4.4	0	0	1,190	1,190	1,230	1,080	1,100	668
16	5.9	2.4	26	5.0	.01	0	1,190	1,180	1,210	1,090	1,100	603
17	5.0	1.2	11	4.2	.05	0	1,200	1,190	1,120	1,080	1,100	601
18	4.8	.10	0	2.4	0	0	1,200	1,190	1,100	1,080	1,100	617
19	4.4	.07	.75	2.2	0	0	1,200	1,200	1,100	1,090	1,100	617
20	3.8	0	1.4	2.2	0	0	1,200	1,210	1,110	1,090	1,100	617
21	5.6	0	1.6	2.8	0	0	1,200	1,220	1,130	1,090	1,100	556
22	6.5	0	1.4	1.2	0	143	1,200	1,220	1,120	1,090	1,100	518
23	3.0	0	1.6	.02	0	38	1,210	1,220	1,120	1,090	1,100	518
24	3.0	3.6	2.0	.10	0	56	1,230	1,210	1,180	1,090	1,100	517
25	3.2	3.6	2.6	0	0	370	1,230	1,210	1,230	1,090	1,090	514
26	3.2	3.6	2.4	0	0	792	1,230	1,180	1,180	1,090	1,090	515
27	3.2	3.6	2.6	0	0	952	1,210	1,150	1,120	1,090	1,090	517
28	2.8	3.6	2.6	0	.01	931	1,100	1,090	1,130	1,090	1,090	517
29	2.8	3.4	1.4	1.4	-----	932	1,110	945	1,130	1,090	1,090	517
30	2.8	3.4	.80	3.4	-----	998	1,140	882	1,130	1,090	1,090	515
31	2.8	-----	.80	3.2	-----	578	-----	883	-----	1,090	986	-----
TOTAL	6,735.8	62.57	384.75	64.52	33.87	5,790.71	33,112.1	35,950	35,410	34,100	33,906	19,104
MEAN	217	2.09	12.4	2.08	1.21	187	1,104	1,160	1,180	1,100	1,094	637
MAX	753	3.6	26	5.0	3.4	998	1,230	1,220	1,240	1,160	1,100	939
MIN	2.8	0	0	0	0	0	.10	882	1,060	1,080	986	514
AC-FT	13,360	124	763	128	67	11,490	65,680	71,310	70,240	67,640	67,250	37,890
CAL YR 1969	TOTAL	192,901.02	MEAN	528	MAX	1,230	MIN	0	ACFT	382,600		
WAT YR 1970	TOTAL	204,654.32	MEAN	561	MAX	1,240	MIN	0	ACFT	405,900		

LOCATION.--Lat 37°51'32", long 120°37'56", in SE $\frac{1}{4}$  sec.10, T.1 S., R.12 E., Tuolumne County, on left bank 0.3 mile downstream from headgate at Goodwin Dam and 3.4 miles northeast of Knights Ferry.

GAGE.--Water-stage recorder. Altitude of gage is 350 ft (from topographic map). Prior to Apr. 29, 1916, nonrecording gage at site 1,000 ft upstream at different datum. Apr. 29, 1916, to July 3, 1925, nonrecording gage and July 4, 1925, to Apr. 3, 1949, water-stage recorder at present site at datum 0.18 ft higher.

REMARKS.--Records excellent. Canal diverts water from left bank of Stanislaus River at Goodwin Dam 0.3 mile upstream for irrigation in Oakdale Irrigation District. See schematic diagram of Stanislaus River basin.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	409	7.0	16	.18	.06	.53	488	436	531	530	465	353
2	409	7.0	6.3	.18	.03	.26	488	452	531	531	465	360
3	409	6.5	.38	.18	.03	.15	465	459	531	532	465	363
4	409	6.5	.38	.22	.02	.26	309	502	530	532	466	366
5	409	6.5	.38	.22	0	.32	491	508	530	531	465	368
6	408	6.0	.38	.22	0	.18	492	509	531	532	465	368
7	408	6.0	.32	.22	0	.12	491	511	530	531	466	370
8	408	2.0	.32	.26	0	.12	496	515	531	531	465	370
9	409	.50	.26	.32	0	.10	500	516	530	472	465	370
10	410	.50	.26	.32	0	.12	501	515	530	452	466	371
11	410	.50	.26	.32	0	.12	501	514	531	459	466	370
12	409	.50	.26	.32	0	.08	501	516	530	460	466	369
13	409	.10	.26	.32	.03	.08	467	516	530	461	466	368
14	409	.06	.26	2.2	.03	.08	430	515	530	461	466	369
15	173	.03	.26	.44	.03	.08	430	520	530	462	467	369
16	.38	.06	.26	.98	.03	.08	454	523	492	463	467	377
17	.26	8.8	.26	.26	.10	.06	462	528	482	461	467	384
18	.22	15	.26	.18	.10	.06	479	531	483	462	468	392
19	.22	16	.26	.12	.08	.06	497	531	482	460	468	392
20	.22	16	.26	.15	.08	.06	495	531	513	459	468	392
21	.22	16	.38	.78	10	.06	494	530	532	459	469	391
22	.22	16	.26	.26	8.5	.04	494	531	531	462	469	391
23	.22	16	.26	.15	2.9	8.3	495	532	531	463	469	391
24	.22	16	.22	.18	.08	75	496	532	531	464	469	391
25	.22	16	.38	.15	.03	222	496	531	532	464	470	390
26	.22	16	.22	.12	.01	393	496	531	530	464	470	391
27	.22	16	.22	.15	0	432	480	531	532	464	470	391
28	.22	16	.18	.15	.02	433	412	531	530	465	470	391
29	.22	16	.18	.10	-----	432	421	531	531	465	470	391
30	.22	16	.18	.08	-----	477	431	531	531	465	470	390
31	.22	-----	.18	.08	-----	489	-----	532	-----	465	378	-----
TOTAL	5,901.72	265.55	30.24	9.81	22.16	2,964.32	14,152	15,991	15,719	14,882	14,396	11,349
MEAN	190	8.85	.98	.32	.79	95.6	472	516	524	480	464	378
MAX	410	16	16	2.2	10	489	501	532	532	532	470	392
MIN	.22	.03	.18	.08	0	.04	309	436	482	452	378	353
AC-FT	11,710	527	60	19	44	5,880	28,070	31,720	31,180	29,520	28,550	22,510
CAL YR 1969	TOTAL	93,720.52	MEAN	257	MAX	540	MIN	0	ACFT	185,900		
WAT YR 1970	TOTAL	95,682.80	MEAN	262	MAX	532	MIN	0	ACFT	189,800		

## 11302000 STANISLAUS RIVER BELOW GOODWIN DAM, NEAR KNIGHTS FERRY, CALIF.

LOCATION.--Lat 37°51'06", long 120°38'13", Rancheria Del Rio Estanislao Grant, Calaveras County, on right bank 250 ft upstream from Owl Creek, 0.9 mile downstream from Goodwin Dam, and 2.9 miles northeast of Knights Ferry.

DRAINAGE AREA.--986 sq mi.

PERIOD OF RECORD.--February 1957 to current year. Records equivalent to those published as Stanislaus River at Knights Ferry, 1903-14, and as Stanislaus River near Knights Ferry, 1915-32, if adjusted for diversions in Stanislaus and San Joaquin Water Company's canal and Oakdale and South San Joaquin canals.

GAGE.--Water-stage recorder. Datum of gage is 252.83 ft above mean sea level.

AVERAGE DISCHARGE.--13 years, 777 cfs (562,900 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 18,000 cfs Jan. 22 (gage height, 20.53 ft); minimum daily, 1.6 cfs Sept. 27-30.

Period of record: Maximum discharge, 40,200 cfs Dec. 24, 1964 (gage height, 28.85 ft, in gage well, 31.2 ft outside, from floodmarks), from rating curve extended above 14,000 cfs; minimum daily, 0.3 cfs Sept. 13, 14, Oct. 1, 1960.

Flood of Dec. 23, 1955, reached a stage of 37.7 ft, from floodmarks (discharge, 62,900 cfs, by computation of flow over Goodwin Dam).

REMARKS.--Records good. Flow regulated by reservoirs and powerplants at Donnell, Beardsley Lake, Melones, Tulloch, and several smaller reservoirs above station. South San Joaquin Canal (see sta 11300500) and Oakdale Canal (see sta 11301000) divert at Goodwin Dam 1.0 mile upstream. See schematic diagram of Stanislaus River basin. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	617	530	670	1,760	2,570	2,340	633	3.3	1,880	64	2.3	2.0
2	617	530	670	686	2,350	3,940	106	3.4	2,250	2.8	2.2	2.0
3	612	420	670	847	2,960	3,580	32	3.4	2,570	2.4	2.2	2.2
4	634	99	670	868	3,110	2,930	13	3.8	2,550	2.4	2.2	2.0
5	628	100	675	868	2,820	3,090	13	3.8	2,480	2.4	2.3	1.8
6	620	100	675	428	2,580	2,670	12	189	1,170	2.6	2.4	1.8
7	620	101	675	280	2,400	2,450	7.7	584	641	2.6	2.4	1.8
8	610	101	675	903	2,250	2,450	5.5	573	579	2.6	2.4	1.8
9	550	101	675	910	2,140	2,230	5.4	568	1,970	2.3	2.4	1.7
10	380	142	675	854	2,120	2,090	5.4	568	3,000	2.0	2.4	1.7
11	434	188	675	875	2,090	2,090	5.4	634	1,420	2.0	2.4	1.7
12	473	188	680	875	2,070	1,860	5.0	740	486	2.0	2.4	1.7
13	480	188	680	875	2,040	1,720	5.0	650	82	2.2	2.4	1.7
14	372	188	680	1,160	1,630	1,720	4.4	628	35	2.2	2.6	1.7
15	378	198	680	1,820	1,640	1,720	4.2	1,200	3.4	2.2	2.6	1.7
16	530	182	680	4,440	1,660	1,730	4.4	2,180	3.0	2.3	2.8	2.0
17	530	173	680	12,100	1,680	1,740	4.6	2,150	2.8	2.3	2.8	2.0
18	530	162	680	8,150	1,950	1,730	4.6	2,140	2.4	2.3	2.8	2.0
19	530	162	680	6,980	2,130	1,730	5.0	2,140	2.4	2.2	2.8	2.0
20	530	162	680	6,340	2,150	1,710	5.0	1,860	2.4	2.2	2.8	2.0
21	530	525	680	9,180	2,150	1,690	5.0	1,060	459	2.2	3.0	2.0
22	530	670	680	16,200	2,150	1,550	5.0	88	596	2.2	3.0	1.8
23	530	670	680	9,090	2,150	1,090	4.8	883	704	2.2	3.0	1.8
24	530	670	1,440	7,830	2,150	704	5.0	1,790	336	2.2	3.0	1.7
25	530	670	1,850	7,850	2,010	311	5.0	1,640	362	2.2	3.0	1.7
26	530	670	1,850	7,850	1,870	104	5.0	1,280	163	2.2	3.4	1.7
27	530	670	1,850	7,400	1,870	279	4.8	1,310	218	2.2	3.4	1.6
28	530	670	1,850	6,220	1,870	367	3.6	1,490	1,690	2.2	3.4	1.6
29	530	670	1,850	4,920	-----	335	3.1	1,800	701	2.2	3.4	1.6
30	530	670	1,800	3,620	-----	379	3.3	1,460	114	2.2	3.4	1.6
31	530	-----	1,760	2,640	-----	852	-----	1,480	-----	2.3	2.6	-----
TOTAL	16,505	10,560	29,815	134,819	60,560	53,181	925.2	31,102.7	26,472.4	132.3	84.2	54.4
MEAN	532	352	962	4,349	2,163	1,716	30.8	1,003	882	4.27	2.72	1.81
MAX	634	670	1,850	16,200	3,110	3,940	633	2,180	3,000	64	3.4	2.2
MIN	372	99	670	280	1,630	104	3.1	3.3	2.4	2.0	2.2	1.6
AC-FT	32,740	20,950	59,140	267,400	120,100	105,500	1,840	61,690	52,510	262	167	108

CAL YR 1969 TOTAL 829,195.2 MEAN 2,272 MAX 23,500 MIN 3.9 ACFT 1,645,000

WAT YR 1970 TOTAL 364,211.2 MEAN 998 MAX 16,200 MIN 1.6 ACFT 722,400

## 11303000 STANISLAUS RIVER AT RIPON, CALIF.

LOCATION.--Lat 37°43'47", long 121°06'34", in NW¼SE¼ sec.29, T.2 S., R.8 E., Stanislaus County, on left bank 15 ft downstream from railroad bridge, 1.1 miles southeast of Ripon, and 15 miles upstream from mouth.

DRAINAGE AREA.--1,075 sq mi.

PERIOD OF RECORD.--October 1940 to current year. April to September 1940 in reports of California Department of Water Resources.

GAGE.--Water-stage recorder. Datum of gage is 0.72 ft above mean sea level. October 1940 to Nov. 17, 1953, at site 100 ft upstream at same datum.

AVERAGE DISCHARGE.--30 years, 1,062 cfs (769,400 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 15,400 cfs Jan. 23 (gage height, 58.44 ft); minimum daily, 145 cfs Aug. 15, 20.

Period of record: Maximum discharge, 62,500 cfs Dec. 24, 1955 (gage height, 63.25 ft); minimum, 40 cfs July 21, 1961.

Flood of Feb. 12, 1938, reached a stage of 64.4 ft, from floodmarks.

REMARKS.--Records good. Flow regulated by reservoirs and powerplants above station (see REMARKS for sta 11302000). South San Joaquin and Oakdale Canals (see sta 11300500, 11301000) divert at Goodwin Dam 34 miles upstream. Diversions for irrigation of 57,250 acres in vicinity of Oakdale area. See schematic diagram of Stanislaus River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,030	774	725	1,920	3,580	2,220	1,010	214	1,690	551	179	221
2	992	774	678	1,900	3,250	2,910	1,000	214	2,050	432	174	210
3	987	736	717	1,240	2,990	4,000	532	226	2,150	322	192	224
4	995	483	710	1,050	3,430	3,900	403	214	2,450	279	179	236
5	1,030	404	706	1,070	3,570	3,530	318	174	2,460	250	176	242
6	1,050	404	703	1,060	3,320	3,560	319	218	1,950	230	204	257
7	1,010	412	691	806	3,080	3,110	315	207	1,650	217	215	229
8	1,020	380	686	449	2,900	2,840	272	492	1,210	178	219	197
9	1,020	351	697	924	2,750	2,800	240	647	1,130	172	200	199
10	987	335	640	1,040	2,640	2,620	257	663	1,940	166	198	222
11	975	327	541	1,030	2,600	2,490	272	744	2,780	158	157	235
12	1,010	363	663	1,030	2,560	2,460	288	760	1,950	151	158	255
13	1,020	366	694	1,030	2,550	2,260	278	847	1,210	181	166	249
14	1,020	360	691	1,070	2,490	2,130	296	780	818	162	157	269
15	1,000	358	690	1,900	2,170	2,100	298	731	664	177	145	260
16	901	352	694	2,330	2,130	2,080	312	1,210	529	179	180	275
17	844	347	672	3,920	2,120	2,080	299	2,110	606	175	194	279
18	809	337	695	10,500	2,140	2,120	265	2,140	487	187	201	271
19	770	334	701	8,620	2,310	2,100	245	2,090	387	170	172	228
20	744	329	723	7,410	2,460	2,100	255	2,100	346	156	145	285
21	738	326	720	6,950	2,480	2,080	246	1,880	348	162	176	301
22	729	401	763	10,400	2,470	2,040	240	1,320	448	151	195	335
23	724	642	745	13,800	2,480	1,920	230	548	686	154	236	293
24	722	696	714	9,280	2,480	1,560	252	956	778	173	230	279
25	724	704	1,060	8,160	2,470	1,170	269	1,850	571	154	204	245
26	741	719	1,780	8,100	2,360	873	275	1,760	531	157	181	285
27	730	738	1,870	8,070	2,230	700	238	1,500	509	164	216	354
28	737	740	1,880	7,720	2,200	657	227	1,490	462	153	223	307
29	754	738	1,900	6,780	-----	703	244	1,670	1,540	167	198	309
30	759	731	1,920	5,750	-----	662	244	1,970	1,140	152	226	223
31	779	-----	1,920	4,780	-----	654	-----	1,680	-----	168	243	-----
TOTAL	27,351	14,961	28,989	140,089	74,210	66,429	9,939	33,405	35,470	6,248	5,939	7,774
MEAN	882	499	935	4,519	2,650	2,143	331	1,078	1,182	202	192	259
MAX	1,050	774	1,920	13,800	3,580	4,000	1,010	2,140	2,780	551	243	354
MIN	722	326	541	449	2,120	654	227	174	346	151	145	197
AC-FT	54,250	29,680	57,500	277,900	147,200	131,800	19,710	66,260	70,350	12,390	11,780	15,420
CAL YR 1969	TOTAL 913,354		MEAN 2,502		MAX 22,600		MIN 217		AC-FT 1,812,000			
WTR YR 1970	TOTAL 450,804		MEAN 1,235		MAX 13,800		MIN 145		AC-FT 894,200			

## SAN JOAQUIN RIVER BASIN

11303500 SAN JOAQUIN RIVER NEAR VERNALIS, CALIF.  
(International Hydrological Decade Station)

LOCATION.--Lat 37°40'34", long 121°15'55", in El Pescadero Grant, San Joaquin County, on left bank 12 ft downstream from Durham Ferry highway bridge, 2.6 miles downstream from Stanislaus River, and 3.2 miles northeast of Vernalis.

DRAINAGE AREA.--13,540 sq mi.

PERIOD OF RECORD --July 1922 to current year (1922-23 and 1925-29, low-water records only).

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. July 1922 to September 1946, at various sites on or within 100 ft of Durham Ferry bridge. Prior to Apr. 1, 1931, at different datum. Apr. 1, 1931, to Sept. 30, 1959, at datum 5.06 ft above mean sea level and 8.4 ft above datum of Corps of Engineers. Oct. 1, 1959, to Nov. 30, 1967, at site 120 ft upstream at present datum.

AVERAGE DISCHARGE.--42 years (1924, 1929-70), 4,582 cfs (3,320,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 25,900 cfs Jan. 23 (elevation, 28.52 ft); minimum daily, 902 cfs July 22.

Period of record: Maximum discharge recorded, 79,000 cfs Dec. 9, 1950 (elevation, 32.81 ft, present datum), including flow through breaks in levee; minimum, 19 cfs Aug. 10, 1961.

REMARKS.--Records good. Natural flow of stream affected by storage reservoirs, power developments, ground-water withdrawals, and diversions for irrigation; low flows consist mainly of return flow from irrigated areas. Records of chemical analyses, water temperatures, and suspended-sediment loads for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4,670	4,920	4,360	4,840	13,300	7,130	2,800	1,660	2,500	2,920	968	1,220
2	4,420	4,890	4,430	4,910	11,400	7,360	2,250	1,590	3,780	2,320	1,030	1,090
3	4,360	4,880	4,650	4,660	10,300	9,040	1,960	1,620	3,150	2,130	1,110	1,070
4	4,460	4,730	4,560	4,100	9,680	9,800	1,860	1,630	3,780	1,950	1,050	1,090
5	4,560	4,670	4,390	3,950	9,870	10,200	1,720	1,490	3,880	1,780	950	1,210
6	4,620	4,830	4,200	3,950	9,870	11,300	1,650	1,530	3,700	1,650	1,030	1,320
7	4,590	5,030	4,080	4,210	9,570	11,700	1,670	1,680	3,070	1,600	1,010	1,380
8	4,490	5,040	4,020	3,990	9,300	11,700	1,680	1,630	2,420	1,430	980	1,220
9	4,110	4,970	4,010	4,030	9,150	11,900	1,590	1,810	2,080	1,270	1,040	1,080
10	3,770	4,880	4,010	4,100	9,180	11,800	1,550	2,110	2,390	1,250	1,070	1,030
11	3,620	4,860	3,930	4,040	9,360	11,200	1,500	2,350	3,510	1,240	962	1,080
12	3,470	4,890	3,910	3,880	9,360	10,400	1,540	2,420	3,770	1,270	908	1,260
13	3,400	4,850	3,930	3,880	9,230	9,120	1,680	2,490	3,200	1,380	920	1,340
14	3,340	4,910	3,770	4,080	9,260	8,200	1,760	2,510	3,470	1,330	950	1,380
15	3,730	5,150	3,640	4,630	8,840	7,550	1,690	2,470	3,580	1,150	926	1,370
16	4,230	5,100	3,590	6,720	8,580	7,000	1,680	2,520	2,630	1,120	986	1,260
17	4,360	4,850	3,590	8,220	8,390	6,510	1,650	3,110	1,980	1,090	1,080	1,260
18	4,270	4,400	3,560	12,200	8,340	5,600	1,630	3,540	1,620	1,110	1,060	1,300
19	4,420	4,300	3,560	17,400	8,530	5,310	1,600	3,600	1,380	1,120	962	1,420
20	4,440	4,280	3,580	18,200	8,890	5,050	1,590	3,640	1,220	1,130	968	1,510
21	4,420	4,250	3,480	18,400	9,020	5,070	1,450	3,490	1,230	1,020	956	1,590
22	4,640	4,210	3,430	18,700	9,000	4,860	1,380	3,060	1,500	902	1,010	1,510
23	4,760	4,230	3,310	24,000	8,750	4,770	1,330	2,320	2,140	920	1,040	1,440
24	4,890	4,060	3,380	24,000	8,370	4,650	1,370	2,010	2,990	950	1,210	1,410
25	5,060	3,820	3,550	21,200	8,100	4,450	1,470	2,500	2,700	974	1,230	1,360
26	5,220	4,110	4,100	20,200	8,010	4,050	1,590	2,690	2,810	1,080	1,140	1,410
27	5,320	4,410	4,510	19,700	7,970	3,700	1,690	2,570	2,990	1,150	1,140	1,520
28	5,310	4,500	4,660	19,400	7,730	3,450	1,650	2,460	2,440	1,130	1,130	1,550
29	5,290	4,430	4,690	18,900	-----	3,300	1,590	2,430	3,040	1,000	1,170	1,480
30	5,100	4,380	4,710	17,900	-----	3,270	1,610	2,610	3,160	944	1,140	1,420
31	4,980	-----	4,770	16,200	-----	3,130	-----	2,650	-----	926	1,250	-----



## 11306000 SOUTH FORK CALAVERAS RIVER NEAR SAN ANDREAS, CALIF.

LOCATION.--Lat 38°08'40", long 120°39'46", in NW $\frac{1}{4}$  sec.4, T.3 N., R.12 E., Calaveras County, on right bank 0.1 mile downstream from San Antonio Creek and 3.7 miles south of San Andreas.

DRAINAGE AREA.--118 sq mi.

PERIOD OF RECORD.--April 1950 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 860 ft (from topographic map). Prior to Feb. 13, 1952, nonrecording gage at same site and datum.

AVERAGE DISCHARGE.--20 years, 82.5 cfs (59,770 acre-ft per year); median of yearly mean discharges, 56 cfs (40,600 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 9,820 cfs Jan. 16 (gage height, 9.45 ft, from floodmarks); minimum daily, 0.21 cfs Sept. 2.

Period of record: Maximum discharge, 17,600 cfs Dec. 23, 1955 (gage height, 10.29 ft), from rating curve extended above 5,700 cfs on basis of slope-area measurement of maximum flow; no flow at times in most years.

REMARKS.--Records good. Some small diversions for irrigation above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	6.8	11	43	195	1,550	63	47	16	9.8	1.9	.31
2	2.8	6.7	11	37	175	777	61	44	15	8.4	1.6	.21
3	2.8	11	12	33	160	388	59	40	14	7.4	1.6	.28
4	2.9	16	13	29	149	552	55	39	14	6.6	1.5	.50
5	2.8	21	12	26	138	495	53	36	13	6.2	1.4	.64
6	3.1	106	12	26	128	320	51	33	13	6.1	1.4	.83
7	3.1	67	12	25	120	253	50	34	13	5.9	1.5	1.0
8	3.3	30	13	25	113	309	46	33	14	5.7	1.4	1.0
9	3.9	20	17	54	106	243	39	34	34	5.4	1.4	.90
10	3.9	17	17	508	103	228	42	32	30	5.1	1.4	.90
11	3.7	20	16	244	102	203	46	29	22	4.6	1.4	.70
12	3.3	20	15	177	118	181	45	29	20	4.9	1.1	.65
13	3.5	21	14	181	199	169	53	28	21	4.5	1.2	.60
14	3.6	16	12	2,500	281	158	90	27	20	4.0	1.0	.45
15	9.7	13	12	800	181	150	69	26	19	4.0	.93	.55
16	57	13	12	2,600	160	143	64	25	18	3.1	.97	.80
17	42	14	11	1,200	569	138	62	24	25	2.9	.92	.80
18	18	13	10	600	317	127	66	23	21	2.6	.94	.80
19	12	14	17	370	236	120	70	22	14	2.9	.91	.90
20	14	14	139	359	201	114	71	22	13	3.0	.77	.90
21	9.4	14	411	2,470	177	109	64	22	12	2.6	.69	1.0
22	8.2	13	244	1,030	158	104	73	19	11	2.9	.63	1.2
23	7.8	13	96	566	146	97	63	20	10	2.9	.72	1.2
24	7.8	12	310	863	137	91	56	20	9.9	3.0	.89	1.2
25	7.5	12	567	594	126	89	53	19	9.6	2.5	.89	1.1
26	7.5	11	235	413	119	85	53	18	10	1.9	.78	1.0
27	7.5	11	128	555	113	81	60	18	13	2.2	.81	1.0
28	7.4	11	92	401	116	74	58	18	12	2.3	.82	.90
29	7.3	16	72	308	-----	71	53	17	11	2.2	.82	.80
30	7.1	14	58	257	-----	69	50	17	11	1.9	.62	.80
31	7.0	-----	49	220	-----	66	-----	16	-----	1.9	.48	-----
TOTAL	282.6	586.5	2,650	17,514	4,843	7,554	1,738	831	478.5	129.4	33.39	23.92
MEAN	9.12	19.6	85.5	565	173	244	57.9	26.8	16.0	4.17	1.08	.80
MAX	57	106	567	2,600	569	1,550	90	47	34	9.8	1.9	1.2
MIN	2.7	6.7	10	25	102	66	39	16	9.6	1.9	.48	.21
AC-FT	561	1,160	5,260	34,740	9,610	14,980	3,450	1,650	949	257	66	47

CAL YR 1969 TOTAL 72,122.6 MEAN 198 MAX 6,290 MIN 2.6 AC-FT 143,100  
WTR YR 1970 TOTAL 36,664.31 MEAN 100 MAX 2,600 MIN .21 AC-FT 72,720

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1845	4.47	1,040	1-21	1200	7.79	5,280
12-25	1130	4.54	1,080	3- 1	1600	7.11	3,920
1-14	1400	9.33	9,400	3- 4	1900	4.82	1,260
1-16	unknown	9.45	9,820				

NOTE.--No gage-height record Jan. 15-19.

## SAN JOAQUIN RIVER BASIN

11308000 NORTH FORK CALAVERAS RIVER NEAR SAN ANDREAS, CALIF.

LOCATION.--Lat 38°13'17", long 120°41'54", in NW $\frac{1}{4}$  sec.7, T.4 N., R.12 E., Calaveras County, on right bank 0.5 mile upstream from Chile Gulch and 1.8 miles northwest of San Andreas.

DRAINAGE AREA.--85.2 sq mi.

PERIOD OF RECORD.--March 1950 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 750 ft (from topographic map). Prior to Feb. 14, 1952, nonrecording gage at same site and datum.

AVERAGE DISCHARGE.--20 years, 49.8 cfs (36,080 acre-ft per year); median of yearly mean discharges, 37 cfs (26,800 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 2,940 cfs Jan. 16 (gage height, 9.03 ft); minimum daily, 0.18 cfs Aug. 19, 20.

Period of record: Maximum discharge, 6,200 cfs Dec. 23, 1955 (gage height, 12.52 ft), from rating curve extended above 3,900 cfs; no flow at times in most years.

REMARKS.--Records good. Small diversions above station for irrigation.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	7.5	11	20	100	531	39	30	16	9.8	.71	.45
2	2.7	7.5	11	18	88	429	37	29	16	9.4	.57	.85
3	2.7	10	11	17	80	212	36	28	13	8.2	.71	.57
4	3.3	15	12	16	75	200	35	27	12	7.3	.92	.57
5	3.6	20	11	15	69	226	34	26	10	5.8	1.1	1.2
6	3.7	72	11	14	64	166	34	26	11	5.1	.92	1.4
7	3.9	45	11	14	60	137	33	26	10	4.6	.64	1.3
8	4.6	29	12	14	55	162	32	25	12	3.8	.51	1.3
9	6.0	21	13	17	53	140	31	26	28	3.6	.64	1.6
10	6.2	18	14	186	51	131	31	25	23	3.8	1.1	1.2
11	5.8	16	17	118	51	116	30	24	18	3.8	.71	1.3
12	5.8	19	15	73	57	102	30	24	17	4.1	.71	1.2
13	5.9	17	13	83	168	94	47	23	19	3.4	.92	.85
14	6.3	15	12	1,050	301	86	80	23	17	3.0	.71	.78
15	15	13	12	460	144	80	72	22	16	3.0	.92	.92
16	43	12	12	1,440	108	75	74	21	15	2.6	.71	.78
17	34	13	11	630	439	72	55	20	14	2.4	.27	.78
18	20	12	11	348	226	68	44	20	12	2.0	.40	.78
19	15	13	14	206	158	63	45	19	11	2.1	.18	1.0
20	12	13	182	208	124	60	45	19	11	1.5	.18	1.2
21	8.4	12	311	1,460	104	57	41	19	12	1.2	.24	1.2
22	7.6	12	178	570	91	55	40	18	10	1.1	.27	1.0
23	7.5	12	53	279	83	53	36	18	9.1	1.2	.51	.92
24	7.5	11	377	411	76	51	34	18	8.8	1.3	.40	.92
25	7.5	11	435	312	70	49	32	16	9.1	1.2	.27	.35
26	7.5	12	159	212	66	47	35	16	10	1.0	.27	.57
27	7.5	12	65	284	62	46	50	16	12	1.2	.35	1.2
28	7.5	12	40	218	61	43	42	16	12	1.0	.57	1.2
29	7.5	12	30	164	-----	42	36	16	12	1.0	.51	1.1
30	7.5	12	24	135	-----	42	32	15	10	.40	.64	.78
31	7.5	-----	22	114	-----	42	-----	16	-----	1.3	.51	-----
TOTAL	285.9	506.0	2,110	9,106	3,084	3,677	1,242	667	406.0	101.20	18.07	29.27
MEAN	9.22	16.9	68.1	294	110	119	41.4	21.5	13.5	3.26	.58	.98
MAX	43	72	435	1,460	439	531	80	30	28	9.8	1.1	1.6
MIN	2.7	7.5	11	14	51	42	30	15	8.8	.40	.18	.35
AC-FT	567	1,000	4,190	18,060	6,120	7,290	2,460	1,320	805	201	36	58
CAL YR 1969	TOTAL	37,544.32	MEAN	103	MAX	2,950	MIN	.69	AC-FT	74,470		
WTR YR 1970	TOTAL	21,232.44	MEAN	58.2	MAX	1,460	MIN	.18	AC-FT	42,110		

## PEAK DISCHARGE (BASE, 1,300 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-14	1630	8.80	2,750	1-21	1530	8.76	2,720
1-16	1200	9.03	2,940	3- 1	2000	6.75	1,400

NOTE.--No gage-height record Oct., 25 to Nov. 24.

## 11308700 NEW HOGAN RESERVOIR NEAR VALLEY SPRINGS, CALIF.

LOCATION.--Lat 38°09'01", long 120°48'45", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.31, T.4 N., R.11 E., Calaveras County, in control house at New Hogan Dam on the Calaveras River, 3.0 miles south of Valley Springs.

DRAINAGE AREA.--362 sq mi.

PERIOD OF RECORD.--December 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers).

EXTREMES.--Current year: Maximum contents, 208,100 acre-ft Jan. 17 (elevation, 683.10 ft); minimum, 125,400 acre-ft Sept. 30 (elevation, 654.90 ft).

Period of record: Maximum contents, 241,200 acre-ft Apr. 18, 1967 (elevation, 692.53 ft); minimum since initial season of normal operation, 9,360 acre-ft Oct. 27, 1964 (elevation, 516.81 ft).

REMARKS.--Reservoir is formed by an earthfill dam and four earthfill dikes. Storage began Dec. 20, 1963. Total capacity, 323,900 acre-ft between elevations 534.5 ft (invert of outlet valve) and 713.0 ft (top of spillway gates). Elevation of spillway crest is 679.5 ft. No dead storage. The reservoir is operated for flood control according to existing downstream channel conditions. Reservoir releases limited, insofar as possible, to amounts that will not cause flows greater than 6,000 cfs at Bellota. Records, including extremes, show contents at 2400 hours.

COOPERATION.--Records furnished by Corps of Engineers, rounded to Geological Survey standards.

## CAPACITY TABLE (ELEVATION, IN FEET AND CONTENTS, IN ACRE-FEET)

545	723	600	27,300
550	1,240	610	39,200
555	1,960	630	70,500
560	2,950	650	113,200
570	6,130	670	167,000
580	11,100	700	269,700
590	18,000		

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	158,700	156,500	159,200	171,800	159,100	181,800	172,300	173,700	169,100	159,800	147,200	133,800
2	158,500	156,600	159,200	171,800	158,800	184,900	172,400	173,700	168,900	159,400	146,900	133,500
3	158,200	156,600	159,200	172,000	158,600	183,400	172,600	173,600	168,700	159,100	146,400	133,100
4	158,000	156,700	159,200	172,100	158,800	182,600	172,700	173,600	168,300	158,700	146,100	132,800
5	157,800	157,300	159,200	172,100	159,100	181,500	172,900	173,500	168,100	158,300	145,600	132,400
6	157,600	157,800	159,200	172,200	159,600	179,400	173,000	173,400	167,800	157,900	145,200	132,100
7	157,400	158,200	159,200	172,300	160,000	176,900	173,100	173,300	167,600	157,600	144,800	131,800
8	157,300	158,300	159,200	172,400	160,300	174,900	173,200	173,200	167,300	157,100	144,500	131,500
9	157,100	158,400	159,200	172,700	160,600	172,400	173,100	173,100	167,100	156,700	144,100	131,100
10	156,900	158,400	159,300	174,000	160,900	169,800	173,000	172,900	167,100	156,300	143,700	130,800
11	156,700	158,500	159,300	175,100	161,200	167,000	173,000	172,700	166,900	156,000	143,300	130,400
12	156,500	158,600	159,400	175,700	161,600	165,600	173,000	172,500	166,600	155,700	142,800	130,100
13	156,300	158,700	159,400	176,500	162,300	165,200	173,200	172,300	166,200	155,300	142,300	129,800
14	156,300	158,800	159,400	189,000	163,700	165,900	173,500	172,200	165,900	154,900	141,900	129,500
15	156,400	158,800	159,400	193,000	164,400	166,500	173,600	172,100	165,600	154,400	141,400	129,200
16	156,600	158,900	159,500	205,400	165,000	167,200	173,700	172,000	165,300	153,900	140,900	128,900
17	156,700	158,900	159,500	208,100	167,200	167,800	173,800	171,800	164,900	153,600	140,500	128,600
18	156,800	159,000	159,500	204,000	167,200	168,100	173,800	171,600	164,600	153,300	140,000	128,200
19	156,800	159,000	159,700	196,100	167,200	168,500	174,000	171,400	164,200	152,900	139,500	128,000
20	156,800	159,000	160,500	188,900	168,200	168,900	174,200	171,000	163,700	152,500	138,900	127,700
21	156,800	159,000	162,400	193,300	169,000	169,300	174,200	170,800	163,400	152,000	138,400	127,500
22	156,700	159,100	163,700	189,600	169,600	169,700	174,200	170,600	162,900	151,600	138,000	127,200
23	156,800	159,100	164,300	183,300	170,200	170,000	174,100	170,400	162,600	151,100	137,600	127,000
24	156,700	159,100	166,100	178,200	170,700	170,300	174,100	170,200	162,200	150,700	137,100	126,700
25	156,700	159,100	168,800	172,000	171,200	170,700	174,000	170,100	161,900	150,300	136,600	126,400
26	156,600	159,200	170,000	164,900	171,500	170,900	174,100	169,800	161,500	149,900	136,200	126,300
27	156,600	159,200	170,600	160,400	172,000	171,200	174,100	169,700	161,200	149,400	135,800	126,100
28	156,500	159,200	171,000	159,500	172,300	171,500	174,100	169,500	160,800	149,000	135,300	125,800
29	156,500	159,200	171,200	159,400	-----	171,700	174,000	169,400	160,500	148,500	135,000	125,600
30	156,500	159,200	171,500	159,400	-----	171,900	173,800	169,300	160,100	148,000	134,500	125,400
31	156,500	-----	171,800	159,300	-----	172,100	-----	169,200	-----	147,700	134,100	-----
MAX	158,700	159,200	171,800	208,100	172,300	184,900	174,200	173,700	169,100	159,800	147,200	133,800
MIN	156,300	156,500	159,200	159,300	158,600	165,200	172,300	169,200	160,100	147,700	134,100	125,400
(a)	666.41	667.34	671.60	667.39	671.79	671.7	672.29	670.74	667.67	663.27	658.28	654.90
(b)	-2.4	+2.7	+12.6	-12.5	+13.0	-.2	+1.7	-4.6	-9.1	-12.4	-13.6	-8.7
(c)	1,220	637	388	356	393	864	1,038	1,766	1,849	2,531	2,197	1,889
CAL YR 1969	b +16.2		MAX	215,600	MIN	155,700						
WTR YR 1970	b -33.5		MAX	208,100	MIN	125,400						

a Elevation, in feet, at end of month.

b Change in contents, in thousands of acre-feet.

c Evaporation, in acre-feet.

## SAN JOAQUIN RIVER BASIN

11308900 CALAVERAS RIVER BELOW NEW HOGAN DAM, NEAR VALLEY SPRINGS, CALIF.

LOCATION.--Lat 38°08'53", long 120°49'26", in NE¼ sec.1, T.3 N., R.10 E., Calaveras County, on right bank at county road bridge, 0.5 mile upstream from Cosgrove Creek, 0.8 mile downstream from New Hogan Dam, and 3.0 miles south of Valley Springs.

DRAINAGE AREA.--363 sq mi.

PERIOD OF RECORD.--January 1961 to current year. Published as "below Hogan Dam" 1961-63 and as "below New Hogan Dam" 1964.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 519.8 ft above mean sea level (levels by Corps of Engineers). Auxiliary nonrecording gage 300 ft downstream at different datum used May 1, 1962, to Jan. 26, 1963.

AVERAGE DISCHARGE (adjusted for change in contents and evaporation from New Hogan Reservoir).--9 years, 247 cfs (179,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 5,040 cfs Jan. 18 (gage height, 5.90 ft); minimum daily, 0.20 cfs Nov. 1-4.

Period of record: Maximum discharge, 7,830 cfs Jan. 25, 26, 1969 (gage height, 7.46 ft); no flow for many days 1961-65.

REMARKS.--Records good. Flow regulated by New Hogan Reservoir (see sta 11308700). Some seepage of North Fork Stanislaus River water enters basin from diversion canals and reservoirs, normally not over 1.5 cfs. Small diversions above station for irrigation.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94	.20	22	16	500	63	32	130	92	192	165	174
2	79	.20	22	17	510	719	33	114	98	192	165	165
3	73	.20	22	17	422	1,910	49	103	147	192	165	165
4	73	.20	22	17	230	2,030	60	95	156	192	175	165
5	73	.90	22	17	49	2,030	60	110	136	192	200	165
6	73	1.3	22	17	51	2,020	60	122	122	192	208	165
7	72	.60	22	20	51	2,020	60	122	122	192	191	165
8	72	.60	22	25	51	2,020	90	122	122	192	168	165
9	72	.50	22	25	51	2,010	110	122	122	186	168	158
10	72	.50	21	25	53	2,010	110	142	122	177	171	158
11	72	.50	21	26	53	2,000	110	153	112	177	186	145
12	68	.50	21	26	57	1,390	110	147	153	177	208	136
13	59	.50	21	33	130	515	110	147	180	177	220	136
14	49	.50	21	74	184	28	110	136	184	193	216	136
15	32	.50	21	53	177	28	110	120	188	212	208	134
16	32	.50	21	513	177	31	110	125	192	197	208	135
17	33	5.5	21	2,250	685	35	110	125	216	174	212	136
18	31	12	21	3,910	1,040	35	110	133	240	174	226	124
19	31	12	21	4,960	718	35	72	165	240	174	247	112
20	31	8.0	21	4,940	33	35	59	180	228	174	248	112
21	31	9.7	23	4,960	36	35	141	165	228	198	213	112
22	21	9.7	22	4,970	36	36	156	144	204	225	196	112
23	.40	9.7	22	4,900	36	36	142	128	184	218	196	112
24	56	9.8	22	4,880	36	36	127	128	184	188	200	112
25	31	11	22	4,840	36	36	112	128	184	179	200	105
26	29	21	17	4,760	36	36	112	122	184	177	200	91
27	27	21	6.9	3,830	36	36	112	105	184	190	200	91
28	26	21	6.5	1,450	37	36	127	94	184	216	195	91
29	20	21	6.5	845	-----	36	175	94	184	216	184	90
30	16	21	8.5	736	-----	33	179	94	184	203	184	101
31	9.0	-----	16	492	-----	31	-----	92	-----	173	184	-----
TOTAL	1,457.40	200.60	601.4	53,644	5,511	21,351	3,058	3,907	5,076	5,911	6,107	3,968
MEAN	47.0	6.69	19.4	1,730	197	689	102	126	169	191	197	132
MAX	94	21	23	4,970	1,040	2,030	179	180	240	225	248	174
MIN	.40	.20	6.5	16	33	28	32	92	92	173	165	90
AC-FT	2,890	398	1,190	106,400	10,930	42,350	6,070	7,750	10,070	11,720	12,110	7,870
MEAN a	27.5	62.3	230	1,534	438	698	149	79.0	48.6	28.6	13.0	16.4
AC-FT a	1,690	3,710	14,140	94,340	24,320	42,940	8,890	4,860	2,890	1,760	798	978

CAL YR 1969 TOTAL 176,827.00 MEAN 484 MAX 7,500 MIN .20 AC-FT 350,700 MEAN a 528 AC-FT a 382,300  
WTR YR 1970 TOTAL 110,792.40 MEAN 304 MAX 4,970 MIN .20 AC-FT 219,800 MEAN a 278 AC-FT a 201,300

a Adjusted for change in contents and evaporation from New Hogan Reservoir.

## 11312000 BEAR CREEK NEAR LOCKEFORD, CALIF.

LOCATION.--Lat 38°09'10", long 121°08'17", in NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.31, T.4 N., R.8 E., San Joaquin County, on right bank 15 ft downstream from county road bridge, and 0.8 mile southeast of Lockeford.

DRAINAGE AREA.--47.6 sq mi.

PERIOD OF RECORD.--October 1930 to current year. Monthly discharge only for some periods, published in WSP 1315-A October 1926 to November 1930 at site 3 miles downstream; records not equivalent.

GAGE.--Water-stage recorder and low water concrete control. Datum of gage is 80.68 ft above mean sea level (levels by Corps of Engineers).

AVERAGE DISCHARGE.--40 years, 11.9 cfs (8,620 acre-ft per year); median of yearly mean discharges, 8.9 cfs (6,450 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,010 cfs Jan. 14 (gage height, 14.08 ft); no flow Nov. 28 to Dec. 8.  
Period of record: Maximum discharge, 2,930 cfs Apr. 3, 1958 (gage height, 15.13 ft); no flow for several months in most years.

REMARKS.--Records fair. No storage or diversion above station. Occasionally water is released from East Bay Municipal Utility District aqueduct into Bear Creek above station. Summer discharge influenced by return flows from irrigated areas.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.08	.02	0	.32	14	323	1.6	.96	.89	.26	.11	.41
2	.08	.02	0	.24	10	399	.48	.31	.65	2.3	2.0	.43
3	.07	.02	0	.23	8.2	75	.92	.73	.18	1.8	1.9	.36
4	1.0	.02	0	.23	6.8	206	.55	.19	.26	2.0	1.5	.86
5	1.1	.03	0	.23	6.2	290	.27	.12	.31	1.5	.68	2.1
6	.90	.04	0	.23	5.3	70	.18	.12	.31	1.3	.77	2.1
7	.97	.04	0	.23	4.8	37	1.2	.52	.28	.22	.13	2.0
8	.45	.03	0	.25	4.5	82	.11	.56	.38	.45	.31	1.2
9	.40	.04	.01	.89	4.2	53	.41	.84	2.5	.70	.45	.99
10	.23	.37	.16	9.3	4.0	41	1.5	1.9	1.3	.50	.56	.48
11	.10	.51	.36	6.9	3.8	27	1.2	1.9	1.6	.30	.50	.61
12	.15	.60	.69	3.9	3.9	18	1.1	.94	1.2	.26	.39	.54
13	.18	.29	.78	3.5	6.5	13	.35	2.0	.87	.90	.93	.91
14	.21	.10	.25	558	41	10	.30	1.3	.40	1.2	.93	1.1
15	.26	.10	.20	352	15	8.0	.13	1.3	.80	.79	1.8	.90
16	.48	.06	.16	466	9.3	6.7	.09	1.3	.65	.67	1.5	2.5
17	.76	.05	.12	196	39	5.7	.08	.78	.58	.14	1.1	2.2
18	.38	.04	.11	93	68	4.7	.08	.15	.91	.18	.74	2.1
19	.14	.03	.14	62	22	3.6	.11	.22	2.4	.24	.23	1.2
20	.07	.03	13	63	13	3.1	1.6	1.9	1.6	.23	.38	1.1
21	.04	.02	28	605	9.0	2.8	1.8	1.5	3.4	.16	.51	.49
22	.03	.02	15	242	6.8	2.5	1.1	1.1	2.6	.16	.38	.39
23	.03	.02	4.3	82	5.6	2.2	.87	.88	.94	1.6	.53	.36
24	.13	.02	2.1	111	4.9	1.9	.57	.70	.79	1.2	.87	.34
25	.35	.02	8.7	61	4.4	1.7	1.4	.95	.20	.63	2.1	.24
26	.09	.02	10	37	3.9	1.4	1.4	.57	.27	.70	1.7	.27
27	.04	.01	2.8	60	3.6	1.2	.73	.46	.50	.09	1.9	1.0
28	.03	0	1.5	43	3.5	1.3	.36	.34	.42	.06	1.0	1.9
29	.02	0	.94	21	-----	1.9	.68	.36	.28	.11	.89	2.1
30	.01	0	.56	16	-----	1.1	1.3	2.0	.16	.15	.40	.86
31	.01	-----	.39	14	-----	1.7	-----	1.7	-----	.11	.34	-----
TOTAL	8.79	2.57	90.27	3,108.45	331.2	1,695.5	22.47	28.60	27.63	20.91	27.53	32.04
MEAN	.28	.086	2.91	100	11.8	54.7	.75	.92	.92	.67	.89	1.07
MAX	1.1	.60	28	605	68	399	1.8	2.0	3.4	2.3	2.1	2.5
MIN	.01	0	0	.23	3.5	1.1	.08	.12	.16	.06	.11	.24
AC-FT	17	5.1	179	6,170	657	3,360	45	57	55	41	55	64

CAL YR 1969 TOTAL 10,349.78 MEAN 28.4 MAX 611 MIN 0 AC-FT 20,530  
WTR YR 1970 TOTAL 5,395.96 MEAN 14.8 MAX 605 MIN 0 AC-FT 10,700

PEAK DISCHARGE (BASE, 220 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-14	1845	14.08	1,010	3- 1	2045	12.80	751
1-16	1330	12.20	652	3- 4	2230	12.50	699
1-21	1600	12.75	742				

## SAN JOAQUIN RIVER BASIN

## 11313000 DELTA-MENDOTA CANAL AT TRACY PUMPING PLANT, NEAR TRACY, CALIF.

LOCATION.--Lat 37°47'49", long 121°35'03", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.31, T.1 S., R.4 E., Alameda County, at Tracy pumping plant at intake to canal, 6 miles southeast of Byron, and 10 miles northwest of Tracy.

PERIOD OF RECORD.--June 1951 to current year. Prior to October 1959, published as "near Tracy."

GAGE.--Water-stage recorder on forebay, pressure gages on pump discharge lines, and operating time of pumps. Datum of gage is at mean sea level (levels by Bureau of Reclamation).

AVERAGE DISCHARGE.--19 years, 1,747 cfs (1,266,000 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 4,935 cfs Aug. 11, 1969; no flow many days in most years.

REMARKS.--Discharge computed from records of operation of pumps. Water is diverted from Sacramento-San Joaquin Delta by way of Old River and a dredged channel to the Tracy Pumping Plant where it is lifted 200 ft into canal. Water, less intermediate diversions, flows into Mendota Pool on San Joaquin River to replace water diverted at Friant Dam. The canal is a part of the Central Valley project. Records of chemical analyses for the water year 1970 are published in Part 2 of this report.

COOPERATION.--Records furnished by Bureau of Reclamation, rounded to Geological Survey standards.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2,530	323		0	1,240	1,880	3,280	3,660	4,150	4,380	4,360	2,150
2	2,600	324		0	908	1,310	3,680	2,240	4,110	4,380	4,340	2,280
3	2,730	323		0	781	1,380	3,660	1,590	4,190	4,500	4,230	2,280
4	3,170	323		0	900	1,540	4,130	1,590	4,170	4,480	4,080	2,090
5	4,140	321		0	773	942	4,140	1,600	4,440	4,480	3,510	1,870
6	3,100	722		0	774	1,140	4,100	1,620	4,590	4,490	3,500	1,860
7	2,880	576		0	772	908	4,100	1,740	4,380	4,510	3,870	1,860
8	2,460	397		0	770	493	4,110	2,060	4,470	4,500	4,240	2,000
9	2,050	397		0	772	859	4,110	4,010	4,460	4,540	3,860	1,920
10	2,050	433		0	1,250	1,200	4,080	4,010	4,460	4,510	3,840	1,900
11	1,860	361		0	1,260	935	4,070	4,020	4,140	4,560	3,730	1,970
12	1,900	360		0	1,260	858	4,080	3,930	3,770	4,560	3,900	2,100
13	1,910	505		0	1,250	862	3,900	3,950	3,780	4,560	3,930	2,100
14	2,030	578		0	1,670	866	3,900	3,940	3,780	4,580	3,960	2,070
15	2,030	650		130	1,680	944	3,820	4,000	3,800	4,600	3,900	2,090
16	1,660	0		1,680	1,420	1,080	3,970	4,030	4,060	4,580	3,930	2,020
17	1,590	72		1,690	1,890	1,280	3,920	3,990	4,470	4,590	3,850	2,060
18	1,410	215		1,620	2,030	1,430	3,900	3,950	4,450	4,570	3,600	2,050
19	1,330	286		73	2,090	1,650	3,870	3,920	4,260	4,580	3,510	2,060
20	1,330	286		109	2,080	1,640	3,860	3,960	3,970	4,580	3,460	2,050
21	1,110	359		110	2,170	1,960	3,800	4,270	4,500	4,570	3,350	2,170
22	975	360		147	2,120	2,090	3,720	4,300	4,290	4,370	3,360	2,430
23	434	323		370	2,150	2,140	3,020	4,300	4,020	4,270	3,360	2,450
24	433	288		1,030	1,970	2,750	3,180	4,310	4,090	4,260	3,360	3,040
25	433	650		1,020	1,930	3,200	3,150	4,240	4,220	4,190	3,100	3,160
26	416	866		773	2,020	3,170	3,130	4,250	4,180	4,220	2,910	3,030
27	434	685		518	1,640	3,180	3,550	4,220	4,510	4,190	2,990	3,030
28	433	0		788	1,890	3,190	3,370	4,170	4,480	4,220	3,020	2,820
29	433	0		785	-----	3,190	874	4,140	4,320	4,370	2,470	2,820
30	324	0		905	-----	3,190	2,860	4,210	4,390	4,320	2,480	2,690
31	325	-----		1,020	-----	3,200	-----	4,200	-----	4,360	2,330	-----
TOTAL	50,510	10,983	0	12,768	41,460	54,457	109,334	110,420	126,900	137,870	110,330	68,440
MEAN	1,629	366	0	412	1,481	1,757	3,644	3,562	4,230	4,447	3,559	2,281
MAX	4,140	866	0	1,690	2,170	3,200	4,140	4,310	4,590	4,600	4,360	3,160
MIN	324	0	0	0	770	493	874	1,590	3,770	4,190	2,330	1,860
AC-FT	100,200	21,780	0	25,330	82,240	108,000	216,900	219,000	251,700	273,500	218,800	135,800
CAL YR 1969	TOTAL 770,701		MEAN 2,112	MAX 4,940	MIN 0	ACFT 1,529,000						
WAT YR 1970	TOTAL 833,472		MEAN 2,283	MAX 4,600	MIN 0	ACFT 1,653,000						

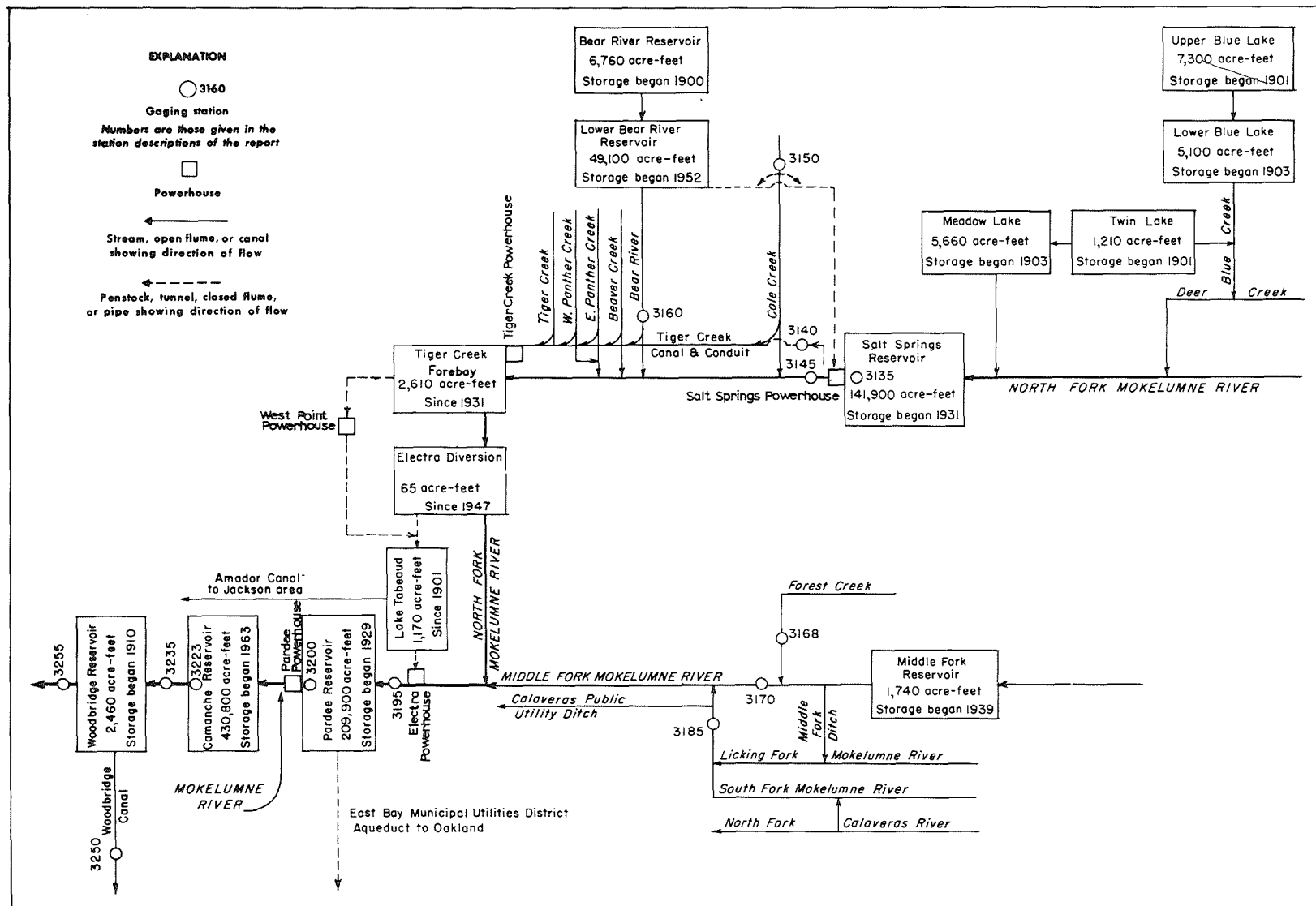


FIGURE 9.--Schematic diagram showing diversions and storage in Mokelumne River basin.

## SAN JOAQUIN RIVER BASIN

## 11313500 SALT SPRINGS RESERVOIR NEAR WEST POINT, CALIF:

LOCATION.--Lat 38°30'00", long 120°12'55", in SE¼ sec.33, T.8 N., R.16 E., Calaveras County, Eldorado National Forest, at right end of Salt Springs Dam on North Fork Mokelumne River, 2 miles upstream from Cole Creek, and 18 miles northeast of West Point.

DRAINAGE AREA.--169 sq mi.

PERIOD OF RECORD.--March 1931 to current year. Prior to October 1964, records published as usable contents.

GAGE.--Nonrecording gage read once daily. Datum of gage is at mean sea level (levels by Pacific Gas and Electric Co.).

EXTREMES (at 1700).--Current year: Maximum contents observed, 141,900 acre-ft June 3-14, 17-24, 27 (elevation, 3,958.0 ft); minimum, 35,100 acre-ft Dec. 19 (elevation, 3,814.8 ft).

Period of record: Maximum contents observed, 141,900 acre-ft for several days in June or July each year 1948-54, 1956-58, 1960, 1962-63, 1965, 1967, 1969-70 (elevation, 3,958.0 ft); no contents at times in 1932-33, 1945, 1962.

REMARKS.--Reservoir is formed by concrete-faced, rockfill dam, completed in 1931; storage began in March 1931. Capacity, 141,900 acre-ft between elevations 3,667.75 ft (outlet drain) and 3,958.0 ft (top of radial gates) above mean sea level. Storage of 1,860 acre-ft is available for release to river only. Water is released through powerhouse just below dam and discharged into Tiger Creek powerhouse conduit (see sta 11314000). Figures given herein represent total contents. See schematic diagram of Mokelumne River basin.

COOPERATION.--Record of contents furnished by Pacific Gas and Electric Co. in connection with a Federal Power Commission project.

REVISIONS.--WSP 1930: Drainage area.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

3,667.75	45	3,740.0	7,320
3,700.0	1,250	3,750.0	9,800
3,705.0	1,680	3,760.0	12,700
3,710.0	2,200	3,780.0	19,600
3,715.0	2,810	3,800.0	28,000
3,720.0	3,520	3,850.0	54,900
3,725.0	4,320	3,900.0	90,800
3,730.0	5,230	3,958.0	141,900
3,735.0	6,230		

## CONTENTS, IN ACRE-FEET, AT 1700, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94,236	71,671	51,459	47,309	99,557	93,993	82,672	89,360	140,513	140,801	123,814	105,010
2	93,188	71,095	50,554	47,251	100,055	93,671	82,596	89,756	140,897	140,225	122,908	104,584
3	92,144	70,593	49,658	47,135	100,055	93,188	82,596	90,152	141,858	139,747	122,094	104,330
4	91,106	69,949	48,711	46,962	100,387	92,705	82,979	92,224	141,858	139,365	121,643	103,823
5	90,073	69,663	47,832	46,616	100,554	92,064	83,439	94,236	141,858	138,983	121,373	103,064
6	89,044	69,307	46,846	46,329	100,720	91,425	84,208	97,003	141,858	138,506	121,013	102,728
7	88,021	68,455	45,871	46,100	100,970	90,788	84,903	99,226	141,858	137,935	120,743	101,387
8	87,002	67,396	45,020	45,871	101,304	90,390	85,290	100,720	141,858	137,270	120,474	100,803
9	85,989	66,622	44,181	45,644	101,638	89,914	86,067	101,638	141,858	136,796	119,846	100,470
10	84,903	66,342	43,349	46,271	101,638	89,360	87,159	103,317	141,858	136,607	119,041	100,803
11	83,746	65,924	42,470	46,443	101,638	88,729	88,257	104,499	141,858	135,945	118,506	100,887
12	82,672	65,924	41,599	46,443	101,638	88,021	89,281	105,519	141,858	135,190	118,149	100,720
13	81,680	65,437	40,629	46,558	102,057	87,550	89,993	106,541	141,858	134,531	117,704	100,304
14	80,618	65,090	39,616	47,425	102,224	87,159	90,629	108,597	141,858	134,248	117,260	99,889
15	79,862	64,332	38,773	48,476	101,805	86,846	90,788	111,366	141,665	133,966	116,197	99,474
16	80,694	63,510	37,885	53,605	101,137	86,612	90,788	115,224	141,473	133,591	115,401	99,308
17	81,073	62,694	36,956	59,355	100,970	86,300	90,788	120,205	141,858	133,310	114,606	99,060
18	80,315	62,288	36,038	62,490	100,554	85,678	90,629	125,270	141,858	132,469	114,078	98,647
19	79,561	61,681	35,078	64,126	100,138	85,445	90,629	129,311	141,858	131,630	113,639	97,906
20	78,809	61,145	36,038	65,993	99,723	84,903	90,549	132,376	141,858	130,979	113,200	96,921
21	78,060	60,612	39,246	71,167	99,474	84,440	90,231	134,719	141,858	130,700	112,762	96,022
22	77,464	59,618	43,459	84,054	98,153	84,054	89,993	137,650	141,858	130,329	111,889	95,696
23	77,091	58,569	44,014	88,414	97,413	83,746	89,756	138,792	141,858	129,958	111,019	95,290
24	76,646	57,853	44,683	91,585	96,839	83,592	89,439	138,792	141,858	129,588	110,238	94,802
25	76,128	57,142	46,443	93,188	96,104	83,746	89,281	138,411	141,665	128,757	109,719	94,317
26	75,611	56,308	47,425	93,993	95,452	83,592	89,439	138,983	141,473	127,835	109,114	93,349
27	75,095	55,355	47,599	95,859	94,884	83,592	89,439	139,938	141,858	127,100	108,770	92,305
28	74,581	54,476	47,599	96,839	94,317	83,439	89,281	140,034	141,569	126,458	108,339	91,345
29	73,995	53,419	47,483	97,824	-----	83,362	89,202	140,130	141,665	125,727	107,481	90,629
30	73,411	52,373	47,541	98,647	-----	82,979	89,123	140,321	141,281	125,270	106,370	89,993
31	72,902	-----	47,367	99,060	-----	82,825	-----	140,321	-----	124,814	105,519	-----
MAX	94,236	71,671	51,459	99,060	102,224	93,993	90,788	140,321	141,858	140,801	123,814	105,010
MIN	72,902	52,373	35,078	45,644	94,317	82,825	82,596	89,360	140,513	124,814	105,519	89,993
(a)	3,876.5	3,846.3	3,837.6	3,910.2	3,904.4	3,889.8	3,897.9	3,956.4	3,957.4	3,939.8	3,917.9	3,899.0
(b)	-22,300	-20,500	-5,000	+51,700	-4,700	-11,500	+6,300	+51,200	+960	-16,500	-19,300	-15,500
CAL YR 1969	b +13,300											
WTR YR 1970	b -5,200											

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet, rounded to Geological Survey standards.



## 11314000 TIGER CREEK POWERHOUSE CONDUIT BELOW SALT SPRINGS DAM, CALIF.

LOCATION.--Lat 38°29'47", long 120°13'04", in SW¼ sec.33, T.8 N., R.16 E., Amador County, Eldorado National Forest, on left bank 1,000 ft downstream from Salt Springs Dam and powerhouse.

PERIOD OF RECORD.--June 1931 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 3,620 ft (from topographic map).  
Auxiliary nonrecording gages in stilling wells upstream and downstream from control.

AVERAGE DISCHARGE.--39 years, 338 cfs (244,900 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 577 cfs June 22, 1945; no flow at times in some years.

REMARKS.--Conduit conveys water of North Fork Mokelumne River from tailrace of Salt Springs powerhouse to forebay of Tiger Creek powerhouse. Since December 1952, records include Bear River diversion to Salt Springs powerhouse. See schematic diagram of Mokelumne River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	547	550	552	526	476	524	529	545	549	550	515	545
2	545	552	550	541	474	514	529	545	550	549	515	538
3	544	550	545	545	474	518	538	545	550	549	512	532
4	544	550	550	539	474	518	541	7.9	549	547	506	524
5	544	549	549	541	472	518	541	0	549	549	503	519
6	544	549	549	541	474	523	542	.9	549	549	499	512
7	544	547	549	541	474	526	541	.5	549	550	498	510
8	544	550	549	541	474	526	542	0	549	550	174	509
9	544	549	549	538	471	526	541	0	549	550	547	500
10	544	549	549	536	472	524	542	0	549	549	552	497
11	544	550	549	526	474	524	539	5.1	550	549	550	496
12	544	550	549	529	489	524	541	4.1	550	549	547	332
13	545	550	550	530	520	523	541	.2	550	550	551	521
14	545	550	550	318	520	524	541	362	550	550	551	529
15	532	549	550	231	520	526	541	550	549	549	550	539
16	508	547	550	233	518	526	541	550	549	545	550	543
17	509	547	552	234	518	526	541	550	547	544	550	545
18	521	547	550	235	518	526	544	549	545	545	550	546
19	545	549	550	231	518	526	544	549	550	541	551	547
20	549	549	527	225	520	526	544	550	549	536	550	545
21	549	550	400	230	520	526	545	552	549	535	549	541
22	549	550	438	385	520	526	545	550	549	532	548	540
23	545	550	549	502	520	526	545	549	550	498	548	542
24	550	549	423	502	520	526	545	550	550	524	547	542
25	552	550	353	502	520	527	545	550	550	524	549	540
26	550	550	352	450	520	533	544	550	550	529	549	541
27	550	547	352	424	527	530	544	550	549	530	549	538
28	549	549	426	424	532	529	545	550	549	523	548	539
29	549	549	503	445	-----	530	545	550	549	518	548	538
30	550	550	526	466	-----	530	547	550	550	515	547	534
31	550	-----	526	476	-----	529	-----	550	-----	515	547	-----
TOTAL	16,829	16,477	15,816	13,487	14,029	16,280	16,253	11,364.7	16,476	16,693	16,350	15,724
MEAN	543	549	510	435	501	525	542	367	549	538	527	524
MAX	552	552	552	545	532	533	547	552	550	550	552	547
MIN	508	547	352	225	471	514	529	0	545	498	174	332
AC-FT	33,380	32,680	31,370	26,750	27,830	32,290	32,240	22,540	32,680	33,110	32,430	31,190

CAL YR 1969 TOTAL 184,355.00 MEAN 505 MAX 554 MIN 0 AC-FT 365,700  
WTR YR 1970 TOTAL 185,778.70 MEAN 509 MAX 552 MIN 0 AC-FT 368,500

## SAN JOAQUIN RIVER BASIN

## 11314500 NORTH FORK MOKELUMNE RIVER BELOW SALT SPRINGS DAM, CALIF.

LOCATION.--Lat 38°29'37", long 120°13'12", in NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.4, T.7 N., R.16 E., Calaveras County, Stanislaus National Forest, on left bank 0.3 mile downstream from Salt Springs Dam, and 1.3 miles upstream from Cole Creek.

DRAINAGE AREA.--170 sq mi.

PERIOD OF RECORD.--September 1926 to current year. Monthly discharge only for some periods, published in WSP 1315-A. Published as "above Moore Creek" 1926-30.

GAGE.--Water-stage recorder. Altitude of gage is 3,590 ft (from topographic map). Prior to Sept. 12, 1928, at site 100 ft upstream and Sept. 12, 1928, to Sept. 23, 1940, at present site, at datum 2.0 ft higher.

AVERAGE DISCHARGE (combined flow of North Fork Mokelumne River and Tiger Creek powerhouse conduit minus Bear River-Cole Creek diversion).--44 years, 470 cfs (340,500 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 4,290 cfs June 9 (gage height, 10.04 ft); minimum daily, 5.0 cfs Nov. 30, Dec. 14-17.

Period of record: Maximum discharge, 16,000 cfs Nov. 21, 1950 (gage height, 17.20 ft), from rating curve extended above 3,900 cfs on basis of computations of flow over dam and discharge through powerhouse; minimum daily, 0.3 cfs Mar. 31, Apr. 1, 1931.

REMARKS.--Flow regulated by Salt Springs Reservoir 0.3 mile upstream since 1931 (see sta 11313500). Diversion from Bear River and Cole Creek to Salt Springs powerhouse averaged 171 cfs during 1970 water year. Diversion above station through Tiger Creek powerhouse conduit (see sta 11314000). See schematic diagram of Mokelumne River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

REVISIONS.--WSP 1930: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	262	8.0	5.6	7.3	11	330	223	97	1,380	386	11	9.6
2	262	6.0	6.3	7.0	10	274	127	97	1,390	383	11	9.2
3	260	6.0	6.3	7.0	10	332	70	98	1,650	172	11	9.2
4	260	6.0	6.3	7.0	10	330	6.6	490	1,830	13	10	9.6
5	258	6.3	6.6	7.0	10	330	6.6	388	1,420	13	9.6	10
6	260	7.3	6.3	6.6	10	325	63	239	1,430	180	9.6	10
7	262	6.3	5.3	6.6	10	320	165	503	1,340	227	9.6	10
8	262	6.3	6.0	6.6	10	320	136	744	1,860	227	10	10
9	262	6.0	6.0	8.4	27	320	65	789	2,400	68	10	10
10	262	6.3	6.0	9.6	127	317	6.9	712	986	12	10	10
11	267	6.3	5.6	8.0	155	317	6.6	650	823	12	10	10
12	262	6.0	5.6	8.0	52	310	72	628	848	12	10	10
13	260	6.0	5.3	8.4	12	317	102	632	465	12	10	10
14	260	6.0	5.0	21	207	315	121	265	500	12	10	10
15	67	5.0	5.0	14	348	315	180	58	444	12	10	10
16	9.2	6.0	5.0	25	327	307	194	55	315	12	10	10
17	8.4	6.0	5.0	21	350	315	194	56	577	12	10	10
18	8.0	5.6	5.6	14	348	315	190	225	781	11	10	10
19	9.6	5.3	6.0	11	345	312	176	356	806	11	10	10
20	10	5.3	7.3	10	340	312	149	358	764	11	10	10
21	10	5.6	8.8	24	340	310	149	366	712	11	10	10
22	10	6.0	7.3	65	337	310	149	848	760	10	10	10
23	10	6.0	7.3	176	337	305	147	1,950	543	10	10	10
24	10	6.0	11	265	335	307	147	2,130	386	10	9.6	10
25	10	5.6	13	262	335	262	147	2,080	307	10	9.6	11
26	10	5.6	10	93	332	298	128	1,900	570	10	9.6	11
27	9.6	5.6	8.8	16	325	293	96	1,850	2,190	10	9.6	10
28	9.6	5.6	8.4	14	320	300	96	1,720	388	10	9.6	10
29	9.6	5.3	7.7	12	-----	300	94	1,540	388	10	9.6	10
30	9.6	5.0	7.7	12	-----	300	97	1,530	377	10	9.6	10
31	9.2	-----	7.3	11	-----	298	-----	1,850	-----	10	9.6	-----
TOTAL	3,860.8	179.3	213.4	1,163.5	5,380	9,616	3,503.7	25,204	28,630	1,909	308.6	299.6
MEAN	125	5.98	6.88	37.5	192	310	117	813	954	61.6	9.95	9.99
MAX	267	8.0	13	265	350	332	223	2,130	2,400	386	11	11
MIN	8.0	5.0	5.0	6.6	10	262	6.6	55	307	10	9.6	9.2
AC-FT	7,700	356	423	2,310	10,670	19,070	6,950	49,990	56,790	3,790	612	594

CAL YR 1969 TOTAL 175,002.8 MEAN 479 MAX 4,050 MIN 5.0 AC-FT 347,100  
WTR YR 1970 TOTAL 80,287.9 MEAN 220 MAX 2,400 MIN 5.0 AC-FT 159,300

## 11315000 COLE CREEK NEAR SALT SPRINGS DAM, CALIF.

LOCATION.--Lat 38°31'26", long 120°12'28", in SE¼ sec.21, T.8 N., R.16 E., Amador County, Eldorado National Forest, on right bank 1.8 miles north of Salt Springs Dam, 3.4 miles upstream from mouth, and 6.3 miles southwest of Mokelumne Peak.

DRAINAGE AREA.--20.4 sq mi.

PERIOD OF RECORD.--July 1927 to November 1942, October 1943 to current year. Prior to October 1958, published as Cold Creek near Mokelumne Peak. October 1958 to September 1962, published as "near Mokelumne Peak."

GAGE.--Water-stage recorder. Altitude of gage is 5,970 ft (from topographic map).

AVERAGE DISCHARGE.--42 years, 63.9 cfs (46,300 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 2,820 cfs Jan. 21 (gage height, 7.36 ft), from rating curve extended as explained below; minimum daily, 0.10 cfs Sept. 29, 30.

Period of record: Maximum discharge, 6,140 cfs Dec. 23, 1964 (gage height, 10.21 ft), from rating curve extended above 900 cfs on basis of slope-area measurement at gage height 9.69 ft; no flow for many days in some years.

REMARKS.--Occasional pumping for domestic use in summer home tract began in September 1961. See schematic diagram of Mokelumne River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

REVISIONS (WATER YEARS).--WSP 1515: 1928, 1930-31, 1938(M), 1944, 1947. WSP 1930: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.22	.95	3.9	40	61	49	69	118	302	27	.89	.17
2	.22	.89	3.6	40	56	51	86	163	249	23	.83	.16
3	.21	.83	3.2	40	58	42	96	224	240	19	.77	.14
4	.19	.83	3.1	35	61	39	102	261	211	16	.72	.14
5	.19	1.1	2.8	35	61	40	136	289	187	14	.67	.14
6	.21	5.4	2.8	30	58	44	150	226	181	13	.67	.16
7	.22	7.6	2.5	30	65	51	145	181	157	11	.63	.16
8	.22	10	3.4	30	71	50	134	159	279	8.9	.54	.14
9	.22	15	4.6	35	68	41	157	213	461	7.8	.54	.14
10	.22	18	5.4	51	60	35	159	199	163	7.1	.50	.14
11	.22	23	6.0	36	61	30	144	144	120	6.4	.47	.14
12	.22	28	6.4	36	81	36	139	140	102	5.8	.43	.14
13	.24	29	9.2	33	65	63	119	207	92	5.4	.43	.12
14	.31	28	12	41	60	94	86	300	112	4.6	.40	.12
15	8.6	28	10	43	57	90	77	365	83	3.9	.40	.12
16	185	30	8.3	1,020	51	85	69	430	76	3.4	.40	.12
17	46	21	8.6	461	47	92	59	440	81	2.9	.37	.12
18	20	13	7.8	226	47	62	66	393	89	2.5	.37	.12
19	10	9.7	66	177	44	45	77	313	92	2.1	.37	.12
20	11	10	684	362	42	52	63	249	94	1.9	.34	.12
21	9.4	11	599	1,680	39	69	55	281	74	1.8	.31	.12
22	7.8	9.4	181	1,040	39	88	49	316	64	1.6	.27	.12
23	6.6	8.1	91	344	42	111	52	302	52	1.5	.22	.12
24	5.8	7.1	92	245	44	133	57	279	45	1.4	.19	.11
25	6.9	6.9	292	145	46	134	78	322	37	1.3	.17	.11
26	3.6	6.4	109	118	56	125	84	330	102	1.3	.17	.11
27	2.5	6.2	74	116	61	111	57	279	159	1.2	.17	.11
28	2.0	5.6	53	89	58	106	54	240	66	1.1	.17	.11
29	1.7	5.2	50	77	-----	118	57	226	47	1.0	.17	.10
30	1.4	4.1	46	73	-----	97	82	238	34	.95	.17	.10
31	1.1	-----	40	62	-----	74	-----	238	-----	.95	.17	-----
TOTAL	332.51	350.30	2,480.6	6,790	1,559	2,257	2,758	8,065	4,051	199.80	12.92	3.84
MEAN	10.7	11.7	80.0	219	55.7	72.8	91.9	260	135	6.45	.42	.13
MAX	185	30	684	1,680	81	134	159	440	461	77	.89	.17
MIN	.19	.83	2.5	30	39	30	49	118	34	.95	.17	.10
AC-FT	660	695	4,920	13,470	3,090	4,480	5,470	16,000	8,040	396	26	7.6

CAL YR 1969 TOTAL 38,989.19 MEAN 107 MAX 684 MIN .19 AC-FT 77,340  
WAT YR 1970 TOTAL 28,859.97 MEAN 79.1 MAX 1,680 MIN .10 AC-FT 57,240

## PEAK DISCHARGE (BASE, 500 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1500	5.90	1,530	5-17	1900	4.58	765
12-25	1100	4.42	692	5-26	1930	4.16	583
1-16	1230	6.33	1,870	6- 1	2000	4.34	657
1-21	2030	7.36	2,820	6- 8	2300	5.01	981

## SAN JOAQUIN RIVER BASIN

## 11316000 BEAR RIVER NEAR SALT SPRINGS DAM, CALIF.

LOCATION.--Lat 38°29'37", long 120°17'18", in NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.2, T.7 N., R.15 E., Amador County, Eldorado National Forest, on right bank 200 ft upstream from diversion to Tiger Creek powerhouse conduit and highway bridge, 1.5 miles upstream from mouth, and 4 miles west of Salt Springs Dam.

DRAINAGE AREA.--48.0 sq mi.

PERIOD OF RECORD.--October 1951 to current year.

GAGE.--Water-stage recorder and broad-crested weir. Altitude of gage is 3,710 ft (from topographic map).

AVERAGE DISCHARGE.--19 years, 57.6 cfs (41,730 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 848 cfs Jan. 16 (gage height, 3.34 ft); minimum daily, 3.0 cfs Aug. 14.

Period of record: Maximum discharge, 11,000 cfs Dec. 24, 1964 (gage height, 10.11 ft in gage well, 11.8 ft, from flood profile), from rating curve extended above 560 cfs on basis of slope-area measurements of maximum flow; minimum daily, 1.0 cfs Aug. 23-28, 1961.

Flood in November 1950 reached a stage of 11.2 ft, from floodmarks (discharge, 10,000 cfs).

REMARKS.--Flow regulated by Bear River Reservoir since 1900 (capacity, 6,760 acre-ft) and Lower Bear River Reservoir 4 miles upstream since December 1952 (capacity, 49,100 acre-ft). Water diverted for power from Lower Bear River Reservoir through tunnel to Salt Springs powerhouse on North Fork Mokelumne River since December 1952. Water diverted occasionally from Cole Creek into Lower Bear River Reservoir. See schematic diagram of Mokelumne River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.9	3.2	3.3	21	68	46	25	33	203	7.0	5.6	4.5
2	5.0	3.2	3.3	17	60	40	25	35	194	6.6	5.6	4.5
3	5.2	3.2	3.3	15	56	37	23	37	171	6.6	5.6	4.5
4	5.2	3.1	3.2	14	55	35	22	37	176	6.6	5.5	4.5
5	5.3	7.4	3.1	14	51	37	22	35	125	6.5	5.5	4.5
6	5.2	14	3.1	12	46	37	21	32	123	6.5	6.2	4.5
7	5.2	6.5	3.1	12	44	37	21	30	93	6.5	7.0	4.5
8	5.3	5.7	4.5	13	42	38	19	29	136	6.3	10	4.5
9	5.3	5.3	4.5	30	40	37	17	27	480	6.3	9.5	4.4
10	5.2	4.9	4.1	42	40	37	17	27	157	6.3	6.6	4.4
11	5.1	4.8	5.1	32	38	33	16	26	38	6.2	6.5	4.4
12	5.1	4.8	4.6	42	50	33	16	23	37	6.2	3.3	4.4
13	5.1	4.9	5.5	55	51	38	19	23	20	6.2	3.1	4.4
14	5.5	4.9	4.2	162	46	44	21	21	16	6.2	3.0	4.4
15	29	4.9	3.8	120	44	42	20	20	21	6.1	3.4	4.4
16	30	7.4	3.6	514	49	42	20	17	9.6	6.1	4.6	4.4
17	14	5.7	3.4	287	58	42	21	17	9.0	6.1	4.6	4.4
18	6.5	5.1	3.6	171	49	38	21	16	9.0	6.1	4.6	4.3
19	6.3	4.8	26	171	42	37	26	287	8.5	5.9	4.5	4.4
20	6.0	4.6	90	173	40	35	21	356	8.0	5.9	4.5	4.4
21	5.9	4.3	101	643	38	35	21	320	8.0	5.9	4.5	4.3
22	5.9	4.1	44	273	37	35	21	376	7.5	5.9	4.5	4.3
23	5.7	4.0	32	182	37	35	21	356	7.5	5.8	4.5	4.3
24	5.6	3.9	138	185	37	35	22	305	7.0	5.8	4.4	4.4
25	5.6	3.9	179	149	35	35	25	298	7.0	5.8	4.9	4.6
26	5.5	3.8	84	125	35	33	27	338	8.5	5.8	5.6	4.6
27	5.5	3.6	53	157	35	32	25	305	8.5	5.8	4.7	4.6
28	5.5	3.5	38	116	38	30	23	230	7.5	5.8	4.5	4.6
29	5.5	3.4	30	99	-----	29	25	206	7.5	5.8	4.6	4.6
30	5.1	3.4	26	86	-----	29	29	200	7.0	5.6	4.6	4.6
31	3.3	-----	23	76	-----	26	-----	200	-----	5.6	4.6	-----
TOTAL	223.5	146.3	933.3	4,008	1,261	1,119	652	4,262	2,110.1	189.8	160.6	133.6
MEAN	7.21	4.88	30.1	129	45.0	36.1	21.7	137	70.3	6.12	5.18	4.45
MAX	30	14	179	643	68	46	29	376	480	7.0	10	4.6
MIN	3.3	3.1	3.1	12	35	26	16	16	7.0	5.6	3.0	4.3
AC-FT	443	290	1,850	7,950	2,500	2,220	1,290	8,450	4,190	376	319	265

CAL YR 1969 TOTAL 29,553.1 MEAN 81.0 MAX 714 MIN 3.1 AC-FT 58,620  
WTR YR 1970 TOTAL 15,199.2 MEAN 41.6 MAX 643 MIN 3.0 AC-FT 30,150

## 11316800 FOREST CREEK NEAR WILSEYVILLE, CALIF.

LOCATION.--Lat 38°24'12", long 120°26'45", in SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.4, T.6 N., R.14 E., Calaveras County, on left bank 1.0 mile downstream from Lion Creek, 1.8 miles upstream from mouth, and 4 miles northeast of Wilseyville.

DRAINAGE AREA.--20.8 sq mi.

PERIOD OF RECORD.--July 1960 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,950 ft (from topographic map).

AVERAGE DISCHARGE.--10 years, 25.0 cfs (18,110 acre-ft per year); median of yearly mean discharges, 20 cfs (14,500 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 925 cfs Jan. 21 (gage height, 6.35 ft); minimum daily, 2.1 cfs Sept. 27.

Period of record: Maximum discharge, 1,770 cfs Dec. 24, 1964 (gage height, 7.68 ft), from rating curve extended above 500 cfs on basis of slope-area measurement at gage height 7.41 ft; minimum, 0.6 cfs Aug. 24, 25, 1961.

REMARKS.--Records good. No regulation. Minor diversions above station for irrigation and domestic use. See schematic diagram of Mokelumne River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	7.1	6.2	24	78	91	33	29	13	8.6	4.5	3.9
2	3.3	7.1	6.2	22	71	75	32	28	13	7.4	4.2	3.6
3	4.0	7.1	6.2	20	65	64	30	28	13	6.4	3.6	2.8
4	4.2	7.1	6.2	20	62	59	29	28	12	6.4	3.3	3.0
5	4.2	16	6.2	18	56	55	29	28	12	6.9	3.6	3.3
6	4.2	36	6.0	19	52	53	28	28	12	6.4	3.6	3.9
7	4.2	18	6.0	18	48	53	28	27	12	5.9	3.3	3.3
8	4.6	15	6.5	18	41	56	28	26	15	5.9	3.3	3.3
9	4.8	12	6.5	28	38	55	27	26	22	5.9	3.3	3.0
10	4.8	11	6.5	77	36	56	25	25	17	5.5	3.0	3.0
11	4.6	8.9	6.8	48	35	53	25	24	15	5.9	3.3	3.0
12	4.6	7.1	6.8	47	48	51	24	23	15	5.9	3.3	3.0
13	4.6	7.1	6.8	60	65	50	28	22	14	5.5	3.9	2.6
14	4.8	6.8	6.2	209	61	51	28	22	15	6.4	3.6	3.6
15	22	6.8	6.2	136	53	51	28	21	15	5.5	3.0	3.6
16	39	12	6.2	489	55	50	28	19	13	5.5	2.8	3.6
17	20	11	6.2	397	95	50	29	17	13	5.1	2.6	3.3
18	12	7.4	6.2	201	70	46	31	18	12	4.5	2.6	3.0
19	6.8	7.4	18	138	62	43	35	17	12	4.5	3.0	3.3
20	6.5	7.1	53	125	56	42	31	17	11	4.5	3.0	3.3
21	6.0	7.1	83	642	53	42	29	17	10	4.5	3.3	3.3
22	6.0	7.1	50	316	51	41	28	16	10	4.8	3.6	3.0
23	6.0	6.8	33	201	44	40	28	16	9.8	4.8	3.6	3.0
24	6.0	6.8	93	257	39	39	28	15	9.2	4.5	3.6	3.3
25	6.2	6.8	122	177	35	39	28	14	8.6	4.5	3.3	3.0
26	6.2	6.5	72	141	35	38	30	14	9.2	4.5	3.3	2.8
27	6.2	6.5	47	180	34	38	30	14	12	3.6	3.6	2.1
28	6.5	6.5	38	133	34	38	29	15	9.8	3.9	3.6	2.6
29	6.8	6.5	32	110	-----	36	29	14	10	3.9	3.6	2.8
30	6.8	6.5	28	95	-----	38	30	15	9.8	3.9	3.9	-----
31	7.1	-----	25	85	-----	35	-----	13	-----	4.5	3.9	-----
TOTAL	236.5	285.1	807.9	4,451	1,472	1,528	865	636	374.4	166.0	106.1	94.1
MEAN	7.63	9.50	26.1	144	52.6	49.3	28.8	20.5	12.5	5.35	3.42	3.14
MAX	39	36	122	642	95	91	35	29	22	8.6	4.5	3.9
MIN	3.3	6.5	6.0	18	34	35	24	13	8.6	3.6	2.6	2.1
AC-FT	469	565	1,600	8,830	2,920	3,030	1,720	1,260	743	329	210	187

CAL YR 1969	TOTAL 17,283.9	MEAN 47.4	MAX 833	MIN 3.3	AC-FT 34,280
WTR YR 1970	TOTAL 11,022.1	MEAN 30.2	MAX 642	MIN 2.1	AC-FT 21,860

## PEAK DISCHARGE (BASE, 120 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1530	4.50	175	1-24	0400	4.98	323
12-25	1000	4.51	178	1-27	0900	4.74	239
1-14	1430	5.31	449	2-16	2400	4.43	144
1-16	1200	6.09	795	3- 1	1630	4.47	156
1-21	1230	6.35	925				

## SAN JOAQUIN RIVER BASIN

## 11317000 MIDDLE FORK MOKELUMNE RIVER AT WEST POINT, CALIF.

LOCATION.--Lat 38°23'23", long 120°31'32", in SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.10, T.6 N., R.13 E., Calaveras County, on right bank 200 ft downstream from highway bridge, 0.6 mile south of West Point, and 4.5 miles upstream from South Fork Mokelumne River.

DRAINAGE AREA.--68.4 sq mi.

PERIOD OF RECORD.--October 1911 to current year. Monthly discharge only for October 1911, published in WSP 1315-A.

GAGE.--Water-stage recorder. Altitude of gage is 2,450 ft (from topographic map). Prior to Oct. 6, 1926, nonrecording gage at site 1,200 ft upstream at different datum. Oct. 6, 1926, to Aug. 18, 1928, nonrecording gage at present site and datum.

AVERAGE DISCHARGE.--59 years, 61.0 cfs (44,190 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,920 cfs Jan. 21 (gage height, 6.38 ft); minimum daily, 6.8 cfs Aug. 31.

Period of record: Maximum discharge, 4,320 cfs Dec. 23, 1955 (gage height, 8.98 ft); no flow Aug. 23 to Sept. 14, 1931, Sept. 9, 1934.

REMARKS.--Records good. Flow slightly regulated by Middle Fork Reservoir (capacity, 1,740 acre-ft), 6 miles above station, since January 1940. Several small diversions above station. At times water diverted 4 miles above station to South Fork Mokelumne River via Middle Fork ditch (capacity, 15 cfs) and Licking Fork Mokelumne River. See schematic diagram of Mokelumne River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	28	15	50	225	352	97	87	45	55	34	9.1
2	27	28	17	49	203	260	96	86	44	54	18	11
3	29	28	16	46	186	193	94	86	44	42	25	12
4	29	28	13	43	177	184	91	86	32	41	19	11
5	28	35	15	41	164	174	90	86	36	50	14	10
6	28	65	14	41	151	166	89	86	39	43	23	10
7	28	40	15	41	143	160	86	85	36	35	25	10
8	28	35	17	41	135	173	85	83	38	32	20	9.6
9	29	32	19	52	129	162	84	82	49	32	12	10
10	28	30	19	121	124	163	83	79	38	34	10	10
11	28	29	20	98	121	151	82	78	36	37	20	10
12	27	29	17	109	147	145	80	76	36	32	23	10
13	28	28	16	133	199	143	89	74	35	35	22	9.2
14	29	28	15	674	187	146	98	73	35	38	21	10
15	40	28	15	417	154	148	91	71	35	32	19	11
16	55	30	15	1,230	160	145	91	71	34	27	15	10
17	42	23	15	1,040	316	143	89	70	34	21	10	10
18	33	27	15	608	209	138	95	71	33	22	13	10
19	31	27	25	440	181	131	104	69	29	20	11	10
20	29	27	77	400	164	127	95	66	27	19	8.4	11
21	29	26	146	1,360	152	125	89	64	31	15	11	11
22	31	26	86	950	143	121	86	62	38	18	8.8	11
23	30	25	59	607	137	119	84	63	47	22	10	11
24	29	25	177	768	132	116	82	57	48	28	12	11
25	29	24	210	546	126	115	82	61	41	38	13	11
26	29	24	112	429	123	114	90	60	40	37	12	12
27	29	23	78	522	119	110	92	59	39	37	14	8.0
28	29	21	65	402	124	107	87	58	36	42	14	8.0
29	28	18	59	328	-----	105	86	57	36	41	13	7.4
30	31	15	56	279	-----	104	87	49	44	40	10	7.2
31	26	-----	52	248	-----	101	-----	40	-----	41	6.8	-----
TOTAL	944	857	1,490	12,113	4,531	4,641	2,674	2,195	1,135	1,060	487.0	301.5
MEAN	30.5	28.6	48.1	391	162	150	89.1	70.8	37.8	34.2	15.7	10.1
MAX	55	65	210	1,360	316	352	104	87	49	55	34	12
MIN	26	15	13	41	119	101	80	40	27	15	6.8	7.2
AC-FT	1,870	1,700	2,960	24,030	8,990	9,210	5,300	4,350	2,250	2,100	966	598

CAL YR 1969	TOTAL	54,357.3	MEAN	149	MAX	2,370	MIN	9.1	AC-FT	107,800
WTR YR 1970	TOTAL	32,428.5	MEAN	88.8	MAX	1,360	MIN	6.8	AC-FT	64,320

## PEAK DISCHARGE (BASE, 400 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-14	1530	5.24	1,160	1-27	1015	4.08	663
1-16	1215	6.18	1,770	2-17	0130	3.44	462
1-21	1330	6.38	1,920	3- 1	1715	3.87	591

## 11318500 SOUTH FORK MOKELUMNE RIVER NEAR WEST POINT, CALIF.

LOCATION.--Lat 38°22'06", long 120°32'40", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.16, T.6 N., R.13 E., Calaveras County, on right bank 500 ft upstream from highway bridge, 2.4 miles southwest of West Point, and 2.5 miles upstream from mouth.

DRAINAGE AREA.--75.1 sq mi.

PERIOD OF RECORD.--October 1933 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,950 ft (from topographic map). October 1933 to Sept. 19, 1957, at site 1,100 ft downstream at different datum.

AVERAGE DISCHARGE.--37 years, 85.0 cfs (61,580 acre-ft per year); median of yearly mean discharges, 73 cfs (52,900 acre-ft per year)

EXTREMES.--Current year: Maximum discharge, 2,560 cfs Jan. 16 (gage height, 8.15 ft); minimum daily, 9.1 cfs Sept. 29.

Period of record: Maximum discharge, 6,920 cfs Dec. 23, 1955 (gage height, 14.8 ft, from floodmarks, site and datum then in use), from rating curve extended above 2,700 cfs on basis of slope-area measurement of maximum flow; no flow Aug. 6, 7, Aug. 12 to Sept. 26, 1934.

REMARKS.--Records good. Several small diversions above station for domestic use and for irrigation of about 100 acres. Diversions into South Fork Mokelumne River basin above station at times from North Fork Calaveras River and from Middle Fork Mokelumne River for use below station. See schematic diagram of Mokelumne River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	20	21	72	241	501	104	89	42	29	17	11
2	17	20	22	67	215	379	99	87	41	27	17	11
3	17	20	21	63	198	277	96	87	39	27	17	11
4	16	21	21	61	184	264	92	85	37	26	16	11
5	16	31	21	58	169	239	90	81	36	25	15	12
6	16	93	21	56	156	220	87	80	36	24	16	11
7	16	46	21	56	147	207	86	78	36	24	15	11
8	17	35	22	58	138	220	85	76	40	24	15	11
9	17	30	23	73	132	205	81	76	66	22	14	11
10	18	28	23	215	128	203	80	73	47	22	14	11
11	18	26	25	148	125	186	78	69	44	22	13	10
12	17	26	24	150	152	177	76	67	44	21	13	9.8
13	17	26	23	240	218	173	90	65	44	21	14	9.9
14	18	25	21	700	229	177	107	63	44	21	14	10
15	39	25	21	510	182	179	95	59	47	20	13	11
16	94	28	21	1,840	169	173	93	57	42	19	13	11
17	53	27	21	1,210	386	171	89	55	40	19	12	11
18	35	25	21	705	266	163	95	54	38	19	12	10
19	29	25	40	497	227	156	105	53	36	19	12	10
20	27	25	72	453	200	150	96	53	35	19	12	11
21	24	25	198	1,840	184	145	90	52	33	19	12	11
22	23	24	120	948	169	140	87	51	32	18	12	11
23	23	24	88	651	160	137	84	50	31	19	12	11
24	22	23	240	760	152	134	84	48	31	18	11	11
25	22	23	285	553	144	131	85	47	30	17	11	11
26	22	23	160	435	138	128	96	47	32	17	11	10
27	21	22	110	553	134	123	96	47	36	17	11	9.8
28	21	22	92	421	144	119	87	46	33	17	11	9.2
29	21	22	82	351	-----	116	85	45	32	17	10	9.1
30	21	22	77	310	-----	113	89	44	31	17	10	9.2
31	21	-----	74	269	-----	108	-----	44	-----	16	10	-----
TOTAL	754	832	2,031	14,323	5,087	5,814	2,707	1,928	1,155	642	405	317.0
MEAN	24.3	27.7	65.5	462	182	188	90.2	62.2	38.5	20.7	13.1	10.6
MAX	94	93	285	1,840	386	501	107	89	66	29	17	12
MIN	16	20	21	56	125	108	76	44	30	16	10	9.1
AC-FT	1,500	1,650	4,030	28,410	10,090	11,530	5,370	3,820	2,290	1,270	803	629
CAL YR 1969	TOTAL 66,451		MEAN 182		MAX 3,730		MIN 16		AC-FT 131,800			
WTR YR 1970	TOTAL 35,995.0		MEAN 98.6		MAX 1,840		MIN 9.1		AC-FT 71,400			

## PEAK DISCHARGE (BASE, 500 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-16	1130	8.15	2,560	1-27	0830	5.39	696
1-21	0930	7.95	2,380	2-17	0300	5.15	588
1-24	0100	6.00	1,020	3- 1	1730	5.72	860

## SAN JOAQUIN RIVER BASIN

## 11319500 MOKELUMNE RIVER NEAR MOKELUMNE HILL, CALIF.

LOCATION.--Lat 38°18'46", long 120°43'09", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.1, T.5 N., R.11 E., Calaveras County, on downstream side of bridge 1.2 miles northwest of Mokelumne Hill, and 8 miles downstream from confluence of North and South Forks of Mokelumne River.

DRAINAGE AREA.--544 sq mi.

PERIOD OF RECORD.--January to June 1901, May 1903 to December 1904, October 1927 to current year. Yearly estimate only for water year 1928 (incomplete), published in WSP 1315-A. Published as "at Electra" 1901, 1903-4.

GAGE.--Water-stage recorder. Datum of gage is 589.88 ft above mean sea level (levels by California Division of Highways). Jan. 1 to June 30, 1901, and May 11, 1903, to Dec. 31, 1904, nonrecording gage at site 3 miles upstream at different datum. Nov. 10, 1927, to Aug. 26, 1952, water-stage recorder at site 40 ft upstream at present datum.

AVERAGE DISCHARGE.--44 years (1903-4, 1927-70), 976 cfs (707,100 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 13,700 cfs Jan. 21 (gage height, 11.96 ft); minimum daily, 262 cfs Sept. 12.

Period of record: Maximum discharge, 33,700 cfs Dec. 3, 1950 (gage height, 18.5 ft); minimum observed, 5 cfs Aug. 13-15, 17, 18, 1904.

REMARKS.--Records excellent. Flow regulated by Salt Springs Reservoir beginning in 1931 (see sta 113135000, several smaller reservoirs, and four powerplants. Diversion above station for irrigation and domestic use. See schematic diagram of Mokelumne River basin. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	841	615	608	658	1,660	2,470	1,330	1,040	2,850	1,230	524	577
2	752	741	634	745	1,490	2,170	1,170	1,160	2,540	1,160	518	569
3	766	559	566	813	1,460	1,830	1,150	1,130	2,630	1,210	644	510
4	822	732	601	692	1,380	1,830	1,100	1,180	3,280	983	602	626
5	766	546	656	751	1,350	1,810	1,080	1,160	2,530	731	476	481
6	850	926	500	673	1,240	1,740	1,060	1,080	2,650	871	470	566
7	871	782	665	787	1,140	1,670	1,030	885	2,390	1,020	644	494
8	759	703	596	704	1,230	1,680	1,040	941	2,460	864	396	560
9	608	739	625	754	1,210	1,700	1,020	1,130	4,700	955	328	602
10	806	630	542	1,230	1,180	1,720	1,080	1,290	2,590	724	554	475
11	909	663	649	1,190	1,100	1,730	1,100	1,230	2,110	724	640	503
12	901	617	607	1,040	1,250	1,570	1,040	1,080	1,770	455	540	262
13	768	715	704	1,230	1,500	1,570	1,030	1,090	1,650	680	593	598
14	883	617	590	3,280	1,530	1,580	1,140	1,100	1,290	656	614	518
15	954	642	535	2,510	1,620	1,640	1,210	1,140	1,480	572	588	536
16	1,030	620	747	7,380	1,620	1,590	1,150	1,250	1,280	662	499	612
17	1,010	783	443	6,330	2,330	1,600	1,110	1,450	1,240	704	624	580
18	899	643	660	3,720	1,940	1,510	1,200	1,500	1,580	578	592	607
19	760	639	632	2,410	1,830	1,500	1,190	1,590	1,800	584	636	448
20	626	482	1,510	2,450	1,660	1,520	1,160	2,020	1,720	668	517	642
21	621	743	2,140	9,050	1,700	1,480	1,160	1,840	1,560	524	480	561
22	504	545	1,600	7,710	1,680	1,470	1,100	1,980	1,610	632	616	565
23	724	668	875	3,960	1,540	1,420	1,140	3,230	1,580	566	547	586
24	664	618	1,610	4,340	1,540	1,420	1,130	3,620	1,360	512	531	579
25	675	507	1,920	3,370	1,550	1,410	1,130	3,640	1,240	638	600	566
26	659	519	1,550	2,900	1,530	1,340	1,130	3,460	1,060	460	572	577
27	610	666	1,030	2,670	1,400	1,420	1,160	3,460	3,020	572	545	573
28	653	638	831	2,440	1,510	1,340	984	3,190	1,630	680	516	487
29	741	582	744	2,020	-----	1,390	1,180	2,920	1,150	572	542	553
30	655	578	866	1,820	-----	1,340	1,080	2,810	1,210	626	541	632
31	737	-----	878	1,740	-----	1,340	-----	3,080	-----	440	584	-----
TOTAL	23,824	19,458	27,114	81,367	42,170	49,800	33,584	57,676	59,960	22,253	17,073	16,445
MEAN	769	649	875	2,625	1,506	1,606	1,119	1,861	1,999	718	551	548
MAX	1,030	926	2,140	9,050	2,330	2,470	1,330	3,640	4,700	1,230	644	642
MIN	504	482	443	658	1,100	1,340	984	885	1,060	440	328	262
AC-FT	47,250	38,590	53,780	161,400	83,640	98,780	66,610	114,400	118,900	44,140	33,860	32,620

CAL YR 1969 TOTAL 662,001 MEAN 1,814 MAX 13,500 MIN 202 AC-FT 1,313,000  
WTR YR 1970 TOTAL 450,724 MEAN 1,235 MAX 9,050 MIN 262 AC-FT 894,000



## 11320000 PARDEE RESERVOIR NEAR VALLEY SPRINGS, CALIF.

LOCATION.--Lat 38°15'25", long 120°50'59", in N1/4 sec.26, T.5 N., R.10 E., Amador County, at Pardee Dam on the Mokelumne River, 4.5 miles north of Valley Springs.

DRAINAGE AREA.--578 sq mi.

PERIOD OF RECORD.--March 1929 to September 1930 (lake elevation only), October 1930 to September 1933, published in reports of the Geological Survey. October 1933 to September 1961 in files of East Bay Municipal Utility District. October 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by East Bay Municipal Utility District). EXTREMES.--Current year: Maximum contents, 211,500 acre-ft June 4 (elevation, 568.32 ft); minimum, 186,700 acre-ft Mar. 2 (elevation, 556.92 ft).

Period of record: Maximum contents, 219,300 acre-ft Dec. 23, 1955 (elevation, 571.72 ft); minimum, 49,000 acre-ft Aug. 31, 1931 (elevation, 457.6 ft).

REMARKS.--Reservoir is formed by a curved concrete gravity dam, completed in 1929; storage began Mar. 9, 1929. Usable capacity, 194,100 acre-ft between elevations 393.50 ft (diversion tunnel invert) and 567.65 ft (spillway crest) above mean sea level. Dead storage, 15,800 acre-ft. Water is released from reservoir for municipal use in the area on the east side of San Francisco Bay. Small intermittent diversions are made to Jackson Valley Irrigation District. Records represent total contents at 2400 hours. See schematic diagram of Mokelumne River basin.

COOPERATION.--Records furnished by East Bay Municipal Utility District.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

523	125,100
530	136,500
540	153,800
550	172,700
560	193,200
570	215,300
580	239,100

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	195,000	193,200	191,400	198,700	189,700	186,900	192,400	191,100	210,300	209,900	207,400	204,900
2	195,000	193,900	191,200	198,000	189,800	188,300	192,500	191,100	211,300	209,800	207,800	204,700
3	194,900	193,300	190,800	197,500	189,800	188,900	192,500	191,100	211,400	209,700	207,600	204,500
4	195,900	192,900	190,400	196,700	189,700	191,700	192,500	191,200	211,000	209,200	207,600	204,400
5	196,800	192,700	190,100	196,000	189,400	193,000	192,400	191,200	211,000	208,400	207,200	204,400
6	196,900	192,900	190,500	195,200	189,500	193,400	192,300	191,300	211,000	208,000	207,000	204,800
7	197,000	192,800	191,200	194,600	190,700	194,700	192,200	190,800	210,800	208,500	207,000	205,200
8	196,900	193,200	190,800	194,000	190,000	195,400	191,900	190,400	211,200	208,300	206,600	204,900
9	197,000	194,000	190,500	193,500	190,600	192,700	191,700	190,400	209,800	208,300	206,500	204,800
10	196,900	193,600	190,000	193,800	191,200	191,100	191,600	190,600	209,500	208,400	206,300	204,400
11	197,900	194,300	189,700	194,000	191,600	192,100	191,500	190,700	210,200	208,700	206,200	204,100
12	199,000	193,800	189,400	194,000	192,400	192,700	191,300	190,500	210,900	209,000	206,000	203,700
13	198,700	193,600	189,900	194,300	191,000	192,100	191,300	190,300	210,800	208,900	205,800	204,200
14	198,800	193,200	190,600	199,600	190,800	191,500	191,400	190,200	210,500	208,400	205,600	203,900
15	199,200	193,300	190,000	200,600	191,000	191,300	191,500	190,100	210,600	208,600	205,900	203,600
16	199,700	194,000	189,900	205,500	189,000	191,500	191,500	190,200	210,500	208,600	206,200	203,400
17	200,000	193,800	189,200	207,200	187,000	191,600	191,500	190,700	210,300	208,600	206,100	203,200
18	201,000	193,300	189,000	203,700	187,100	191,900	191,600	191,300	210,700	208,700	206,000	203,000
19	201,800	192,800	188,700	197,700	187,000	192,600	191,700	192,000	211,000	209,200	205,900	203,100
20	201,700	192,400	191,100	193,500	187,200	193,400	191,700	193,600	211,000	209,200	205,500	203,600
21	200,200	192,300	195,200	202,500	187,700	194,100	191,800	194,800	210,900	208,800	205,200	203,400
22	199,100	192,300	196,800	206,500	187,800	194,800	191,700	196,400	210,900	208,700	205,400	203,200
23	198,500	193,000	197,000	203,800	187,300	195,400	191,700	200,400	210,800	208,400	205,800	203,100
24	197,600	192,600	198,800	202,000	187,200	194,200	191,600	205,000	210,500	208,000	205,600	202,900
25	197,100	191,900	200,700	198,200	187,000	193,100	191,600	209,900	210,400	208,300	205,400	202,600
26	197,700	191,300	201,600	195,600	186,900	191,800	191,600	211,100	210,000	208,600	205,200	202,900
27	196,700	192,000	201,400	194,000	187,500	191,100	191,700	210,900	211,100	208,300	205,000	203,300
28	195,800	191,500	201,000	192,200	187,800	191,000	191,300	210,600	210,400	208,200	204,700	202,900
29	195,000	191,800	200,300	190,700	-----	191,300	191,400	211,100	210,200	208,000	204,800	202,700
30	194,100	192,300	199,900	189,000	-----	191,700	191,300	211,200	210,000	207,900	205,300	202,500
31	193,000	-----	199,500	189,300	-----	192,100	-----	211,000	-----	207,400	205,100	-----
MAX	201,800	194,300	201,600	207,200	192,400	195,400	192,500	211,200	211,400	209,900	207,800	205,200
MIN	193,000	191,300	188,700	189,000	186,900	186,900	191,300	190,100	209,500	207,400	204,700	202,500
(a)	559.94	559.60	562.93	558.17	557.47	559.50	559.11	568.13	567.69	566.51	565.48	564.33
(b)	-2,000	-700	+7,200	-10,200	-1,500	+4,300	-800	+19,700	-1,000	-2,600	-2,300	-2,600
(c)	628	246	170	142	224	385	570	893	1,101	1,556	1,344	982
(d)	18,973	18,195	13,765	16,032	12,393	16,274	18,062	18,827	18,889	19,469	19,126	18,464

CAL YR 1969 MAX 213,900 MIN 157,500 b +3,000  
WAT YR 1970 MAX 211,400 MIN 186,900 b +7,500

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

c Evaporation, in acre-feet.

d Diversion, in acre-feet, from Pardee Reservoir to East Bay Municipal Utility District and to Jackson Valley Irrigation District.

## SAN JOAQUIN RIVER BASIN

## 11322300 CAMANCHE RESERVOIR NEAR CLEMENTS, CALIF.

LOCATION.--Lat 38°13'31", long 121°01'17", in SE 1/4 sec.6, T.4 N., R.9 E., San Joaquin County, at Camanche Dam on the Mokelumne River, 4.3 miles northeast of Clements.

DRAINAGE AREA.--621 sq mi.

PERIOD OF RECORD.--December 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by East Bay Municipal Utility District).

EXTREMES.--Current year: Maximum contents, 372,200 acre-ft July 3 (elevation, 227.51 ft); minimum, 230,500 acre-ft Feb. 16 (elevation, 205.02 ft).

Period of record: Maximum contents, 425,700 acre-ft July 14, 1967 (elevation, 234.82 ft); minimum after initial season of operation, 68,700 acre-ft Sept. 5, 11, 18, 1966 (elevation, 164.97 ft).

REMARKS.--Reservoir is formed by earthfill dam. Storage began Dec. 18, 1963. Usable capacity, 430,300 acre-ft between elevations 104.00 ft (invert of emergency valve release) and 235.50 ft (spillway crest) above mean sea level. Dead storage, 534 acre-ft. Camanche Reservoir provides holdover storage to meet downstream water requirements and flood control on the Mokelumne River. Records, including extremes, represent total contents at 2400 hours. See schematic diagram of Mokelumne River basin.

COOPERATION.--Records furnished by East Bay Municipal Utility District.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

120	4,970	170	82,600
130	13,600	190	156,200
140	25,000	220	320,900
150	38,900	235.5	430,900
160	57,100		

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	303,900	264,500	265,800	283,400	294,100	238,300	259,300	280,200	321,900	372,000	342,500	311,800
2	302,700	264,200	265,800	284,300	287,700	239,000	260,000	280,900	324,000	372,000	340,900	310,900
3	301,400	265,100	265,800	285,200	281,000	238,300	260,800	281,600	327,100	372,000	339,900	310,200
4	299,400	266,300	266,000	286,000	275,200	237,600	261,500	282,200	331,900	372,000	338,700	309,700
5	297,300	267,300	266,300	287,000	270,300	236,900	262,200	282,800	334,800	372,000	337,600	308,500
6	296,000	268,200	266,000	287,900	265,100	236,600	263,000	283,200	338,000	372,000	336,400	307,300
7	294,900	268,600	265,600	288,800	260,300	235,400	263,500	283,800	340,700	371,600	335,300	306,100
8	293,800	268,200	266,400	290,300	255,600	235,100	264,200	284,400	343,100	370,400	334,100	305,500
9	292,700	267,500	267,200	291,100	250,400	237,700	265,000	284,900	352,000	369,900	332,400	304,900
10	291,500	267,600	268,000	292,100	245,400	239,500	265,700	285,400	355,200	368,900	331,400	304,300
11	289,300	266,800	268,700	292,700	241,000	238,400	266,300	285,900	356,400	367,500	330,200	303,600
12	287,100	267,100	269,400	293,600	237,200	237,600	267,100	286,500	357,000	365,900	329,300	302,500
13	286,200	267,100	269,200	294,700	236,100	238,300	268,200	287,000	358,000	364,800	328,400	301,200
14	285,200	267,300	268,800	297,100	234,100	238,900	268,900	287,600	358,800	363,700	327,500	300,500
15	284,600	267,100	269,500	298,100	231,400	239,300	269,800	288,100	359,400	362,600	326,100	299,900
16	283,600	266,200	270,100	301,500	231,400	240,000	270,400	288,700	359,900	361,600	324,600	299,400
17	282,500	266,400	270,800	305,300	234,000	241,400	271,100	289,300	360,300	360,900	323,700	298,900
18	280,600	266,600	271,400	308,900	234,300	242,500	271,800	289,700	360,900	359,200	322,900	298,200
19	278,500	266,900	272,600	312,600	234,600	243,200	272,500	290,200	361,900	357,600	322,200	297,100
20	277,500	267,100	273,600	315,300	234,300	244,000	273,200	290,700	363,000	356,500	321,400	295,900
21	276,800	267,300	273,800	318,200	233,900	244,800	273,900	291,200	364,100	355,500	320,800	295,200
22	275,600	267,000	274,400	320,600	233,500	245,500	274,600	291,700	365,100	354,400	319,800	294,500
23	274,400	266,100	275,000	321,800	233,800	246,300	275,200	292,300	365,800	353,400	318,700	293,900
24	273,400	266,200	275,800	322,400	233,500	248,700	275,900	292,800	366,500	352,300	317,900	293,400
25	271,900	266,600	277,000	323,400	233,500	251,000	276,500	293,200	366,900	350,800	317,200	292,900
26	269,300	266,700	277,900	322,400	233,600	253,200	277,100	296,900	367,100	349,000	316,600	291,800
27	268,200	266,000	278,800	319,500	233,000	255,300	277,400	302,100	369,500	348,100	315,900	290,600
28	267,300	266,300	279,800	316,400	232,900	256,400	277,900	306,600	371,200	347,100	315,300	290,000
29	266,400	265,800	280,600	312,200	-----	257,200	278,200	309,800	371,500	346,000	314,200	289,400
30	265,400	264,900	281,600	307,800	-----	257,900	278,700	313,200	371,500	344,900	313,000	288,900
31	265,000	-----	282,500	301,200	-----	258,600	-----	317,400	-----	343,900	312,400	-----
MAX	303,900	268,600	282,500	323,400	294,100	258,600	278,700	317,400	371,500	372,000	342,500	311,800
MIN	265,000	264,200	265,600	283,400	231,400	235,100	259,300	280,200	321,900	343,900	312,400	288,900
(a)	211.06	211.04	213.95	216.95	205.45	209.97	213.34	219.47	227.42	223.44	218.69	214.99
(b)	-40,000	-100	+17,600	+18,700	-68,800	+25,700	+20,100	+38,700	+54,100	-27,600	-31,500	-23,500
(c)	2,310	1,087	788	1,319	834	2,073	2,553	4,286	4,894	6,429	5,450	4,304
CAL YR 1969	MAX 393,900	MIN 232,300	b +38,400									
WAT YR 1970	MAX 372,000	MIN 231,400	b -16,100									

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

c Evaporation, in acre-feet.

## SAN JOAQUIN RIVER BASIN

739

## 11323500 MOKELUMNE RIVER BELOW CAMANCHE DAM, CALIF.

LOCATION.--Lat 38°13'14", long 121°02'19", in NW $\frac{1}{4}$  sec. 7, T 4 N., R. 9 E., San Joaquin County, on left bank 0.7 mile downstream from Murphy Creek, 1.0 mile downstream from Camanche Dam, and 3.4 miles northeast of Clements.

DRAINAGE AREA.--627 sq mi.

PERIOD OF RECORD.--October 1904 to current year. Monthly discharge only for some periods, published in WSP 1315-A and 1735. Prior to October 1961, published as "near Clements."

GAGE.--Water-stage recorder. Datum of gage is 82.71 ft (revised) above mean sea level. Oct. 28, 1904, to Apr. 18, 1926, nonrecording gage at bridge 3.3 miles downstream at datum 13.82 ft lower. Apr. 19, 1926, to Apr. 8, 1931, water-stage recorder, 75 ft downstream from bridge at datum 15.82 ft lower, Apr. 9, 1931, to Sept. 30, 1961, 700 ft upstream from bridge at datum 15.75 ft lower.

AVERAGE DISCHARGE.--24 years (1904-28), 1,111 cfs (804,300 acre-ft per year); 41 years (1929-70), 836 cfs (605,700 acre-ft per year), adjusted for change in contents and evaporation from Camanche Reservoir since 1963. Storage and diversion by East Bay Municipal Utility District began in March 1929.

EXTREMES.--Current year: Maximum discharge, 5,130 cfs Jan. 24 (gage height, 9.96 ft); minimum daily, 83 cfs Nov. 2.

Period of record: Maximum discharge, 28,800 cfs Nov. 21, 1950 (gage height, 24.40 ft, site and datum then in use); no flow July 9, Aug. 15, 20-23, 1924.

REMARKS.--Records good. Flow regulated by Camanche Reservoir 1 mile upstream beginning December 1963 (see sta 11322300), Salt Springs Reservoir beginning March 1931 (see sta 11313500), Pardee Reservoir beginning March 1929 (see sta 11320000), several smaller reservoirs, and four powerplants. East Bay Municipal Utility District aqueducts are the largest of several diversions above the station. Maximum capacity is 511 cfs with Pardee Reservoir full. Records of water temperatures and suspended-sediment loads for the water year 1970 are published in Part 2 of this report. See schematic diagram of Mokelumne River basin.

COOPERATION.--Thirteen discharge measurements and temperature record furnished by the East Bay Municipal Utility District.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,090	318	414	313	4,880	1,320	426	463	497	631	818	614
2	1,090	83	414	313	4,850	1,280	420	465	507	661	817	612
3	1,090	84	414	313	4,820	1,270	418	468	504	673	815	612
4	1,090	211	414	313	4,370	1,490	420	463	505	673	814	614
5	1,090	393	177	311	3,820	1,590	420	456	505	673	818	613
6	1,140	410	164	309	3,600	1,560	420	453	500	704	818	614
7	1,090	409	164	309	3,360	1,550	418	477	501	726	818	614
8	1,090	416	164	308	3,340	1,550	422	506	516	724	817	614
9	1,090	415	162	375	3,330	1,560	421	506	556	724	817	613
10	1,100	418	164	430	3,320	1,570	420	507	540	753	818	607
11	1,100	419	171	431	3,030	1,570	420	495	558	775	817	606
12	1,100	419	171	421	2,660	1,470	422	489	549	774	785	606
13	1,090	419	171	416	2,620	1,370	414	524	548	802	774	605
14	1,100	419	171	553	2,690	1,370	404	520	547	822	749	605
15	1,100	419	166	1,390	2,680	1,370	405	510	548	822	724	604
16	1,090	418	162	3,070	2,460	931	393	504	544	822	724	604
17	1,100	414	165	3,490	2,020	406	410	505	548	821	705	605
18	1,090	414	163	3,480	1,560	415	402	505	548	821	683	608
19	1,090	414	161	3,480	1,570	415	405	505	548	821	650	608
20	1,090	414	171	3,500	1,570	416	410	513	548	819	625	608
21	1,210	414	169	3,610	1,570	415	404	516	548	820	614	607
22	1,360	414	160	4,080	1,570	416	442	499	548	820	602	604
23	1,350	414	158	5,050	1,570	415	457	498	547	820	602	603
24	1,360	414	183	5,030	1,570	416	456	499	567	817	603	607
25	1,360	414	319	4,980	1,470	416	456	500	593	816	609	603
26	1,350	414	316	4,970	1,380	416	457	501	591	818	614	603
27	1,350	414	313	4,970	1,310	416	461	505	591	814	614	603
28	1,350	414	313	4,950	1,260	417	462	504	591	814	614	603
29	1,350	414	313	4,930	-----	419	461	505	584	821	614	600
30	1,350	414	313	4,920	-----	409	459	505	637	818	614	600
31	1,080	-----	313	4,900	-----	415	-----	505	-----	819	614	-----
TOTAL	36,380	11,466	7,193	75,915	74,250	29,043	12,805	15,371	16,414	24,038	22,120	18,219
MEAN	1,174	382	232	2,449	2,652	937	427	496	547	775	714	607
MAX	1,360	419	414	5,050	4,880	1,590	462	524	637	822	818	614
MIN	1,080	83	158	308	1,260	406	393	453	497	631	602	600
AC-FT	72,160	22,740	14,270	150,600	147,300	57,610	25,400	30,490	32,560	47,680	43,880	36,140
MEAN a	561	399	531	2,774	1,437	1,389	808	1,195	1,539	431	290	285
AC-FT a	34,470	23,730	32,660	170,600	79,830	85,380	48,050	73,480	91,550	26,510	17,830	16,940

CAL YR 1969 TOTAL 557,183 MEAN 1,527 MAX 4,920 MIN 83 AC-FT 1,105,000 MEAN a 1,626 AC-FT a 1,177,000  
WTR YR 1970 TOTAL 343,214 MEAN 940 MAX 5,050 MIN 83 AC-FT 680,800 MEAN a 968 AC-FT a 701,000

a Adjusted for change in contents and evaporation from Camanche Reservoir.

LOCATION.- Lat 38°09'07", long 121°18'00", in SE<sup>1</sup> sec.34, T.4 N., R.6 E., San Joaquin County, on right bank at Woodbridge at point of diversion from Woodbridge Reservoir.

GAGE.--Water-stage recorder and gate-opening recorder. Datum of gage is 32.18 ft above mean sea level (levels by East Bay Municipal Utility District) Prior to Mar. 15, 1931, water-stage recorder at site 0.2 mile downstream at different datum.

EXTREMES.--Period of record: Maximum daily discharge, 482 cfs July 8, 1953; no flow at times in each year.

REMARKS.--Records good. Discharge computed from records of gate openings and effective head as shown by recorder. Canal diverts from Woodbridge Reservoir on Mokelumne River for irrigation south and west of Woodbridge. See schematic diagram of Mokelumne River basin.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	191					0	178	305	335	333	364	270
2	185					0	208	303	333	350	362	270
3	183					0	216	288	335	351	362	270
4	179					0	217	284	334	343	363	258
5	159					0	201	291	331	343	368	244
6	173					0	179	295	327	340	374	233
7	183					0	193	295	325	340	378	214
8	177					0	196	308	331	342	369	219
9	168					0	195	324	336	367	364	231
10	176					0	224	324	339	378	357	228
11	177					0	256	335	340	371	362	222
12	176					0	268	331	349	359	365	210
13	175					0	264	327	357	352	370	201
14	163					0	268	325	357	355	376	200
15	129					0	286	317	360	369	355	202
16	101					0	278	316	360	371	341	199
17	90					0	269	301	355	373	349	193
18	90					0	265	313	355	367	352	193
19	89					0	261	322	355	365	347	191
20	85					12	271	320	353	362	348	180
21	83					30	278	324	344	360	337	174
22	80					33	279	324	339	362	323	180
23	88					31	292	318	342	374	316	181
24	82					30	313	318	340	383	315	180
25	73					49	309	317	348	388	306	180
26	74					70	310	328	353	375	301	180
27	74					76	298	344	346	379	296	178
28	70					85	299	340	334	383	293	174
29	27				-----	93	296	342	334	388	287	176
30	0				-----	141	301	341	333	383	274	173
31	0	-----			-----	175	-----	337	-----	377	270	-----
TOTAL	3,700	0	0	0	0	825	7,668	9,857	10,280	11,283	10,544	6,204
MEAN	119	0	0	0	0	26.6	256	318	343	364	340	207
MAX	191	0	0	0	0	175	313	344	360	388	378	270
MIN	0	0	0	0	0	0	178	284	325	333	270	173
AC-FT	7,340	0	0	0	0	1,640	15,210	19,550	20,390	22,380	20,910	12,310
CAL YR 1969	TOTAL 54,806		MEAN 150	MAX 379	MIN 0	ACFT 108,700						
WAT YR 1970	TOTAL 60,361		MEAN 165	MAX 388	MIN 0	ACFT 119,700						

## SAN JOAQUIN RIVER BASIN

741

## 11325500 MOKELUMNE RIVER AT WOODBRIDGE, CALIF.

LOCATION.--Lat 38°09'31", long 121°18'09", in NW¼NE¼ sec.34, T.4 N., R.6 E., San Joaquin County, on right bank at Woodbridge, 0.4 mile downstream from county highway bridge, and 0.5 mile downstream from dam and canal intake of Woodbridge Irrigation District.

DRAINAGE AREA.--661 sq mi.

PERIOD OF RECORD.--May 1924 to current year (low-water records only 1924-25).

GAGE.--Water-stage recorder. Datum of gage is 14.9 ft above mean sea level (levels by East Bay Municipal Utility District). May 1924 to July 1928, 0.4 mile upstream and 100 ft downstream from bridge at datum 4 ft higher; July 1928 to March 1931, 0.4 mile upstream and 400 ft downstream from bridge at same datum; March 1931 to July 25, 1968, 125 ft downstream at same datum.

AVERAGE DISCHARGE.--41 years (1929-70), since start of diversion through East Bay Municipal Utility District aqueduct, 624 cfs (452,100 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 4,720 cfs Jan. 29, 30 (gage height, 22.68 ft); minimum daily, 31 cfs May 6, 7.

Period of record: Maximum discharge, 27,000 cfs Nov. 22, 1950 (gage height, 29.58 ft), from rating curve extended above 6,200 cfs on basis of contracted-opening measurement of maximum flow; minimum daily, 1.4 cfs Sept. 19, 20, 22, 1927.

REMARKS.--Records good. Concerning regulation and diversions see REMARKS for Mokelumne River below Camanche Dam; between Woodbridge and Camanche Dam there are many additional diversions for irrigation, including Woodbridge Canal (see sta 11325000). Nearest diversion is 0.5 mile upstream. See schematic diagram of Mokelumne River basin. Records of chemical analyses and water temperatures for the water year 1970 are published in Part 2 of this report.

COOPERATION.--Seven discharge measurements furnished by East Bay Municipal Utility District.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	785	865	376	277	4,660	1,290	162	37	43	168	311	245
2	790	488	377	276	4,660	1,310	129	35	41	169	323	241
3	799	216	376	276	4,640	1,260	118	33	41	192	323	241
4	834	123	376	276	4,620	1,290	113	32	42	198	306	280
5	826	105	376	275	4,290	1,510	125	33	45	201	299	273
6	826	95	235	271	3,840	1,480	145	31	49	232	295	283
7	836	209	117	270	3,560	1,450	152	31	50	256	292	291
8	807	352	105	275	3,330	1,460	133	36	52	223	308	283
9	833	390	102	289	3,250	1,450	135	49	64	194	313	268
10	822	391	101	372	3,220	1,460	94	51	83	217	318	275
11	812	396	99	402	3,180	1,450	57	56	81	252	298	286
12	814	395	100	401	2,910	1,440	60	45	81	272	289	284
13	816	396	100	396	2,610	1,330	85	43	83	303	235	300
14	810	397	98	478	2,530	1,300	90	54	82	305	259	365
15	915	396	97	553	2,530	1,300	56	61	65	308	255	342
16	915	396	88	1,760	2,520	1,280	47	54	57	315	266	336
17	906	391	88	2,660	2,290	681	43	47	58	321	248	319
18	902	390	89	3,020	1,890	526	36	49	58	317	206	320
19	902	390	95	3,130	1,650	503	35	47	56	326	204	326
20	919	389	137	3,180	1,600	243	35	49	59	345	148	348
21	910	389	123	3,320	1,570	122	34	54	67	315	159	345
22	1,100	387	106	3,380	1,560	314	33	53	80	300	155	349
23	1,120	386	91	3,730	1,540	330	34	46	83	300	164	332
24	1,120	382	96	4,330	1,530	334	39	41	78	298	174	328
25	1,130	382	183	4,330	1,520	326	40	42	101	299	201	336
26	1,130	380	272	4,370	1,400	274	40	46	111	310	189	355
27	1,130	380	275	4,660	1,360	284	43	53	112	311	194	349
28	1,190	378	276	4,690	1,280	292	44	56	138	303	201	357
29	1,350	377	277	4,680	-----	273	43	52	145	296	205	354
30	1,360	376	277	4,630	-----	230	42	45	190	296	218	341
31	1,260	-----	277	4,620	-----	161	-----	43	-----	298	231	-----
TOTAL	29,669	10,987	5,785	65,577	75,540	26,953	2,242	1,404	2,295	8,440	7,587	9,352
MEAN	957	366	187	2,115	2,698	869	74.7	45.3	76.5	272	245	312
MAX	1,360	865	377	4,690	4,660	1,510	162	61	190	345	323	365
MIN	785	95	88	270	1,280	122	33	31	41	168	148	241
AC-FT	58,850	21,790	11,470	130,100	149,800	53,460	4,450	2,780	4,550	16,740	15,050	18,550
CAL YR 1969	TOTAL 441,367		MEAN 1,209		MAX 4,640	MIN 53		AC-FT 875,500				
WTR YR 1970	TOTAL 245,831		MEAN 674		MAX 4,690	MIN 31		AC-FT 487,600				

## SAN JOAQUIN RIVER BASIN

11326300 DRY CREEK ABOVE SUTTER CREEK, NEAR IONE, CALIF.

LOCATION.--Lat 38°24'54", long 120°54'18", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.32, T.7 N., R.10 E., Amador County, on right bank 1,000 ft downstream from bridge on State Highway 104, and 4.6 miles northeast of Ione.

DRAINAGE AREA, --70.9 sq mi.

PERIOD OF RECORD.--February 1960 to September 1970 (discontinued). Prior to October 1961, published as "near Ione."

GAGE.--Water-stage recorder. Altitude of gage is 500 ft (from topographic map).

AVERAGE DISCHARGE.--10 years, 40.3 cfs (29,200 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 2,120 cfs Mar. 1 (gage height, 8.25 ft); no flow for several months.

Period of record: Maximum discharge, 7,300 cfs Jan. 6, 1965 (gage height, 11.30 ft), from rating curve extended above 1,800 cfs on basis of slope-area measurement of maximum flow; no flow for many days in each year.

REMARKS.--No known regulation or diversion above station.

COOPERATION --Records furnished by California Department of Water Resources and reviewed by Geological Survey.

REVISIONS (WATER YEARS).--WRD Calif. 1965: 1963(M).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.50	2.8	3.9	19	85	895	27	15	3.3	1.1		
2	.70	2.7	3.9	17	75	495	26	14	2.9	.50		
3	.90	2.9	3.9	16	67	234	26	13	2.5	.20		
4	1.0	2.9	3.9	14	63	237	24	12	2.1	0		
5	1.2	7.9	4.0	13	57	217	23	12	1.8	0		
6	1.3	44	4.0	12	52	160	23	12	1.7	0		
7	1.4	14	4.2	12	49	132	22	13	1.8	0		
8	1.8	6.4	4.5	13	47	241	22	13	2.3	0		
9	2.0	4.7	4.9	20	44	184	21	13	6.8	0		
10	2.0	4.1	5.3	81	42	179	21	12	6.7	0		
11	2.0	3.8	6.8	57	42	140	21	11	4.8	0		
12	2.2	3.6	7.4	50	46	119	20	11	4.2	0		
13	2.2	3.4	7.4	62	72	104	30	11	4.1	0		
14	2.6	3.5	6.7	890	109	92	43	10	3.8	0		
15	3.6	3.6	5.7	340	72	83	32	9.2	3.7	0		
16	1.7	3.8	5.3	991	77	75	27	8.0	3.4	0		
17	.60	4.1	5.1	540	349	68	25	7.0	3.0	0		
18	.20	3.8	5.0	272	194	62	22	6.6	2.8	0		
19	.80	3.8	12	174	140	56	24	6.8	2.4	0		
20	.90	3.9	106	161	112	52	22	6.5	1.9	0		
21	1.1	3.9	210	1,160	93	49	22	6.1	1.5	0		
22	1.3	3.7	107	580	80	46	22	5.9	1.2	0		
23	1.4	3.7	46	275	72	45	19	5.5	.80	0		
24	1.7	3.7	219	500	66	41	19	5.1	.60	0		
25	2.0	3.7	153	307	60	39	17	4.9	.50	0		
26	2.2	3.8	93	204	56	37	18	4.7	.60	0		
27	2.4	3.9	58	246	53	35	21	4.8	.90	0		
28	2.8	3.9	40	181	52	33	20	4.9	1.3	0		
29	2.7	3.9	31	141	-----	32	17	4.8	1.5	0		
30	2.6	3.9	25	117	-----	31	16	4.4	1.4	0		
31	2.8	-----	22	98	-----	29	-----	3.9	-----	0		-----
TOTAL	52.60	167.8	1,213.9	7,563	2,326	4,242	692	271.1	76.30	1.80	0	0
MEAN	1.70	5.59	39.2	244	83.1	137	23.1	8.75	2.54	.058	0	0
MAX	3.6	44	219	1,160	349	895	43	15	6.8	1.1	0	0
MIN	.20	2.7	3.9	12	42	29	16	3.9	.50	0	0	0
AC-FT	104	333	2,410	15,000	4,610	8,410	1,370	538	151	3.6	0	0
CAL YR 1969	TOTAL	33,837.40	MEAN	92.7	MAX	2,400	MIN	0	ACFT	67,120		
WAT YR 1970	TOTAL	16,606.50	MEAN	45.5	MAX	1,160	MIN	0	ACFT	32,940		

## 11327000 SUTTER CREEK NEAR SUTTER CREEK, CALIF.

LOCATION.--Lat 38°23'45", long 120°46'49", in SE $\frac{1}{4}$  sec.5, T.6 N., R.11 E., Amador County, on left bank 1.3 miles east of town of Sutter Creek.

DRAINAGE AREA.--48.1 sq mi.

PERIOD OF RECORD.--October 1935 to December 1941, March 1960 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Altitude of gage is 1,220 ft (from topographic map). Prior to Oct. 29, 1937, nonrecording gage 15 ft downstream at datum 4.00 ft lower. Oct. 29, 1937, to Dec. 7, 1938, nonrecording gage at present site at datum 4.00 ft lower.

AVERAGE DISCHARGE.--16 years (1935-41, 1960-70), 33.1 cfs (23,980 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,780 cfs Jan. 16 (gage height, 4.46 ft); no flow for several days in August.  
Period of record: Maximum discharge, 5,770 cfs Jan. 31, 1963 (gage height, 6.27 ft), from rating curve extended above 1,200 cfs on basis of slope-area measurement at gage height 4.77 ft; no flow at times in each year except 1938 and 1941.

REMARKS.--Small diversion above station for irrigation.

COOPERATION.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.90	3.7	5.9	18	84	628	31	22	9.7	6.2	1.8	.30
2	1.0	3.7	6.1	16	76	329	30	22	9.3	6.1	1.7	.30
3	1.2	3.7	6.1	15	70	178	30	21	9.0	5.7	1.7	.20
4	1.5	3.8	6.4	14	67	160	29	21	8.5	5.5	1.7	.20
5	1.6	11	6.6	13	62	143	28	20	8.1	4.9	1.8	.70
6	1.6	53	6.6	12	57	115	27	20	8.1	4.5	1.8	.90
7	1.6	17	6.6	12	54	100	27	21	7.9	4.1	1.6	.70
8	1.8	10	6.8	12	50	148	27	20	9.2	4.1	1.6	.40
9	2.0	8.2	7.5	16	47	112	26	20	19	4.2	1.2	.30
10	2.1	7.2	8.1	72	45	109	25	19	15	4.3	.60	.20
11	2.0	6.6	11	44	44	94	26	19	12	4.1	.20	.10
12	2.0	6.2	11	42	56	85	25	18	11	3.9	0	.10
13	2.0	5.9	9.9	63	90	80	35	18	12	3.7	0	.30
14	2.1	5.6	9.0	526	98	70	49	17	11	3.3	.10	.50
15	4.6	5.6	8.2	221	70	65	42	16	10	3.0	0	.70
16	16	6.1	7.8	923	69	64	42	16	9.9	3.1	0	.70
17	9.7	6.4	7.6	590	211	59	36	15	9.6	3.3	0	.50
18	6.2	6.1	7.2	282	119	53	31	14	9.1	3.0	0	.40
19	4.8	6.1	22	165	96	46	33	14	8.5	2.8	0	.60
20	4.3	6.1	141	144	84	44	31	14	8.3	2.5	.10	.90
21	3.9	5.9	156	890	75	42	29	14	7.8	2.3	0	1.0
22	3.7	5.9	82	427	69	40	27	14	7.1	2.0	.10	.90
23	3.7	5.6	39	226	64	39	26	13	6.7	1.7	.10	.80
24	3.7	5.6	229	342	60	37	25	12	6.4	1.6	0	.70
25	3.7	5.6	166	228	55	37	24	12	6.4	1.7	0	.70
26	3.8	5.6	87	169	52	36	26	12	7.1	1.7	0	.60
27	3.7	5.6	54	217	50	34	28	12	7.8	1.5	.20	.60
28	3.7	5.6	35	154	50	34	26	11	7.5	1.5	.20	.40
29	3.7	5.6	28	125	-----	33	24	11	7.3	1.5	.40	.30
30	3.7	5.6	23	106	-----	33	23	11	6.8	1.5	.40	.30
31	3.8	-----	20	93	-----	33	-----	10	-----	1.7	.40	-----
TOTAL	110.10	238.6	1,220.4	6,177	2,024	3,080	888	499	276.1	101.0	17.70	15.30
MEAN	3.55	7.95	39.4	199	72.3	99.4	29.6	16.1	9.20	3.26	.57	.51
MAX	16	53	229	923	211	628	49	22	19	6.2	1.8	1.0
MIN	.90	3.7	5.9	12	44	33	23	10	6.4	1.5	0	.10
AC-FT	218	473	2,420	12,250	4,010	6,110	1,760	990	548	200	35	30

CAL YR 1969 TOTAL 21,780.90 MEAN 59.7 MAX 1,630 MIN .40 ACFT 43,200  
WAT YR 1970 TOTAL 14,647.20 MEAN 40.1 MAX 923 MIN 0 ACFT 29,050

## SAN JOAQUIN RIVER BASIN

11329500 DRY CREEK NEAR GALT, CALIF.

LOCATION.--Lat 38°14'44", long 121°13'03", in NE¼ sec.32, T.5 N., R.7 E., San Joaquin County, on left bank of main channel 35 ft downstream from county road bridge, 2 miles downstream from Coyote Creek, and 4 miles east of Galt.

DRAINAGE AREA.--329 sq mi.

PERIOD OF RECORD.--October 1926 to September 1933, October 1944 to current year. Monthly figures only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is 52.83 ft above mean sea level (levels by East Bay Municipal Utility District). Dec. 4, 1926, to Sept. 30, 1933, at site 4 miles downstream at different datum. Oct. 1, 1944, to Sept. 30, 1945, at site across channel at datum 3.00 ft higher. Oct. 1, 1945, to June 15, 1966, across channel at same datum.

AVERAGE DISCHARGE.--33 years, 114 cfs (82,590 acre-ft per year); median of yearly mean discharges, 71 cfs (51,400 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 4,270 cfs Jan. 22 (gage height, 13.91 ft); no flow many days. Period of record: Maximum discharge, 24,000 cfs Apr. 3, 1958 (gage height, 15.28 ft); no flow for several days in each year.

REMARKS.--Records fair. Many small diversions above station for irrigation. Total storage of many small reservoirs, 1,000 acre-ft and total number of acres irrigated, approximately 500.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	0	65	378	886	101	36	7.2	2.7	4.2	12
2	0	0	0	47	343	2,410	99	29	2.6	1.8	4.5	9.3
3	0	0	0	41	317	988	94	30	1.5	1.1	2.3	11
4	0	0	0	36	303	868	88	30	.44	.82	4.5	7.5
5	0	0	0	31	287	1,350	81	32	.20	4.8	4.7	4.5
6	0	0	0	28	271	744	76	33	0	3.4	7.1	2.3
7	0	15	0	27	274	543	73	34	0	.50	7.8	1.6
8	0	20	0	26	267	835	66	34	.50	0	5.2	2.0
9	0	11	0	31	248	728	65	36	2.4	0	6.9	14
10	0	5.6	0	158	238	681	66	34	11	0	7.5	22
11	0	.95	0	183	233	560	64	32	8.3	0	5.7	12
12	0	.01	0	128	231	466	61	30	5.8	0	4.4	5.6
13	0	0	0	132	276	397	67	29	5.5	0	4.6	13
14	0	0	0	1,700	391	348	137	26	8.1	0	2.8	16
15	0	0	8.5	1,990	320	308	132	23	9.8	.57	7.5	11
16	.17	0	6.4	2,170	274	282	105	19	8.2	.51	8.0	14
17	2.7	0	3.3	2,820	632	257	90	18	5.5	.01	10	11
18	.23	0	.99	1,440	562	230	77	8.9	5.0	0	8.8	10
19	0	0	.21	620	357	206	59	10	7.0	0	7.8	15
20	0	0	136	422	276	185	72	7.0	5.7	0	2.3	16
21	0	0	367	2,420	226	181	70	9.7	5.3	0	.44	13
22	0	0	593	3,110	191	170	68	9.3	2.2	0	.03	12
23	0	0	149	1,410	170	163	65	8.4	.65	0	2.0	9.6
24	0	0	367	1,670	157	156	57	15	2.1	0	4.4	12
25	0	0	555	1,280	140	149	45	12	3.6	.15	4.0	8.3
26	0	0	413	795	129	144	48	14	.94	3.4	3.7	5.0
27	0	0	234	876	121	133	47	14	.94	4.1	2.9	1.9
28	0	0	176	735	115	125	59	14	7.3	2.3	2.9	.22
29	0	0	148	543	-----	120	47	11	9.2	3.7	.43	.09
30	0	0	132	474	-----	112	41	18	7.3	2.9	14	1.3
31	0	-----	121	420	-----	106	-----	11	-----	2.5	13	-----
TOTAL	3.10	52.56	3,410.40	25,828	7,727	14,831	2,230	667.3	134.27	35.26	164.40	273.21
MEAN	.10	1.75	110	833	276	478	74.3	21.5	4.48	1.14	5.30	9.11
MAX	2.7	20	593	3,110	632	2,410	137	36	11	4.8	14	22
MIN	0	0	0	26	115	106	41	7.0	0	0	.03	.09
AC-FT	6.1	104	6,760	51,230	15,330	29,420	4,420	1,320	266	70	326	542
CAL YR 1969	TOTAL	105,955.37	MEAN	290	MAX	5,610	MIN	0	AC-FT	210,200		
WTR YR 1970	TOTAL	55,356.50	MEAN	152	MAX	3,110	MIN	0	AC-FT	109,800		

## PEAK DISCHARGE (BASE, 2,000 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-15	0045	13.63	3,330	1-24	1215	11.74	2,210
1-17	0245	13.85	3,900	3- 2	0300	13.35	3,050
1-22	0445	13.91	4,270				



## SAN JOAQUIN RIVER BASIN

745

## 11333000 CAMP CREEK NEAR SOMERSET, CALIF.

LOCATION.--Lat 38°39'26", long 120°39'46", in SW $\frac{1}{4}$  sec.4, T.9 N., R.12 E., El Dorado County, on right bank 0.2 mile upstream from mouth, 1.3 miles northeast of Somerset, and 5.6 miles south of Camino.

DRAINAGE AREA.--62.6 sq mi.

PERIOD OF RECORD.--February to May 1924 (published as "near Pleasant Valley"), October 1954 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,820 ft (from topographic map). Feb. 1 to May 31, 1924, nonrecording gage at site 0.2 mile upstream at different datum.

AVERAGE DISCHARGE (adjusted for storage, diversion, and evaporation from Jenkinson Lake).--16 years (1954-70), 79.5 cfs (57,600 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 3,960 cfs Jan. 21 (gage height, 10.66 ft); minimum daily, 3.2 cfs Nov. 4.

Period of record: Maximum discharge, 6,040 cfs Dec. 23, 1964 (gage height, 12.50 ft); minimum, 0.5 cfs Aug. 1-3, 1961.

REMARKS.--Records good. Flow partly regulated since January 1955 by Jenkinson Lake (usable capacity, 40,570 acre-ft). Water is released from Jenkinson Lake through Camino conduit for irrigation and domestic supply in North Fork Cosumnes and South Fork American River basins. Some water is released from Jenkinson Lake down Camp Creek for irrigation downstream from station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	5.7	3.3	6.7	306	290	79	49	6.6	11	6.4	12
2	5.4	3.5	3.3	6.2	265	290	77	52	6.2	14	6.4	12
3	5.4	3.3	3.3	5.8	241	225	75	56	6.1	13	6.3	11
4	5.3	3.2	3.3	5.6	221	216	73	61	5.9	13	6.1	14
5	5.2	8.6	3.3	5.4	199	206	71	57	5.7	12	6.0	18
6	5.3	26	3.3	5.2	179	188	70	54	5.7	12	5.9	18
7	5.1	8.1	3.4	5.3	161	176	68	54	5.7	11	5.9	18
8	5.5	5.2	3.7	5.7	148	211	67	52	6.5	11	5.7	18
9	6.2	4.4	4.9	8.5	135	209	65	50	11	11	5.6	18
10	5.8	4.0	4.4	30	126	219	65	48	7.9	11	5.5	19
11	5.5	3.7	5.3	19	126	196	65	45	7.0	10	5.4	19
12	5.1	3.6	5.6	17	139	181	63	41	6.6	10	5.2	18
13	5.1	3.6	6.2	23	192	170	64	38	6.6	10	7.0	18
14	5.0	3.6	4.8	209	204	171	80	38	6.8	9.7	25	18
15	12	3.5	4.2	117	168	175	69	37	6.7	9.4	25	18
16	37	4.1	3.9	904	170	174	64	39	6.3	9.3	25	18
17	33	4.0	3.8	762	312	169	61	38	6.1	8.9	25	18
18	18	3.6	3.7	451	259	159	61	40	5.9	8.6	24	15
19	11	3.6	5.6	650	235	146	73	38	5.7	8.4	20	4.7
20	9.5	3.6	24	697	213	139	69	33	5.5	8.1	8.2	4.5
21	8.2	3.6	47	2,260	193	131	62	27	5.4	7.7	4.7	4.5
22	7.6	3.4	25	1,850	175	125	58	22	5.2	7.6	4.4	4.3
23	7.3	3.4	21	994	161	121	54	20	5.0	7.6	4.3	4.1
24	7.3	3.4	101	994	153	116	51	18	4.9	7.5	4.3	4.1
25	7.3	3.4	50	801	143	114	49	15	5.0	7.3	4.2	4.1
26	7.2	3.4	30	631	134	111	54	13	5.2	7.1	4.2	4.0
27	7.1	3.4	17	732	126	103	60	12	5.6	7.0	4.2	4.0
28	7.0	3.4	12	631	123	98	52	10	5.5	6.8	4.2	3.8
29	7.1	3.3	10	507	-----	96	48	8.4	5.6	6.7	4.3	3.8
30	7.1	3.3	8.4	432	-----	93	47	7.6	5.2	6.6	11	3.8
31	7.1	-----	7.4	360	-----	86	-----	8.3	-----	6.6	11	-----
TOTAL	276.0	142.9	432.1	14,125.4	5,207	5,104	1,914	1,081.3	183.1	289.9	290.4	349.7
MEAN	8.90	4.76	13.9	456	186	165	63.8	34.9	6.10	9.35	9.37	11.7
MAX	37	26	101	2,260	312	290	80	61	11	14	25	19
MIN	5.0	3.2	3.3	5.2	123	86	47	7.6	4.9	6.6	4.2	3.8
AC-FT	547	283	857	28,020	10,330	10,120	3,800	2,140	363	575	576	694
(a)	-1,466	+68	+3,991	+8,882	-174	-33	+20	-117	-1,528	-4,884	-5,617	-4,623
(b)	1,364	466	245	369	341	492	756	2,696	2,908	4,210	4,031	3,258
(c)	98	39	15	37	54	106	116	255	244	345	308	202

CAL YR 1969 TOTAL 45,372.0 MEAN 124 MAX 2,020 MIN 3.2 AC-FT 90,000 MEAN d 163 AC-FT d 117,800  
WTR YR 1970 TOTAL 29,395.8 MEAN 80.5 MAX 2,260 MIN 3.2 AC-FT 58,310 MEAN d 105 AC-FT d 75,770

a Change in contents, in acre-feet, in Jenkinson Lake furnished by Bureau of Reclamation.

b Diversion, in acre-feet, from Jenkinson Lake, furnished by Bureau of Reclamation.

c Evaporation, in acre-feet, from Jenkinson Lake, furnished by Bureau of Reclamation.

d Adjusted for change in contents, evaporation, and diversion from Jenkinson Lake.

## SAN JOAQUIN RIVER BASIN

11333500 NORTH FORK COSUMNES RIVER NEAR EL DORADO, CALIF.

LOCATION.--Lat 38°35'20", long 120°50'38", in SW $\frac{1}{4}$  sec.35, T.9 N., R.10 E., El Dorado County, on downstream side of left abutment of county road bridge, 0.8 mile north of Nashville, 2.6 miles upstream from mouth, and 6 miles south of El Dorado.

DRAINAGE AREA.--205 sq mi.

PERIOD OF RECORD.- August 1911 to December 1941, October 1948 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 840 ft (from topographic map). Prior to October 1933, nonrecording gage at site 1.5 miles upstream at different datum. October 1933 to December 1941, water-stage recorder at site 1,000 ft upstream at different datum.

AVERAGE DISCHARGE.--52 years, 203 cfs (147,100 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 8,140 cfs Jan. 21 (gage height, 11.12 ft); minimum daily, 14 cfs Oct. 1.

Period of record: Maximum discharge, 15,800 cfs Dec. 23, 1955 (gage height, 14.8 ft), from rating curve extended above 7,500 cfs on basis of slope-area measurement of maximum flow; no flow for part of 1924, 1926, 1931, 1933-34.

REMARKS.--Records good. Flow partly regulated since January 1955 by Jenkinson Lake (usable capacity, 40,570 acre-ft). Camino conduit above the station diverts water out of the basin (see REMARKS for sta 11333000 Camp Creek near Somerset). Numerous small diversions above station for irrigation and domestic use.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	22	24	122	800	1,310	236	181	103	42	27	42
2	15	21	24	112	680	1,160	229	183	99	43	25	42
3	15	21	23	105	590	668	225	190	96	41	23	42
4	16	23	23	99	532	588	216	199	82	39	24	42
5	16	30	22	90	480	603	211	201	76	37	25	51
6	17	100	21	85	440	527	209	200	74	36	31	55
7	17	98	23	87	408	490	205	201	69	34	42	54
8	19	58	25	87	384	710	201	193	67	32	45	55
9	22	49	29	106	356	604	198	191	125	30	58	56
10	25	42	34	337	328	615	198	192	112	29	51	51
11	23	37	38	248	314	531	197	185	89	28	49	52
12	21	34	48	240	324	481	194	176	77	28	49	52
13	20	31	47	320	488	452	200	167	73	26	47	52
14	18	28	43	1,920	565	446	240	167	69	25	58	53
15	29	28	34	1,290	440	453	218	168	72	23	68	52
16	109	29	30	3,800	432	443	205	174	65	49	68	53
17	123	30	26	3,670	1,330	433	196	181	59	53	66	52
18	83	31	28	2,000	805	411	195	185	57	52	67	50
19	54	29	37	1,660	635	381	206	184	50	51	67	38
20	42	28	200	1,740	552	358	211	173	47	50	53	25
21	35	28	554	5,220	500	339	196	159	43	49	46	23
22	30	27	393	4,660	460	326	188	152	38	49	43	22
23	27	27	204	2,520	428	316	183	146	37	43	43	22
24	26	25	1,220	2,770	408	308	177	142	37	38	43	18
25	25	25	644	2,150	384	303	172	135	38	38	43	15
26	25	25	419	1,770	364	295	180	132	43	37	36	18
27	25	24	262	2,170	344	285	204	129	42	36	32	19
28	26	24	202	1,820	332	275	188	121	42	38	31	22
29	25	23	172	1,470	-----	271	178	114	39	40	30	22
30	24	24	150	1,210	-----	266	177	108	39	30	34	18
31	23	-----	135	960	-----	251	-----	105	-----	28	41	-----
TOTAL	989	1,021	5,134	44,838	14,103	14,899	6,033	5,134	1,959	1,174	1,365	1,168
MEAN	31.9	34.0	166	1,446	504	481	201	166	65.3	37.9	44.0	38.9
MAX	123	100	1,220	5,220	1,330	1,310	240	201	125	53	68	56
MIN	14	21	21	85	314	251	172	105	37	23	23	15
AC-FT	1,960	2,030	10,180	88,940	27,970	29,550	11,970	10,180	3,890	2,330	2,710	2,320
CAL YR 1969	TOTAL	134,941	MEAN	370	MAX	6,950	MIN	13	AC-FT	267,700		
WTR YR 1970	TOTAL	97,817	MEAN	268	MAX	5,220	MIN	14	AC-FT	194,000		

## PEAK DISCHARGE (BASE, 1,800 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-24	0900	6.67	1,960	1-24	0800	7.78	3,100
1-14	1730	8.12	3,420	1-27	1300	7.25	2,570
1-16	1430	10.27	6,610	2-17	0530	6.31	1,810
1-21	2400	11.12	8,140	3- 1	1730	6.99	2,330

NOTE.--No gage-height record Oct. 23 to Nov. 21.

## 11334200 MIDDLE FORK COSUMNES RIVER NEAR SOMERSET, CALIF.

LOCATION.--Lat 38°37'29", long 120°42'02", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.19, T.9 N., R.12 E., El Dorado County, on left bank 1,000 ft downstream from county road bridge, 0.2 mile downstream from Perry Creek, and 1.8 miles southwest of Somerset.

DRAINAGE AREA.--107 sq mi.

PERIOD OF RECORD.--October 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,647.95 ft above mean sea level.

AVERAGE DISCHARGE.--13 years, 154 cfs (111,600 acre-ft per year); median of yearly mean discharges, 110 cfs (80,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 4,220 cfs Jan. 16 (gage height, 11.58 ft); minimum daily, 9.0 cfs Sept. 27, 28, 30.

Period of record: Maximum discharge, 11,800 cfs Feb. 1, 1963 (gage heights, 16.20 ft in gage well, 18.4 ft, from floodmarks), from rating curve extended above 2,500 cfs on basis of computation of maximum flow over dam; minimum, 1.7 cfs probably occurred Sept. 11, 1961.

Flood of Dec. 23, 1955, reached a stage of 18.1 ft, from floodmarks (discharge, 11,600 cfs).

REMARKS.--Records good. No storage above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	20	22	128	510	726	195	174	104	41	18	11
2	15	20	22	112	455	495	191	179	101	38	18	11
3	15	20	23	102	422	418	188	193	93	36	18	11
4	15	20	23	96	398	410	182	208	88	34	17	11
5	15	32	22	85	368	380	181	204	84	32	17	11
6	15	100	23	82	342	360	179	222	79	31	17	15
7	15	48	23	89	326	345	178	210	75	30	16	32
8	15	36	22	88	310	418	173	197	75	29	16	32
9	17	32	30	129	295	368	171	191	127	29	15	29
10	16	29	26	370	286	375	174	197	95	28	15	28
11	16	28	32	259	277	345	170	189	83	28	14	28
12	16	27	33	271	321	328	166	181	76	27	14	28
13	15	27	32	344	388	323	182	171	76	26	14	28
14	16	27	30	1,170	372	340	202	176	74	25	13	21
15	24	27	27	938	321	348	170	182	79	24	13	9.2
16	86	29	26	2,880	364	348	166	202	69	23	13	9.4
17	60	32	26	2,560	543	345	157	222	65	23	12	9.4
18	38	29	25	1,620	425	326	162	226	62	22	12	9.2
19	29	27	40	1,140	405	310	171	214	58	22	12	9.2
20	26	26	334	1,090	380	297	162	191	52	21	12	9.6
21	24	26	526	2,850	352	282	152	176	50	21	12	10
22	23	26	336	2,450	330	273	151	170	48	20	12	10
23	22	26	214	1,530	319	266	145	165	46	20	12	9.7
24	22	24	560	1,690	306	264	148	160	45	20	12	9.4
25	22	24	716	1,200	293	262	152	151	44	19	12	9.2
26	22	24	462	993	286	253	170	149	44	19	12	9.1
27	22	24	312	1,140	282	242	149	144	50	19	11	9.0
28	21	24	233	890	293	232	157	132	46	19	11	9.0
29	21	23	188	766	-----	230	151	122	46	19	11	9.1
30	21	23	160	650	-----	230	160	113	43	18	11	9.0
31	21	-----	141	570	-----	210	-----	110	-----	18	11	-----
TOTAL	720	880	4,689	28,282	9,969	10,349	5,055	5,521	2,077	781	423	445.5
MEAN	23.2	29.3	151	912	356	334	169	178	69.2	25.2	13.6	14.9
MAX	86	100	716	2,880	543	726	202	226	127	41	18	32
MIN	15	20	22	82	277	210	145	110	43	18	11	9.0
AC-FT	1,430	1,750	9,300	56,100	19,770	20,530	10,030	10,950	4,120	1,550	839	884
CAL YR 1969	TOTAL 113,339.0	MEAN 311	MAX 5,500	MIN 15	ACFT 224,800							
WAT YR 1970	TOTAL 69,191.5	MEAN 190	MAX 2,880	MIN 9.0	ACFT 137,200							

## PEAK DISCHARGE (BASE, 700 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1800	8.18	1,280	1-24	0400	9.75	2,260
12-25	1300	8.00	1,180	1-27	0900	8.57	1,420
1-14	1700	9.30	2,020	2-17	0100	7.29	786
1-16	1600	11.58	4,220	3-1	1400	8.10	1,160
1-21	2200	11.40	4,000				

## SAN JOAQUIN RIVER BASIN

11334300 SOUTH FORK COSUMNES RIVER NEAR RIVER PINES, CALIF.

LOCATION.--Lat 38°33'25", long 120°47'32", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.8, T.8 N., R.11 E., Amador County, on left bank 2.4 miles upstream from mouth and 2.7 miles west of River Pines.

DRAINAGE AREA.--64.3 sq mi.

PERIOD OF RECORD.--October 1957 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,220 ft (from topographic map).

AVERAGE DISCHARGE.--13 years, 46.0 cfs (33,330 acre-ft per year); median of yearly mean discharges, 26 cfs (18,800 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,830 cfs Jan. 16 (gage height, 5.46 ft); minimum daily, 0.10 cfs Sept. 1.

Period of record: Maximum discharge, 5,540 cfs Feb. 1, 1963 (gage height, 10.90 ft), from rating curve extended above 1,900 cfs on basis of slope-area measurement at gage height 9.90 ft; no flow at times in most years.

REMARKS.--Amount of water imported from Middle Fork Cosumnes River through Garabaldi ditch has been negligible because of leakage in the ditch.

COOPERATION.--Records furnished by Bureau of Reclamation and reviewed by Geological Survey.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	4.3	6.3	26	138	809	49	30	13	8.8	.90	.10
2	.70	4.3	6.3	24	122	471	47	28	13	7.8	.90	.20
3	.80	4.3	6.3	22	107	272	46	27	12	6.6	.80	.20
4	.80	4.3	6.3	20	99	247	44	27	11	6.0	.80	.20
5	.80	12	6.3	19	91	228	42	26	11	5.3	.80	.20
6	.90	65	6.3	17	84	189	40	24	11	4.7	.70	.30
7	1.0	28	6.3	18	78	166	40	25	11	4.4	.70	.30
8	1.0	15	6.6	18	74	248	38	25	12	4.4	.60	.60
9	1.3	11	7.5	23	69	183	43	25	24	4.3	.60	.30
10	1.5	9.7	8.3	131	65	187	36	25	21	4.3	.60	.20
11	2.9	8.8	11	85	64	161	35	24	17	4.2	.50	.20
12	2.8	7.9	13	75	75	146	33	24	15	3.9	.40	.20
13	1.5	7.5	13	100	131	132	43	24	16	3.7	.40	.20
14	1.4	7.4	11	814	251	123	57	23	15	3.3	.30	.20
15	3.5	7.2	9.8	407	135	115	47	22	15	3.9	.40	.30
16	19	7.8	9.2	1,140	153	108	45	21	13	2.8	.20	.40
17	14	8.1	8.7	738	389	101	42	20	12	2.0	.20	.40
18	8.5	7.5	8.3	439	214	95	39	20	12	2.1	.20	.40
19	6.4	7.2	13	272	173	88	40	20	12	2.1	.20	.40
20	5.3	7.0	103	245	150	84	39	19	11	1.8	.20	.40
21	4.6	6.9	197	1,130	132	81	36	19	10	1.7	.20	.60
22	4.2	6.9	133	676	119	78	35	19	9.5	1.6	.20	.60
23	4.1	6.9	59	365	108	75	34	18	9.0	1.4	.20	.50
24	4.1	6.9	337	539	100	71	33	17	8.3	1.4	.20	.50
25	4.2	6.9	224	368	91	68	31	17	8.0	1.4	.20	.50
26	4.3	6.9	134	274	85	65	31	16	8.8	1.2	.20	.40
27	4.3	6.9	81	356	81	61	36	16	10	1.2	.20	.40
28	4.2	6.7	57	261	80	58	35	16	10	1.1	.20	.30
29	4.1	6.6	43	211	-----	57	33	16	10	1.0	.20	.30
30	4.2	6.4	35	180	-----	55	31	14	9.6	1.0	.20	.30
31	4.3	-----	30	155	-----	52	-----	14	-----	.90	.20	-----
TOTAL	121.70	302.3	1,596.5	9,148	3,458	4,874	1,180	661	370.2	100.30	12.60	10.10
MEAN	3.93	10.1	51.5	295	124	157	39.3	21.3	12.3	3.24	.41	.34
MAX	19	65	337	1,140	389	809	57	30	24	8.8	.90	.60
MIN	.70	4.3	6.3	17	64	52	31	14	8.0	.90	.20	.10
AC-FT	241	600	3,170	18,150	6,860	9,670	2,340	1,310	734	199	25	20

CAL YR 1969 TOTAL 34,542.88 MEAN 94.6 MAX 2,110 MIN .41 AC-FT 68,520  
WAT YR 1970 TOTAL 21,834.70 MEAN 59.8 MAX 1,140 MIN .10 AC-FT 43,310

## PEAK DISCHARGE (BASE, 600 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-14	1450	5.30	1,750	1-24	0220	3.75	768
1-16	1220	5.46	1,830	2-17	0140	3.67	724
1-21	1410	5.08	1,640	3- 1	1510	5.11	1,850

## 11335000 COSUMNES RIVER AT MICHIGAN BAR, CALIF.

LOCATION.--Lat 38°30'01", long 121°02'39", in NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.36, T.8 N., R.8 E., Sacramento County, on downstream side of midstream pier of highway bridge at Michigan Bar, 5.5 miles southwest of Latrobe, and 12 miles downstream from confluence of North and Middle Fork Cosumnes River.

DRAINAGE AREA.--536 sq mi.

PERIOD OF RECORD.--October 1907 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is 168.09 ft above mean sea level. Prior to July 10, 1930, nonrecording gage at same site and datum.

AVERAGE DISCHARGE.--63 years, 485 cfs (351,400 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 16,800 cfs Jan. 21 (gage height, 9.71 ft); minimum daily, 20 cfs Sept. 26, 27.

Period of record: Maximum discharge, 42,000 cfs Dec. 23, 1955 (gage height, 14.59 ft); no flow at times in many years.

Flood in March 1907 reached a stage of 16.3 ft (discharge unknown).

REMARKS.--Records good. Flow partly regulated since January 1955 by Jenkinson Lake (usable capacity, 40,570 acre-ft). Camino conduit above the station diverts water out of the basin (see REMARKS for sta 11333000). Numerous small diversions above station for irrigation and domestic use. Records of chemical analyses, water temperatures, and suspended-sediment loads for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	44	50	302	1,610	3,610	544	393	222	80	48	41
2	21	43	51	274	1,390	2,980	518	404	211	80	46	40
3	21	42	51	240	1,250	1,740	506	415	211	80	48	41
4	21	41	50	222	1,130	1,690	488	432	190	77	46	40
5	21	50	50	208	1,040	1,750	482	442	172	71	45	41
6	22	255	49	190	1,030	1,370	470	448	163	70	46	46
7	23	256	49	190	950	1,250	464	454	155	65	44	49
8	24	139	53	198	887	2,100	454	432	148	59	43	50
9	27	100	54	229	842	1,560	448	426	224	58	43	53
10	30	82	71	902	797	1,670	442	426	278	58	57	50
11	31	75	77	764	779	1,440	448	420	200	57	57	48
12	31	68	95	641	797	1,320	432	404	169	56	57	50
13	33	64	102	824	1,170	1,200	454	382	158	54	57	49
14	31	62	97	5,220	1,740	1,160	632	371	158	52	56	50
15	34	62	86	3,620	1,200	1,150	524	376	155	50	68	50
16	106	64	75	8,810	1,030	1,120	470	393	152	53	71	49
17	243	68	71	9,420	3,220	1,090	448	426	131	74	71	50
18	161	77	68	5,290	1,880	1,030	437	442	120	72	72	49
19	107	68	82	3,640	1,450	960	448	437	120	71	71	49
20	77	61	411	3,710	1,280	905	470	415	111	71	70	39
21	66	59	1,440	11,300	1,160	860	432	376	102	68	58	30
22	57	57	1,500	11,100	1,070	824	415	355	96	67	56	28
23	51	56	575	5,570	980	806	393	340	89	68	52	26
24	53	54	2,610	6,500	941	770	376	330	84	60	53	27
25	51	53	1,860	4,700	878	752	376	310	83	59	53	23
26	49	51	1,390	3,560	833	725	388	301	81	58	50	20
27	50	51	779	4,280	806	680	442	306	86	58	38	20
28	51	51	578	3,540	779	648	426	288	94	56	34	23
29	47	50	472	2,720	-----	648	388	265	88	54	34	24
30	47	50	395	2,280	-----	608	388	245	88	52	33	24
31	46	-----	340	1,880	-----	576	-----	233	-----	48	36	-----
TOTAL	1,654	2,253	13,631	102,324	32,919	38,992	13,603	11,687	4,339	1,956	1,613	1,179
MEAN	53.4	75.1	440	3,301	1,176	1,258	453	377	145	63.1	52.0	39.3
MAX	243	256	2,610	11,300	3,220	3,610	632	454	278	80	72	53
MIN	21	41	49	190	779	576	376	233	81	48	33	20
AC-FT	3,280	4,470	27,040	203,000	65,290	77,340	26,980	23,180	8,610	3,880	3,200	2,340
CAL YR 1969	TOTAL 349,611 MEAN 958 MAX 18,800 MIN 21 ACFT 693,500											
WAT YR 1970	TOTAL 226,150 MEAN 620 MAX 11,300 MIN 20 ACFT 448,600											

## PEAK DISCHARGE (BASE, 4,000 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-24	1300	6.63	4,400	1-24	0900	7.50	7,540
1-14	1700	8.11	9,140	1-27	1630	6.76	5,250
1-16	1800	9.32	14,700	2-17	0600	6.83	5,450
1-21	2200	9.71	16,800	3- 1	1900	7.80	8,600

## SAN JOAQUIN RIVER BASIN

## 11335700 DEER CREEK NEAR SLOUGHHOUSE, CALIF.

LOCATION.--Lat 38°33'06", long 121°06'30", in NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.16, T.8 N., R.8 E., Sacramento County, on right bank 0.2 mile upstream from Scott Road, 0.4 mile upstream from Little Deer Creek, and 5.9 miles northeast of Sloughhouse.

DRAINAGE AREA.--46.0 sq mi.

PERIOD OF RECORD.--November 1959 to September 1966, October 1967 to current year.

GAGE --Water-stage recorder. Altitude of gage is 160 ft (from topographic map).

AVERAGE DISCHARGE.--9 years, 26.5 cfs (19,200 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 2,800 cfs Jan. 14 (gage height, 10.75 ft); no flow for several months.

Period of record: Maximum discharge, 6,560 cfs Oct. 13, 1962 (gage height, 12.86 ft, from floodmarks), from rating curve extended above 2,200 cfs; no flow for several months in each year.

REMARKS.--No known regulation or diversion above station.

COOPERATION.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		0	1.2	11	42	104	9.5	3.3				
2		0	1.2	9.5	37	79	8.9	3.1				
3		0	1.4	8.7	33	45	8.8	2.9				
4		0	1.3	8.4	31	138	8.5	2.7				
5		0	1.1	8.0	28	109	8.0	2.5				
6		0	.90	7.4	25	57	7.7	2.6				
7		4.1	1.0	6.9	24	46	7.3	2.8				
8		2.5	1.5	7.0	23	149	6.7	2.8				
9		2.2	1.6	16	22	72	6.5	3.0				
10		1.6	1.9	145	21	114	6.5	3.2				
11		1.4	2.6	50	21	64	6.5	3.0				
12		1.2	3.7	45	23	51	6.1	2.7				
13		1.0	4.0	72	48	44	6.7	2.5				
14		1.0	2.8	1,200	72	39	13	2.3				
15		1.0	2.6	185	38	35	13	1.7				
16		1.0	2.1	1,030	41	32	9.2	1.5				
17		1.4	1.8	989	269	29	7.7	1.3				
18		1.2	1.6	170	123	25	6.6	.90				
19		1.0	3.6	114	64	23	6.2	.70				
20		1.2	78	175	49	22	5.6	.70				
21		1.1	343	1,560	41	20	5.8	.80				
22		1.1	79	403	35	19	6.0	.90				
23		1.0	69	164	32	18	5.6	.70				
24		1.0	628	403	29	17	5.2	.50				
25		1.0	140	170	27	15	5.1	.30				
26		.90	61	103	26	15	5.0	.10				
27		.90	34	332	23	13	5.1	.10				
28		1.0	24	115	23	12	5.1	.10				
29		1.0	19	76	-----	11	4.4	.10				
30		1.0	15	59	-----	11	3.9	0				
31		-----	12	48	-----	10	-----	0	-----			-----
TOTAL	0	31.80	1,539.90	7,690.9	1,270	1,438	210.2	49.80	0	0	0	0
MEAN	0	1.06	49.7	248	45.4	46.4	7.01	1.61	0	0	0	0
MAX	0	4.1	628	1,560	269	149	13	3.3	0	0	0	0
MIN	0	0	.90	6.9	21	10	3.9	0	0	0	0	0
AC-FT	0	63	3,050	15,250	2,520	2,850	417	99	0	0	0	0
CAL YR 1969	TOTAL	22,085.70	MEAN	60.5	MAX	2,160	MIN	0	ACFT	43,810		
WAT YR 1970	TOTAL	12,230.60	MEAN	33.5	MAX	1,560	MIN	0	ACFT	24,260		

## SAN JOAQUIN RIVER BASIN

751

## 11336000 COSUMNES RIVER AT MCCONNELL, CALIF.

LOCATION.--Lat 38°21'29", long 121°20'34", in sec.20, T.6 N., R.6 E., Sacramento County, on downstream side of bridge on U.S. Highway 99, 0.2 mile south of McConnell, 1 mile downstream from Deer Creek, and 7 miles north of Galt.

DRAINAGE AREA.--724 sq mi.

PERIOD OF RECORD.--October 1941 to current year. Monthly figures only for some periods, published in WSP 1315-A. Gage heights only during high-water periods 1931-40, in reports of California Department of Water Resources.

GAGE.--Water-stage recorder. Gage is set to datum of Corps of Engineers.

AVERAGE DISCHARGE.--29 years, 555 cfs (402,100 acre-ft per year); median of yearly mean discharges, 430 cfs (312,000 acre-ft per year).

EXTREMES --Current year: Maximum discharge, 16,700 cfs Jan. 22 (gage height, 45.56 ft); no flow many days. 1943 to current year: Maximum discharge, 54,000 cfs Dec. 23, 1955 (gage height, 46.26 ft), from rating curve extended above 36,000 cfs; no flow for parts of each year. Flood of Feb. 23, 24, 1936, reached a stage of 45.94 ft (discharge unknown).

REMARKS --Records good except those for the summer months, which are poor. Diversions for irrigation of 2,100 acres between stations at Michigan Bar and at McConnell.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	20	27	284	1,690	1,580	560	342	183	31	0	0
2	0	19	27	255	1,490	4,720	524	362	167	25	0	0
3	0	28	27	232	1,320	2,120	507	366	159	26	0	0
4	0	21	27	212	1,200	1,770	491	381	148	22	0	0
5	0	22	27	201	1,080	2,620	475	396	136	17	0	0
6	0	39	27	185	973	1,830	462	398	118	16	0	0
7	0	235	26	176	895	1,500	452	411	108	34	0	0
8	0	140	28	184	827	1,970	437	398	104	24	0	0
9	0	84	30	192	764	2,170	418	389	122	1.7	0	0
10	0	64	31	526	715	1,900	411	381	217	3.9	0	0
11	0	51	47	1,080	685	1,790	411	380	190	0	0	0
12	0	45	52	645	677	1,520	404	356	146	0	0	0
13	0	40	70	702	899	1,350	400	341	126	0	0	.21
14	0	37	69	3,010	1,670	1,270	538	323	125	0	0	28
15	0	36	66	6,860	1,290	1,240	550	327	115	0	0	20
16	2.9	35	56	5,030	1,030	1,210	465	326	121	0	0	4.4
17	111	35	49	12,000	2,860	1,150	439	348	112	0	0	0
18	140	43	45	7,960	2,620	1,100	408	369	101	0	1.0	.21
19	92	50	49	3,800	1,750	1,010	411	385	84	5.0	3.0	0
20	71	41	91	3,260	1,460	946	446	376	80	11	25	0
21	46	33	800	5,330	1,280	892	414	341	74	7.8	22	0
22	38	33	1,790	14,100	1,140	847	390	313	66	23	12	0
23	30	33	690	8,340	1,030	812	372	295	55	32	7.0	0
24	27	35	1,650	6,180	956	785	359	286	59	4.4	3.0	0
25	26	32	2,610	5,970	897	762	348	276	48	5.6	0	0
26	24	30	1,940	3,850	840	737	349	254	56	33	0	0
27	23	28	919	3,860	804	705	386	248	35	10	0	0
28	23	28	619	4,390	773	669	392	239	46	0	0	0
29	22	28	467	2,870	-----	654	362	223	56	0	0	0
30	21	27	377	2,330	-----	636	338	206	35	0	0	0
31	21	-----	323	1,970	-----	604	-----	194	-----	0	0	-----
TOTAL	717.9	1,392	13,056	105,984	33,615	42,869	12,919	10,230	3,192	332.4	73.0	52.82
MEAN	23.2	46.4	421	3,419	1,201	1,383	431	330	106	10.7	2.35	1.76
MAX	140	235	2,610	14,100	2,860	4,720	560	411	217	34	25	28
MIN	0	19	26	176	677	604	338	194	35	0	0	0
AC-FT	1,420	2,760	25,900	210,200	66,680	85,030	25,620	20,290	6,330	659	145	105
CAL YR 1969	TOTAL 384,172.75		MEAN 1,053		MAX 18,300		MIN 0		AC-FT 762,000			
WTR YR 1970	TOTAL 224,433.12		MEAN 615		MAX 14,100		MIN 0		AC-FT 445,200			

## PEAK DISCHARGE (BASE, 3,600 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-24	2230	39.13	3,970	1-24	2345	41.46	7,140
1-15	1045	43.42	8,940	1-27	2300	39.84	5,270
1-17	0815	45.07	14,600	2-17	1500	38.57	4,270
1-22	0615	45.56	16,700	3- 2	0400	40.60	6,820

## 11336580 MORRISON CREEK NEAR SACRAMENTO, CALIF.

LOCATION.--Lat 38°29'55", long 121°27'06", in SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.32, T.8 N., R.5 E., Sacramento County, on right bank 750 ft upstream from Florin Road, 1.6 miles upstream from Elder Creek, and 2 miles south of Sacramento city limits.

DRAINAGE AREA.--48.6 sq mi.

PERIOD OF RECORD.--July 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 7.60 ft above mean sea level. Prior to June 29, 1960, at site 650 ft downstream at datum 1.55 ft higher. June 29, 1960, to Sept. 12, 1965, at site 475 ft upstream at datum 2.71 ft higher.

AVERAGE DISCHARGE.--11 years, 18.2 cfs (13,190 acre-ft per year); median of yearly mean discharges, 17 cfs (12,300 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,110 cfs Jan. 16 (gage height, 7.75 ft); minimum daily, 2.5 cfs Nov. 4.

Period of record: Maximum discharge, 1,610 cfs Jan. 26, 1969 (gage height, 8.53 ft); no flow at times in 1960, 1962, 1965.

REMARKS.--Records fair. No regulation or diversion above station. Summer flow is sustained by waste water from domestic and industrial use.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	3.0	5.2	3.9	20	47	7.0	8.9	9.1	7.1	5.1	6.8
2	9.1	2.6	5.3	4.3	17	36	6.1	6.7	9.3	7.6	4.7	6.8
3	8.5	2.6	5.8	3.6	16	19	5.8	6.5	11	5.1	5.9	6.6
4	6.1	2.5	6.6	3.4	15	85	5.0	9.7	13	4.9	6.3	6.6
5	6.1	56	6.0	5.1	14	134	5.0	7.2	11	4.6	6.6	4.9
6	9.1	21	5.0	5.8	13	42	7.9	8.3	7.6	5.9	6.7	4.8
7	9.8	11	4.9	6.0	11	22	7.1	7.3	6.1	6.4	8.3	5.0
8	9.1	6.4	12	26	10	64	6.4	7.8	11	5.9	6.0	6.0
9	8.1	4.9	11	60	11	41	6.9	6.4	15	5.9	5.6	7.7
10	7.8	6.0	17	39	11	28	9.5	5.6	11	6.6	7.0	8.5
11	5.5	5.8	17	21	11	20	6.4	7.3	10	5.1	7.4	7.7
12	4.3	4.2	12	14	20	19	5.7	7.3	7.7	5.1	7.2	5.4
13	4.2	4.1	9.7	41	51	13	10	6.8	4.5	5.8	7.2	4.9
14	7.9	6.0	6.9	473	38	9.6	13	7.0	4.6	6.2	8.2	6.2
15	41	4.2	7.9	247	21	7.4	7.7	8.0	6.7	6.6	5.2	7.4
16	14	3.8	8.1	392	23	8.2	7.6	7.1	8.9	6.4	5.5	6.9
17	12	5.1	8.0	569	59	7.5	7.1	5.9	9.8	6.5	6.1	7.3
18	6.9	4.9	12	161	53	7.3	7.2	7.3	12	5.7	6.4	7.4
19	5.0	4.8	96	75	29	6.8	7.0	8.6	12	5.6	6.3	4.5
20	6.1	6.7	217	98	21	6.6	7.2	9.5	5.9	6.4	6.0	4.0
21	5.4	7.1	122	609	16	7.1	9.6	9.3	6.1	6.6	5.8	6.2
22	5.4	5.3	41	314	12	8.0	8.5	9.3	8.6	6.9	4.2	6.3
23	5.0	4.9	28	117	9.7	5.9	8.7	8.6	9.7	6.7	4.3	6.7
24	5.1	6.6	53	140	10	7.1	9.3	8.8	9.2	6.4	6.5	6.6
25	4.2	6.0	39	80	9.7	8.2	6.6	9.4	8.1	5.0	7.9	6.3
26	3.7	5.8	15	52	8.8	9.1	5.1	9.2	9.3	4.7	7.4	4.9
27	4.9	5.2	7.9	112	8.9	8.1	7.7	9.5	5.8	6.2	7.1	5.5
28	4.9	5.0	5.7	47	13	5.6	8.2	11	5.2	7.0	6.7	6.7
29	4.9	4.8	7.2	33	-----	5.5	8.2	9.0	6.5	6.2	5.5	7.7
30	4.5	5.4	7.1	26	-----	5.7	8.3	8.1	7.6	6.4	4.5	7.4
31	4.3	-----	6.9	23	-----	5.9	-----	7.0	-----	6.5	6.0	-----
TOTAL	242.9	221.7	806.2	3,801.1	552.1	699.6	225.8	248.4	261.3	188.0	193.6	189.7
MEAN	7.84	4.19	26.0	123	19.7	22.6	7.53	8.01	8.71	6.06	6.25	6.32
MAX	41	56	217	609	59	134	13	11	15	7.6	8.3	8.5
MIN	3.7	2.5	4.9	3.4	8.8	5.5	5.0	5.6	4.5	4.6	4.2	4.0
AC-FT	482	440	1,600	7,540	1,100	1,390	448	493	518	373	384	376

CAL YR 1969 TOTAL 15,424.1 MEAN 42.3 MAX 1,110 MIN 2.5 AC-FT 30,590  
WTR YR 1970 TOTAL 7,630.4 MEAN 20.9 MAX 609 MIN 2.5 AC-FT 15,130

## PEAK DISCHARGE (BASE, 300 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-19	1445	4.19	302	1-14	1100	7.09	877
12-20	0715	5.90	655	1-16	2130	7.75	1,110
12-21	1045	4.27	316	1-21	1145	6.72	886



## 11337000 CONTRA COSTA CANAL NEAR OAKLEY, CALIF.

LOCATION.--Lat 37°59'44", long 121°42'03", in NE $\frac{1}{4}$  sec.25, T.2 N., R.2 E., Contra Costa County, at pumping plant No. 1, 0.7 mile east of Oakley and 2.6 miles northwest of Knightsen.

PERIOD OF RECORD.--February 1950 to current year.

GAGE.--Recording flow meters on pumps. Prior to Jan. 1, 1953, water-stage recorder at site 3.2 miles downstream at datum 121.72 ft above mean sea level (levels by Bureau of Reclamation).

AVERAGE DISCHARGE.--20 years, 87.4 cfs (63,320 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 245 cfs June 26, 1968; minimum daily, 4.0 cfs Jan. 20, 1970.

REMARKS.--Water is diverted from Sacramento-San Joaquin Delta by way of Old River, Rock Slough, and a dredged channel. A series of four pumping plants lifts the water 115 ft into the canal. Water is used for municipal agricultural, and industrial purposes. The canal is a part of the Central Valley project.

COOPERATION.--Records of daily discharge furnished by Bureau of Reclamation and Geological Survey.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	120	62	91	96	79	40	84	152	178	195	221	193
2	119	71	85	102	88	13	85	143	189	195	220	185
3	114	109	90	103	90	14	88	129	188	196	216	184
4	114	94	109	91	89	16	63	124	190	179	224	166
5	120	91	105	81	84	18	36	133	195	182	225	165
6	113	91	110	61	93	22	37	160	188	193	222	163
7	110	93	108	61	88	25	65	184	179	209	228	163
8	114	90	106	62	87	34	102	197	177	208	226	171
9	119	93	95	56	85	66	152	193	182	224	222	176
10	117	92	90	52	87	72	145	184	179	236	202	179
11	96	99	105	55	89	70	148	196	176	218	219	180
12	98	88	95	37	87	69	158	183	183	217	220	128
13	106	92	83	14	83	64	134	181	177	218	234	131
14	107	94	85	13	83	81	139	179	187	214	224	163
15	103	92	96	12	85	87	162	175	187	224	219	178
16	95	88	106	10	87	88	152	165	205	216	217	171
17	97	88	108	5.0	88	102	158	165	204	218	223	180
18	100	94	109	6.0	87	100	162	158	207	207	219	184
19	91	90	92	5.0	87	96	160	160	209	200	212	183
20	99	93	90	4.0	88	98	158	158	215	204	217	165
21	102	74	85	5.0	85	101	158	156	213	203	216	143
22	102	61	92	38	86	105	150	162	217	212	212	142
23	97	68	93	64	74	99	153	161	228	213	204	139
24	90	52	86	58	71	102	149	166	223	217	202	142
25	95	46	86	63	75	100	135	165	225	223	196	139
26	93	44	91	59	78	100	132	164	219	225	197	149
27	94	43	83	59	70	100	133	169	204	220	193	140
28	88	40	88	65	72	98	143	169	199	219	211	140
29	104	42	76	66	-----	96	150	173	187	226	203	141
30	100	71	80	58	-----	84	154	174	201	226	204	143
31	119	-----	98	60	-----	80	-----	174	-----	221	201	-----
TOTAL	3,236	2,345	2,916	1,521.0	2,345	2,240	3,845	5,152	5,911	6,558	6,649	4,826
MEAN	104	78.2	94.1	49.1	83.8	72.3	128	166	197	212	214	161
MAX	120	109	110	103	93	105	162	197	228	236	234	193
MIN	88	40	76	4.0	70	13	36	124	176	179	193	128
AC-FT	6,420	4,650	5,780	3,020	4,650	4,440	7,630	10,220	11,720	13,010	13,190	9,570
CAL YR 1969	TOTAL 37,087.0		MEAN 102		MAX 209	MIN 40	ACFT 73,560					
WAT YR 1970	TOTAL 47,544.0		MEAN 130		MAX 236	MIN 4.0	ACFT 94,300					

## SAN JOAQUIN RIVER BASIN

11337500 MARSH CREEK NEAR BYRON, CALIF.

LOCATION.--Lat 37°52'24", long 121°43'34", in Los Meganos Grant, Contra Costa County, on right bank 40 ft downstream from highway bridge on Marsh Creek Road, 1.2 miles upstream from Marsh Creek Dam, and 5.0 miles west of Byron.

DRAINAGE AREA.--42.6 sq mi.

PERIOD OF RECORD.--February 1953 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 177.87 ft above mean sea level.

AVERAGE DISCHARGE.--17 years, 8.65 cfs (6,270 acre-ft per year); median of yearly mean discharges, 1.9 cfs (1,400 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,620 cfs Jan. 21 (gage height, 7.95 ft); no flow for long periods. Period of record: Maximum discharge, 3,880 cfs Jan. 31, 1963 (gage height, 11.62 ft), from rating curve extended above 880 cfs on basis of slope-area measurement at gage height 10.90 ft; maximum gage height, 12.98 ft Dec. 23, 1955; no flow for long periods in each year.

REMARKS.--Records good. No regulation or diversion above station.

REVISIONS (WATER YEARS).--WSP 1635: 1955. WSP 1930: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	0	2.7	38	27	4.9	2.6	0	0	0	0
2	0	0	0	2.2	35	16	4.7	2.8	0	0	0	0
3	0	0	0	1.8	31	13	4.5	2.7	0	0	0	0
4	0	0	0	1.5	28	105	4.9	1.9	0	0	0	0
5	0	0	0	1.3	26	48	4.8	1.6	0	0	0	0
6	0	0	0	1.1	22	28	4.7	1.8	0	0	0	0
7	0	0	0	1.2	20	24	4.5	2.3	0	0	0	0
8	0	0	0	2.1	18	22	4.6	2.9	0	0	0	0
9	0	0	0	6.1	17	21	4.3	2.9	0	0	0	0
10	0	0	0	26	16	24	4.3	2.9	0	0	0	0
11	0	0	0	17	14	18	4.4	2.8	0	0	0	0
12	0	0	0	14	16	17	4.5	2.8	0	0	0	0
13	0	0	0	11	29	16	4.7	2.5	0	0	0	0
14	0	0	0	220	26	14	5.2	2.3	0	0	0	0
15	0	0	0	85	17	14	5.5	1.8	0	0	0	0
16	0	0	0	319	17	13	4.8	1.4	0	0	0	0
17	0	0	0	154	53	12	4.1	1.3	0	0	0	0
18	0	0	0	80	30	11	3.9	.91	0	0	0	0
19	0	0	0	55	24	10	4.2	.82	0	0	0	0
20	0	0	18	55	21	9.9	3.6	1.3	0	0	0	0
21	0	0	40	814	19	9.6	3.7	1.1	0	0	0	0
22	0	0	24	240	17	9.2	3.5	.95	0	0	0	0
23	0	0	7.4	109	16	8.8	3.5	.67	0	0	0	0
24	0	0	42	234	15	8.2	3.3	.41	0	0	0	0
25	0	0	50	102	14	7.3	3.4	.28	0	0	0	0
26	0	0	25	72	12	6.6	3.6	.05	0	0	0	0
27	0	0	13	92	12	5.7	4.0	.01	0	0	0	0
28	0	0	8.1	57	14	5.9	4.7	.01	0	0	0	0
29	0	0	5.8	48	-----	6.0	3.7	0	0	0	0	0
30	0	0	4.0	46	-----	5.9	2.6	0	0	0	0	0
31	0	-----	3.2	43	-----	5.3	-----	0	-----	0	0	-----
TOTAL	0	0	240.5	2,913.0	617	541.4	127.1	45.81	0	0	0	0
MEAN	0	0	7.76	94.0	22.0	17.5	4.24	1.48	0	0	0	0
MAX	0	0	50	814	53	105	5.5	2.9	0	0	0	0
MIN	0	0	0	1.1	12	5.3	2.6	0	0	0	0	0
AC-FT	0	0	477	5,780	1,220	1,070	252	91	0	0	0	0
CAL YR 1969	TOTAL 7,390.74		MEAN 20.2		MAX 534		MIN 0		AC-FT 14,660			
WTR YR 1970	TOTAL 4,484.81		MEAN 12.3		MAX 814		MIN 0		AC-FT 8,900			

## PEAK DISCHARGE (BASE, 140 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-16	0945	6.37	836	1-27	0730	4.37	171
1-21	1200	7.95	1,620	3- 4	1545	4.99	308
1-24	0100	5.66	534				

## 11341360 LAKE SISKIYOU NEAR MT SHASTA, CALIF.

LOCATION.--Lat 41°16'46", long 122°19'43", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.29, T.40 N., R.4 W., Siskiyou County, on left bank abutment of Box Canyon Dam on Sacramento River, 2.5 miles southwest of town of Mt Shasta.

DRAINAGE AREA.--127 sq mi.

PERIOD OF RECORD.--February 1969 to current year.

GAGE.--Nonrecording gage. Datum of gage is at mean sea level (levels by Siskiyou County).

EXTREMES.--Maximum contents observed during year, 28,200 acre-ft Jan. 23 (elevation, 3,185.55 ft).

REMARKS.--Reservoir is formed by earthfill and gravity-type concrete dam. Storage began in February 1969. Usable capacity, 25,500 acre-ft between elevations 3,047.5 ft (invert of tunnel) and 3,181.0 ft (elevation of spillway). Dead storage 600 acre-ft.

COOPERATION.--Record of contents furnished by Siskiyou County.

## MONTHEND ELEVATION AND CONTENTS, AT ABOUT 0800, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	3,121	8,670	-
Oct. 31.....	3,121	8,670	0
Nov. 30.....	3,134.0	11,300	+2,630
Dec. 31.....	3,182.0	26,500	+15,200
CAL YR 1969.....	-	-	-
Jan. 31.....	3,182.0	26,500	0
Feb. 28.....	-	22,010	-4,490
Mar. 31.....	3,175.4	23,800	+2,500
Apr. 30.....	3,181.5	26,300	+2,500
May 31.....	3,180.75	26,000	-300
June 30.....	3,180.4	25,800	-200
July 31.....	3,180.4	25,800	0
Aug. 31.....	3,180.95	26,100	+300
Sept. 30.....	3,180.2	25,800	-300
WTR YR 1970.....	-	-	+17,100

## SACRAMENTO RIVER BASIN

## 11341400 SACRAMENTO RIVER NEAR MT SHASTA, CALIF.

LOCATION.--Lat 41°15'56", long 122°18'32", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.33, T.40 N., R.4 W., Siskiyou County, on left bank 200 ft upstream from Stink Creek, 0.3 mile upstream from Southern Pacific Railroad bridge, and 3.3 miles south of town of Mt Shasta.

DRAINAGE AREA.--135 sq mi (revised).

PERIOD OF RECORD.--October 1959 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,800 ft (from topographic map). Prior to July 1, 1966, water-stage recorder at site 500 ft upstream at datum 4.26 ft higher.

AVERAGE DISCHARGE (unadjusted).--10 years, 241 cfs (174,600 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 4,070 cfs Jan. 23 (gage height, 7.14 ft); minimum daily, 34 cfs Oct. 31 to Nov. 3.

Period of record: Maximum discharge, 12,200 cfs Dec. 22, 1964 (gage height, 12.6 ft, from floodmarks, present site and datum), from slope-area measurement of maximum flow; minimum, 37 cfs Sept. 6, 1962. Maximum discharge since construction of Box Canyon Dam in 1968, 4,070 cfs Jan. 23, 1970 (gage height, 7.14 ft); minimum daily, 26 cfs Dec. 19, 1968.

REMARKS.--Records good. Flow regulated by Box Canyon Dam 2 miles upstream beginning December 1968 (capacity, 26,100 acre-ft) See schematic diagram of Pit and McCloud River basins. Records of chemical analyses and water temperatures for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72	34	52	216	723	76	107	203	259	66	48	40
2	72	34	52	197	804	70	107	243	203	66	46	41
3	91	34	52	184	1,030	66	213	315	268	66	43	40
4	75	37	52	176	1,020	188	451	436	304	80	43	47
5	36	43	52	163	501	438	451	501	296	95	41	45
6	36	37	52	163	57	263	451	510	282	94	41	46
7	36	47	52	168	56	140	255	452	282	94	41	41
8	36	57	52	182	56	145	126	452	272	94	41	42
9	36	43	52	336	88	248	126	480	276	92	41	41
10	63	39	56	385	125	514	255	424	276	73	41	41
11	110	38	121	356	324	512	445	356	224	53	41	45
12	110	38	193	405	524	507	273	324	190	53	40	48
13	110	38	157	610	309	380	106	290	187	53	40	45
14	110	37	193	1,350	660	128	106	282	203	53	40	41
15	110	37	126	903	1,040	128	104	307	195	53	40	41
16	112	38	95	921	1,050	128	126	370	133	52	40	41
17	112	37	86	950	1,030	331	243	500	133	58	40	41
18	110	40	86	696	1,010	452	254	550	131	64	40	89
19	110	50	265	696	577	451	251	540	131	64	40	140
20	110	50	370	824	365	448	217	496	135	64	40	140
21	101	50	867	1,720	200	447	204	432	133	65	40	83
22	68	50	1,230	2,980	60	447	212	432	133	65	41	40
23	68	50	808	3,530	59	245	211	468	129	65	41	39
24	68	52	561	2,840	59	115	207	432	127	64	41	39
25	68	52	516	1,570	60	115	205	398	127	64	41	39
26	68	52	444	1,200	59	210	208	406	127	63	40	39
27	68	52	385	1,230	58	446	207	414	127	64	40	39
28	68	52	318	835	72	445	198	394	127	64	40	39
29	68	52	286	637	-----	444	188	342	126	63	41	39
30	53	52	250	533	-----	443	192	293	93	63	40	40
31	34	-----	232	675	-----	255	-----	296	-----	58	40	-----
TOTAL	2,389	1,322	8,113	27,631	11,976	9,225	6,699	12,338	5,629	2,085	1,272	1,531
MEAN	77.1	44.1	262	891	428	298	223	398	188	67.3	41.0	51.0
MAX	112	57	1,230	3,530	1,050	514	451	550	304	95	48	140
MIN	34	34	52	163	56	66	104	203	93	52	40	39
AC-FT	4,740	2,620	16,090	54,810	23,750	18,300	13,290	24,470	11,170	4,140	2,520	3,040
CAL YR 1969 TOTAL	67,770			MEAN 185		MAX 1,230	MIN 34	AC-FT 134,400				
WTR YR 1970 TOTAL	90,210			MEAN 247		MAX 3,530	MIN 34	AC-FT 178,900				

## 11342000 SACRAMENTO RIVER AT DELTA, CALIF.

LOCATION.--Lat 40°56'23", long 122°24'58", in NW¼ sec.35, T.36 N., R.5 W., Shasta County, Bureau of Reclamation property, on left bank 0.2 mile downstream from Dog Creek, 0.6 mile southeast of Delta, and 2.8 miles south of Lamoine.

DRAINAGE AREA.--425 sq mi.

PERIOD OF RECORD.--October 1944 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is 1,075.00 ft above mean sea level (levels by Bureau of Reclamation).

AVERAGE DISCHARGE.--26 years, 1,159 cfs (839,700 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 30,000 cfs Dec. 21 (gage height, 17.26 ft); minimum daily, 182 cfs Aug. 17-29.

Period of record: Maximum discharge, 38,800 cfs Dec. 22, 1964 (gage height, 20.10 ft), from rating curve extended above 19,000 cfs on basis of slope-area measurement at gage heights, 19.50 ft in gage well, 20.0 ft, from floodmarks; minimum, 141 cfs Sept. 3-5, 1950.

REMARKS.--Records excellent. Some regulation from Box Canyon Dam near the town of Mt Shasta. Some minor diversions for irrigation above station. See schematic diagram of Pit and McCloud River basins. Records of chemical analyses and water temperatures for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	227	202	219	1,080	3,160	2,530	1,050	750	586	292	208	190
2	225	199	219	997	2,860	1,940	1,030	822	585	282	202	190
3	227	199	219	938	2,990	1,680	1,000	956	595	278	198	190
4	260	219	219	883	2,820	1,720	1,310	1,140	615	272	198	192
5	204	542	217	829	2,400	1,980	1,330	1,260	625	292	195	198
6	199	301	217	794	1,620	1,820	1,320	1,220	610	292	195	200
7	199	412	217	778	1,510	1,890	1,220	1,130	595	286	195	198
8	209	750	241	889	1,420	2,150	956	1,110	605	282	192	190
9	212	373	235	2,790	1,390	2,070	949	1,140	678	282	192	190
10	207	297	355	4,080	1,400	2,310	984	1,060	645	278	190	190
11	249	269	1,520	3,250	1,470	2,300	1,270	977	580	245	190	188
12	263	263	4,320	3,550	2,380	2,290	1,170	894	495	236	188	190
13	263	257	3,800	6,360	2,460	2,220	928	828	495	233	188	192
14	275	249	3,300	11,000	2,140	2,090	870	792	495	227	185	192
15	314	243	2,020	6,760	2,640	1,980	840	828	530	227	185	192
16	385	241	1,250	7,940	3,140	1,880	810	935	432	227	185	192
17	330	232	1,060	7,040	3,500	1,870	870	1,120	456	227	182	192
18	291	230	1,250	5,290	3,030	1,980	921	1,220	416	233	182	192
19	282	230	4,320	5,700	2,480	1,890	900	1,180	396	233	182	269
20	275	230	6,190	6,360	1,960	1,810	876	1,110	388	230	182	289
21	272	230	18,200	11,400	1,760	1,750	816	1,020	380	230	182	286
22	243	227	6,000	16,900	1,390	1,710	822	984	380	233	182	195
23	227	227	4,850	22,800	1,310	1,570	816	1,000	366	230	182	190
24	230	227	3,560	17,600	1,240	1,310	798	991	362	230	182	188
25	230	225	3,010	9,680	1,180	1,300	786	914	362	230	182	185
26	227	222	2,480	8,900	1,130	1,270	786	894	362	230	182	188
27	227	222	2,050	11,600	1,110	1,550	786	840	362	227	182	188
28	227	222	1,690	6,890	2,150	1,520	756	792	370	224	182	190
29	225	222	1,480	5,060	-----	1,490	732	738	366	224	182	190
30	225	222	1,300	4,010	-----	1,450	726	690	348	224	185	188
31	207	-----	1,170	3,470	-----	1,350	-----	635	-----	221	190	-----
TOTAL	7,636	8,184	77,178	195,618	58,040	56,670	28,428	29,970	14,480	7,657	5,827	6,004
MEAN	246	273	2,490	6,310	2,073	1,828	948	967	483	247	188	200
MAX	385	750	18,200	22,800	3,500	2,530	1,330	1,260	678	292	208	289
MIN	199	199	217	778	1,110	1,270	726	635	348	221	182	185
AC-FT	15,150	16,230	153,100	388,000	115,100	112,400	56,390	59,450	28,720	15,190	11,560	11,910

CAL YR 1969 TOTAL 572,493 MEAN 1,568 MAX 18,200 MIN 199 ACFT 1,136,000  
WAT YR 1970 TOTAL 495,692 MEAN 1,358 MAX 22,800 MIN 182 ACFT 983,200

## PEAK DISCHARGE (BASE, 8,000 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	0700	17.26	30,000	1-23	1530	16.18	26,600
1-14	0730	11.98	13,000	1-27	0200	12.64	15,000

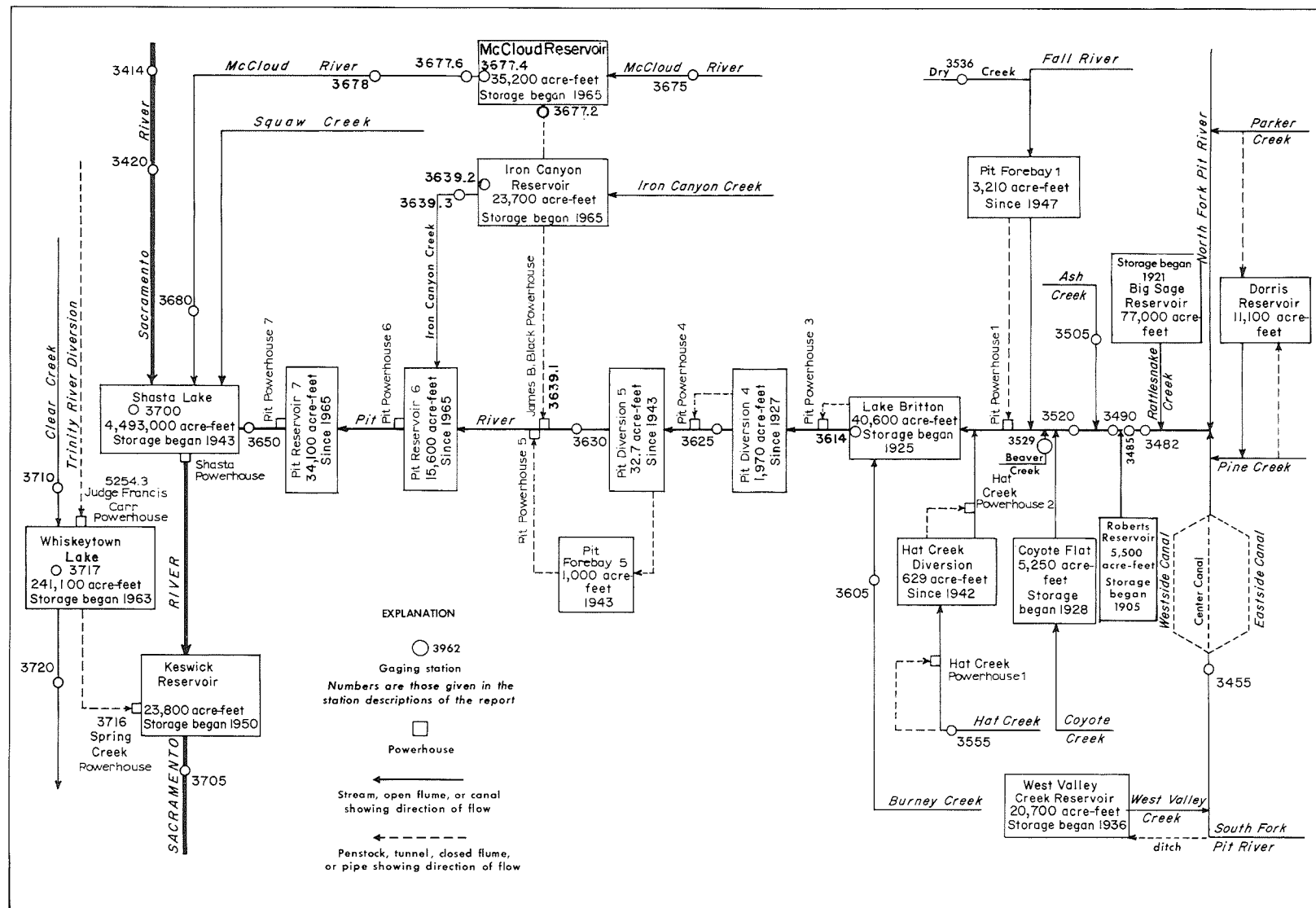


FIGURE 10.--Schematic diagram showing diversions and storage in Pit and McCloud river basins.

## 11345500 SOUTH FORK PIT RIVER NEAR LIKELY, CALIF.

LOCATION.--Lat 41°13'51", long 120°26'10", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.11, T.39 N., R.13 E., Modoc County, on left bank 400 ft downstream from highway bridge, 1.4 miles downstream from West Valley Creek, and 3.5 miles east of Likely.

DRAINAGE AREA.--247 sq mi.

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is 4,508 ft above mean sea level. Prior to Oct. 1, 1931, at site 1,000 ft downstream at different datum.

AVERAGE DISCHARGE.--42 years, 74.3 cfs (53,830 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 344 cfs May 23 (gage height, 3.83 ft); minimum daily, 11 cfs Feb. 27.

Period of record: Maximum discharge, 1,520 cfs Apr. 27, 1932 (gage height, 5.55 ft); minimum, 0.2 cfs Feb. 3, 1941.

REMARKS.--Records excellent except those for the winter period, which are fair. Flow regulated by West Valley Creek Reservoir beginning in May 1937 (usable capacity, 21,700 acre-ft). Diversions for irrigation of about 3,800 acres above station. See schematic diagram of Pit and McCloud River basins. Records of chemical analyses for the water year 1970 are published in Part 2 of this report.

REVISIONS (WATER YEARS).--WRD Calif. 1965: 1932, 1938(M), 1952(M).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	28	28	13	22	13	83	138	234	114	105	169
2	38	27	28	14	22	14	84	130	213	100	133	169
3	38	27	25	15	23	13	82	140	203	90	152	149
4	38	27	21	15	33	12	82	169	205	86	167	133
5	40	37	28	13	39	12	84	203	195	83	165	135
6	43	34	25	16	50	15	101	228	201	74	182	133
7	46	20	22	22	38	16	106	236	205	62	199	133
8	54	20	20	18	30	63	109	253	189	52	199	121
9	66	20	19	20	28	33	117	296	189	45	199	111
10	69	22	20	30	33	47	129	288	228	43	197	100
11	61	22	20	38	23	31	125	269	221	39	195	94
12	52	24	31	37	28	28	116	240	189	38	195	89
13	27	25	33	46	30	36	119	234	217	41	193	89
14	28	25	25	61	25	36	122	230	242	99	191	79
15	32	23	24	46	25	26	130	236	223	146	181	61
16	61	28	19	101	31	25	129	258	193	141	155	57
17	67	22	15	124	20	35	119	293	180	140	155	53
18	44	20	16	62	19	43	108	324	160	140	155	51
19	33	22	19	37	16	54	114	330	150	133	157	52
20	32	21	30	27	17	73	108	330	143	129	152	54
21	36	22	69	28	21	74	100	322	135	125	150	54
22	37	22	57	101	14	76	90	327	129	109	107	48
23	40	22	19	93	12	80	88	338	117	101	74	41
24	33	21	15	201	13	89	88	338	113	100	98	41
25	32	21	17	114	17	94	83	335	106	97	146	40
26	30	21	16	77	12	90	89	332	114	97	180	39
27	29	20	13	70	11	92	101	335	148	100	178	38
28	28	25	14	40	12	90	116	324	155	100	176	31
29	28	32	15	23	-----	89	132	296	155	95	174	25
30	28	28	15	21	-----	86	152	274	137	90	173	31
31	25	-----	14	21	-----	86	-----	253	-----	82	171	-----
TOTAL	1,253	728	732	1,544	664	1,571	3,206	8,299	5,289	2,891	5,054	2,420
MEAN	40.4	24.3	23.6	49.8	23.7	50.7	107	268	176	93.3	163	80.7
MAX	69	37	69	201	50	94	152	338	242	146	199	169
MIN	25	20	13	13	11	12	82	130	106	38	74	25
AC-FT	2,490	1,440	1,450	3,060	1,320	3,120	6,360	16,460	10,490	5,730	10,020	4,800

CAL YR 1969 TOTAL 41,265.9 MEAN 113 MAX 719 MIN 3.5 ACFT 81,850  
WAT YR 1970 TOTAL 33,651 MEAN 92.2 MAX 338 MIN 11 ACFT 66,750

## SACRAMENTO RIVER BASIN

## 11348200 PIT RIVER NEAR ALTURAS, CALIF.

LOCATION.--Lat 41°29'00", long 120°37'46", in NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.18, T.42 N., R.12 E., Modoc County, on left bank 500 ft downstream from Noble Creek and 4.7 miles west of Alturas.

DRAINAGE AREA.--1,080 sq mi, excluding Goose Lake basin.

PERIOD OF RECORD.--September 1965 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,330 ft (from topographic map).

AVERAGE DISCHARGE.--5 years, 187 cfs (135,500 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 7,040 cfs Jan. 24 (gage height, 14.19 ft); minimum daily, 47 cfs Jan. 7.

Period of record: Maximum discharge, 7,040 cfs Jan. 24, 1970 (gage height, 14.19 ft), from rating curve extended above 2,300 cfs on basis of contracted-opening and road-overflow measurement of peak flow; minimum daily, 4.1 cfs Oct. 20, 21, 1966.

REMARKS.--Records good. Flow regulated by many small reservoirs (total capacity, 144,000 acre-ft). Diversions for irrigation of 23,000 acres above station. See schematic diagram of Pit and McCloud River basins.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	62	53	82	526	163	140	462	308	285	57	83
2	50	64	53	79	440	203	130	466	219	236	56	90
3	62	62	53	76	432	230	126	388	219	163	56	79
4	52	64	56	53	428	217	111	313	261	140	60	86
5	49	76	60	58	466	214	92	311	138	130	74	90
6	50	87	81	49	466	241	136	322	200	128	72	90
7	53	101	65	47	434	268	116	360	222	126	83	96
8	58	97	59	50	390	683	136	404	214	107	88	109
9	62	89	60	59	352	916	150	512	227	94	90	126
10	85	83	59	146	328	894	135	570	268	86	96	116
11	81	89	64	260	315	935	160	664	336	74	100	109
12	87	81	85	240	306	696	160	674	352	67	107	116
13	85	79	143	510	328	560	163	652	350	63	136	109
14	85	72	119	887	318	510	166	590	388	57	143	103
15	103	72	95	866	290	524	192	490	454	51	150	105
16	138	76	83	810	261	430	222	430	440	63	158	107
17	133	74	78	1,790	266	372	187	394	382	88	156	98
18	148	76	72	1,850	302	336	163	428	330	74	153	88
19	148	74	89	1,470	287	318	163	496	311	74	163	90
20	128	72	210	1,140	233	311	176	526	256	83	160	88
21	110	70	522	863	219	308	182	504	217	86	107	86
22	117	69	598	1,080	217	297	173	518	195	92	90	83
23	101	67	336	1,730	192	283	160	448	156	92	92	77
24	89	69	304	4,410	176	238	160	434	109	88	94	74
25	83	65	289	2,840	166	208	156	434	133	88	88	70
26	79	62	285	2,240	163	184	160	428	136	74	74	68
27	74	59	229	1,820	150	168	244	448	146	62	70	65
28	70	54	148	1,580	143	156	290	464	346	60	77	62
29	64	53	103	1,270	-----	156	302	450	386	58	83	60
30	62	54	91	993	-----	156	346	368	356	63	86	57
31	62	-----	85	722	-----	153	-----	315	-----	62	92	-----
TOTAL	2,617	2,172	4,627	30,070	8,594	11,328	5,197	14,263	8,055	3,014	3,111	2,680
MEAN	84.4	72.4	149	970	307	365	173	460	269	97.2	100	89.3
MAX	148	101	598	4,410	526	935	346	674	454	285	163	126
MIN	49	53	53	47	143	153	92	311	109	51	56	57
AC-FT	5,190	4,310	9,180	59,640	17,050	22,470	10,310	28,290	15,980	5,980	6,170	5,320
CAL YR 1969	TOTAL	111,728	MEAN	306	MAX	2,250	MIN	49	ACFT	221,600		
WAT YR 1970	TOTAL	95,728	MEAN	262	MAX	4,410	MIN	47	ACFT	189,900		



## 11348500 PIT RIVER NEAR CANBY, CALIF.

LOCATION.--Lat 41°24'22", long 120°55'36", in NW¼SW¼ sec.10, T.41 N., R.9 E., Modoc County, on right bank at lower end of Warm Spring Valley, 4 miles southwest of Canby.

DRAINAGE AREA.--1,431 sq mi, excluding Goose Lake basin.

PERIOD OF RECORD.--January 1904 to December 1905, May 1929 to current year (1929-31 incomplete).

GAGE.--Water-stage recorder. Datum of gage is 4,266 ft above mean sea level. January 1904, to December 1905, nonrecording gage and May 6, 1929, to Sept. 30, 1931, water-stage recorder, at site 100 ft upstream at different datum.

AVERAGE DISCHARGE.--40 years (1905, 1931-70), 237 cfs (171,700 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 6,690 cfs Jan. 24 (gage height, 10.93 ft); minimum daily, 1.8 cfs Aug. 3.

Period of record: Maximum discharge observed, 13,000 cfs Mar. 8, 1904 (gage height, 15.0 ft, site and datum then in use); minimum, 0.1 cfs Apr. 29, Aug. 5, Sept. 18, 1934, Aug. 18-21, 1935.

REMARKS.--Records good. Flow regulated by many small reservoirs (total capacity now, about 144,000 acre-ft). Diversions for irrigation of about 39,000 acres above station. See schematic diagram of Pit and McCloud River basins. Records of chemical analyses, water temperatures, and suspended-sediment loads for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82	77	80	121	1,130	347	229	430	235	281	25	71
2	73	76	79	108	859	406	215	516	305	300	4.9	79
3	59	76	94	86	734	459	197	507	238	220	1.8	76
4	64	83	86	70	715	491	190	412	197	179	11	73
5	71	105	83	62	701	445	169	340	205	99	25	69
6	63	115	105	61	718	461	155	342	197	120	12	74
7	59	107	106	65	687	547	194	360	140	134	4.1	86
8	57	116	92	67	627	964	180	407	168	102	4.9	104
9	59	112	78	84	558	1,340	194	487	212	70	4.5	109
10	85	104	79	145	504	1,530	211	591	220	62	23	110
11	82	98	77	247	465	1,420	190	660	281	55	32	111
12	103	102	113	361	461	1,400	219	739	293	35	20	135
13	137	95	164	527	466	1,090	217	776	323	33	27	111
14	144	93	182	1,080	471	880	232	745	355	41	35	104
15	130	87	142	1,510	434	803	238	658	375	41	42	97
16	131	86	116	1,620	470	765	268	542	405	44	41	87
17	162	88	102	2,330	656	641	273	477	461	33	63	83
18	158	86	93	3,060	574	553	229	443	385	37	50	80
19	177	84	111	2,680	516	499	218	495	346	39	42	72
20	175	80	218	2,050	441	463	218	557	310	49	91	72
21	146	78	656	1,680	390	442	225	579	281	100	253	87
22	130	78	922	1,730	381	421	224	561	235	157	195	86
23	127	77	916	3,140	358	405	216	519	173	198	110	99
24	121	79	506	6,080	322	380	212	433	144	105	80	132
25	108	98	501	5,810	299	333	212	507	273	83	86	113
26	100	81	487	4,520	285	303	221	426	346	75	90	91
27	94	78	415	3,840	269	271	257	410	310	74	66	84
28	98	80	289	3,100	270	254	324	272	293	66	59	79
29	88	77	164	2,500	-----	240	351	187	246	55	62	55
30	81	77	145	1,970	-----	237	363	231	238	42	61	23
31	87	-----	132	1,500	-----	236	-----	246	-----	28	61	-----
TOTAL	3,250	2,673	7,333	52,204	14,761	19,026	6,841	14,855	8,190	2,957	1,682.2	2,652
MEAN	105	89.1	237	1,684	527	614	228	479	273	95.4	54.3	88.4
MAX	177	116	922	6,080	1,130	1,530	363	776	461	300	253	135
MIN	57	76	77	61	269	236	155	187	140	28	1.8	23
AC-FT	6,450	5,300	14,550	103,500	29,280	37,740	13,570	29,460	16,240	5,870	3,340	5,260
CAL YR 1969	TOTAL 150,966.1			MEAN 414		MAX 3,390		MIN 2.8		AC-FT 299,400		
WTR YR 1970	TOTAL 136,424.2			MEAN 374		MAX 6,080		MIN 1.8		AC-FT 270,600		

NOTE.--Stage-discharge relation affected by backwater May 29 to July 3.



## 763

LOCATION.--Lat 41°11'54", long 120°56'32", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.21, T.39 N., R.9 E., Modoc County, on left bank 300 ft upstream from highway bridge at Adin and 0.4 mile upstream from Butte Creek.

PERIOD OF RECORD.--March 1904 to December 1905, October 1928 to November 1932, October 1957 to current year.  
Records of daily discharge for Oct. 19-31, 1928, are in error and should not be used.

AVERAGE DISCHARGE.--18 years (1904-5, 1928-32, 1957-70), 71.8 cfs (50,020 acre-ft per year); median of yearly mean discharges, 53 cfs (38,400 acre-ft per year).

REMARKS.--Small diversions above station for irrigation. Flow regulated by many small reservoirs (total capacity, 4,732 acre-ft). See schematic diagram of Pit and McCloud River basins.

REVISIONS (WATER YEARS).--WRD Calif. 1966: 1958(M), 1960(M).

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	28	28	42	359	210	93	38	62	34	22	9.6
2	21	28	27	37	276	153	91	39	56	21	21	10
3	23	28	28	33	303	139	88	40	50	21	21	10
4	24	28	27	39	324	139	85	43	46	21	21	13
5	24	38	26	34	295	131	83	41	38	22	20	16
6	23	37	27	35	236	135	81	46	38	20	19	16
7	24	32	28	45	200	266	79	43	39	19	28	14
8	27	31	28	48	179	662	78	41	41	19	35	13
9	26	30	29	60	164	408	76	44	41	18	32	12
10	26	30	28	82	146	345	74	41	36	18	30	14
11	25	30	30	80	138	283	73	42	38	18	30	15
12	24	31	97	109	155	242	72	39	39	18	30	15
13	24	30	64	327	157	218	70	38	40	17	30	16
14	27	29	36	998	148	206	69	40	49	18	27	17
15	30	29	33	509	133	182	69	37	50	17	23	18
16	48	29	31	1,440	141	168	66	45	46	18	28	18
17	52	27	30	1,600	265	161	60	63	36	19	29	18
18	41	27	30	893	185	155	58	76	24	21	28	19
19	36	28	230	621	144	150	61	74	19	18	28	23
20	28	28	235	486	134	146	56	97	18	26	25	22
21	26	28	785	673	129	142	54	102	13	29	23	21
22	28	28	227	972	126	138	48	108	15	25	24	22
23	28	27	120	1,990	113	135	46	101	18	20	36	21
24	28	27	131	2,160	106	132	38	100	18	24	37	19
25	34	27	267	1,280	97	126	37	99	18	23	31	19
26	30	27	143	944	94	117	36	75	23	23	20	20
27	29	27	93	1,550	90	112	35	69	32	23	11	21
28	46	27	66	878	104	108	36	68	50	23	14	21
29	30	28	55	566	-----	104	40	66	44	23	17	21
30	30	29	49	492	-----	100	39	63	33	22	11	22
31	29	-----	44	386	-----	96	-----	63	-----	21	9.5	-----
TOTAL	901	873	3,072	19,409	4,941	5,809	1,891	1,881	1,070	659	760.5	515.6
MEAN	29.1	29.1	99.1	626	176	187	63.0	60.7	35.7	21.3	24.5	17.2
MAX	52	38	785	2,160	359	662	93	108	62	34	37	23
MIN	21	27	26	33	90	96	35	37	13	17	9.5	9.6
AC-FT	1,790	1,730	6,090	38,500	9,800	11,520	3,750	3,730	2,120	1,310	1,510	1,020
CAL YR 1969	TOTAL	48,505.4	MEAN	133	MAX	1,630	MIN	5.6	AC-FT	96,210		
WTR YR 1970	TOTAL	41,782.1	MEAN	114	MAX	2,160	MIN	9.5	AC-FT	82,870		

## SACRAMENTO RIVER BASIN

11352000 PIT RIVER NEAR BIEBER, CALIF.

LOCATION.--Lat 41°00'55", long 121°09'13", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.27, T.37 N., R.7 E., Modoc County, on right bank 2.2 miles upstream from Spring Gulch and 7.4 miles south of Bieber.

DRAINAGE AREA.--2,475 sq mi, excluding Goose Lake basin.

PERIOD OF RECORD.--January 1904 to September 1908, December 1913 to August 1914, September 1921 to September 1926, November 1928 to September 1931, October 1951 to current year. Yearly figures only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is 4,080.4 ft above mean sea level. Prior to November 1928, nonrecording gage at same site and datum.

AVERAGE DISCHARGE.--32 years (1903-8, 1921-26, 1928-31, 1951-70), 510 cfs (369,500 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 23,000 cfs Jan. 24 (gage height, 13.92 ft), from rating curve extended above 11,000 cfs; minimum daily, 0.63 cfs Aug. 16, 17, 22.  
Period of record: Maximum discharge, 33,800 cfs Mar. 19, 1907 (gage height, 16.7 ft), from rating curve extended above 11,000 cfs; no flow at times in some years.

REMARKS.--Records good. Flow regulated by many small reservoirs (total capacity now, 204,000 acre-ft). Diversions for irrigation of 33,000 acres between stations near Canby and near Bieber. See schematic diagram of Pit and McCloud River basins.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74	111	102	277	3,360	816	434	414	222	418	4.8	2.7
2	113	130	107	258	2,770	1,190	422	458	450	386	4.0	2.7
3	98	126	107	200	2,260	1,250	406	458	364	336	3.1	2.5
4	117	111	107	189	1,910	1,190	386	466	302	291	2.5	2.3
5	93	134	120	158	1,800	1,120	364	570	234	280	2.2	2.0
6	71	154	116	149	1,680	1,070	344	645	179	288	1.8	1.5
7	61	200	116	138	1,550	1,100	316	354	147	151	1.6	2.2
8	69	171	132	140	1,460	1,840	330	368	107	132	1.5	2.0
9	62	161	151	145	1,320	2,880	330	422	114	120	1.3	1.5
10	66	163	163	205	1,190	2,980	326	466	112	63	1.0	3.1
11	71	151	163	364	1,070	2,740	333	550	105	103	.92	1.8
12	62	143	212	486	1,020	2,590	336	646	96	107	.92	2.2
13	57	138	478	985	1,070	2,390	326	712	168	120	.84	2.2
14	42	138	418	2,190	1,140	2,110	336	781	270	158	.77	2.0
15	77	136	358	3,610	1,080	1,830	358	809	270	81	.70	2.7
16	166	138	330	4,610	1,000	1,620	372	748	237	69	.63	1.4
17	228	132	246	5,820	1,440	1,450	382	742	461	45	.63	8.8
18	202	140	210	8,440	1,880	1,260	368	630	580	24	.77	10
19	179	128	246	7,070	1,640	1,080	264	530	418	16	.70	17
20	156	132	674	5,620	1,310	970	267	495	430	14	.77	16
21	228	158	1,140	4,620	1,110	900	252	525	375	14	.70	64
22	277	128	2,170	4,230	994	844	274	555	361	12	.63	132
23	202	124	2,420	5,620	942	788	288	545	364	9.2	.77	151
24	166	122	1,780	14,200	914	736	288	478	298	7.2	1.3	116
25	166	120	1,390	17,700	844	694	260	418	243	6.8	1.5	171
26	151	128	1,310	13,400	774	630	154	172	197	6.4	1.6	116
27	147	136	1,230	11,700	712	570	267	9.2	168	7.2	4.2	93
28	128	120	942	10,200	670	525	350	26	154	7.2	4.8	60
29	120	111	610	7,520	-----	495	361	100	298	6.4	4.5	34
30	124	96	446	5,900	-----	466	386	30	333	5.8	4.2	24
31	116	-----	350	4,390	-----	450	-----	51	-----	5.2	3.1	-----
TOTAL	3,889	4,080	18,344	140,534	38,910	40,574	9,880	14,173.2	8,057	3,289.4	58.75	1,073.7
MEAN	125	136	592	4,533	1,390	1,309	329	457	269	106	1.90	35.8
MAX	277	200	2,420	17,700	3,360	2,980	434	809	580	418	4.8	171
MIN	42	96	102	138	670	450	154	9.2	96	5.2	.63	1.5
AC-FT	7,710	8,090	36,390	278,700	77,180	80,480	19,600	28,110	15,980	6,520	117	2,130
CAL YR 1969	TOTAL	284,735.97	MEAN	780	MAX	5,900	MIN	.36	AC-FT	564,800		
WAT YR 1970	TOTAL	282,863.05	MEAN	775	MAX	17,700	MIN	.63	AC-FT	561,100		

## 11352900 BEAVER CREEK NEAR HAT CREEK, CALIF.

LOCATION.--Lat 40°49'47", long 121°14'54", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.12, T.34 N., R.6 E., Lassen County, Lassen National Forest, on right bank at culvert on Forest Service road 35N10, 13.6 miles east of town of Hat Creek, and 15 miles south of Pittville.

DRAINAGE AREA.--23.2 sq mi.

PERIOD OF RECORD.--November 1969 to September 1970.

GAGE --Water-stage recorder and precipitation gage. Datum of gage is 4,980 ft above mean sea level (from topographic map).

EXTREMES.--Maximum discharge during period, 349 cfs Jan. 23 (gage height, 5.89 ft), from rating curve extended above 9.0 cfs on basis of theoretical computation of culvert flow; minimum daily, 0.40 cfs many days during July and August.

REMARKS.--Records good below 20 cfs, fair above. No known diversions above station. Flow of stream is sustained by springs.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		--	.50	.45	13	11	2.4	1.6	.43	.45	.41	.47
2		--	.45	.45	12	10	2.4	1.1	.44	.45	.40	.47
3		--	.45	.45	14	8.7	2.2	.81	.51	.44	.40	.47
4		--	.45	.45	14	7.9	2.1	.70	.45	.45	.40	.49
5		--	.45	.45	14	8.8	1.9	.61	.45	.44	.40	.49
6		--	.45	.45	13	16	1.8	.61	.44	.44	.40	.48
7		--	.45	.45	12	20	1.7	.60	.44	.43	.41	.47
8		--	.45	.45	12	29	1.6	.86	.48	.40	.41	.47
9		--	.45	1.7	11	16	1.6	1.0	.49	.42	.40	.47
10		--	.45	3.8	9.0	14	1.5	1.0	.66	.43	.40	.47
11		--	.49	6.0	8.3	11	1.3	1.0	.48	.43	.40	.47
12	.49	12		8.4	17	10	1.3	1.6	.51	.42	.40	.42
13	.49	2.9	16		15	10	1.8	1.9	.55	.41	.40	.42
14	.49	.84	30		11	10	2.9	.98	.60	.40	.41	.42
15	.52	.71	17		9.8	8.3	3.2	.62	.49	.41	.40	.42
16	.55	.56	70		7.3	8.0	3.3	.53	.50	.40	.40	.42
17	.51	.49	25		9.9	6.8	2.6	.50	.48	.41	.41	.42
18	.53	.53	18		8.7	5.9	1.9	.48	.46	.40	.42	.42
19	.55	13	17		7.5	5.7	2.1	.48	.45	.40	.42	.42
20	.53	7.9	13		7.8	5.6	2.0	.48	.44	.41	.43	.42
21	.52	28	31		10	5.0	1.9	.47	.48	.40	.43	.42
22	.52	5.0	34		11	4.7	1.5	.47	.46	.40	.44	.42
23	.52	1.9	100		9.5	4.3	1.3	.47	.44	.40	.45	.42
24	.51	2.9	85		8.8	4.1	1.3	.46	.43	.40	.45	.42
25	.50	5.2	31		8.6	3.8	1.2	.46	.45	.40	.45	.42
26	.50	3.5	34		9.5	3.7	1.9	.46	.46	.40	.45	.42
27	.50	2.2	55		8.2	3.2	3.1	.47	.68	.40	.45	.42
28	.50	1.3	23		7.8	3.2	2.9	.46	2.1	.40	.46	.42
29	.50	1.0	19		-----	3.0	3.1	.46	1.2	.40	.47	.42
30	.50	.70	18		-----	2.9	2.5	.46	.50	.41	.46	.42
31	-----	.50	15		-----	2.6	-----	.44	-----	.41	.47	-----
TOTAL		--	96.17	674.50	299.7	263.2	62.3	22.54	16.95	12.86	13.10	13.20
MEAN		--	3.10	21.8	10.7	8.49	2.08	.73	.57	.41	.42	.44
MAX		--	28	100	17	29	3.3	1.9	2.1	.45	.47	.49
MIN		--	.45	.45	7.3	2.6	1.2	.44	.43	.40	.40	.42
AC-FT		--	191	1,340	594	522	124	45	34	26	26	26
(a)		--	5.25	6.45	--	--	--	.66	3.83	.09	0	0

a Precipitation, in inches (some precipitation falling as snow may not be included).

## SACRAMENTO RIVER BASIN

## 11353600 DRY CREEK NEAR DANA, CALIF.

LOCATION.--Lat 41°08'21", long 121°38'24", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.8, T.38 N., R.3 E., Shasta County, at culvert on State Highway 89, 4.5 miles northwest of Dana.

DRAINAGE AREA.--6.46 sq mi.

PERIOD OF RECORD.--July 1962 to September 1966 (annual maximum), October 1966 to current year.

GAGE.--Water-stage recorder with recording rain-gage attachment, and crest-stage gage. Altitude of gage is 4,040 ft (from topographic map). Prior to Oct. 1, 1966, crest-stage gages at same site and datum.

EXTREMES.--Current year: Maximum discharge, 557 cfs Jan. 23 (gage height, 9.37 ft); no flow for several months. Period of record: Maximum discharge, 702 cfs Dec. 22, 1964 (gage height, 10.69 ft), from rating curve extended above 120 cfs on basis of computation of flow through culvert at gage heights 5.02 and 10.69 ft; no flow for several months in each year.

REMARKS.--Records fair. No regulation or diversion above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			0	2.4	30	17	5.4	1.9	.66	.38	.04	
2			0	2.2	28	15	5.2	1.9	.58	.38	.02	
3			0	2.1	25	14	5.0	1.8	.58	.32	0	
4			0	2.1	22	13	4.7	1.6	.50	.32	0	
5			0	2.1	20	12	4.4	1.6	.50	.26	0	
6			0	2.0	18	11	4.0	1.6	.44	.26	0	
7			0	1.9	17	16	3.9	1.6	.38	.26	0	
8			0	1.5	16	15	3.6	1.8	.38	.21	0	
9			0	2.2	15	14	3.5	1.9	.38	.21	0	
10			0	4.4	14	13	3.3	1.8	.38	.18	0	
11			0	4.2	13	13	3.2	1.8	.38	.18	0	
12			1.3	6.2	16	12	3.2	1.6	.32	.18	0	
13			4.4	16	16	11	3.2	1.5	.38	.16	0	
14			3.1	48	15	14	3.1	1.3	.38	.16	0	
15			2.3	40	14	13	3.0	1.2	.38	.16	0	
16			1.6	53	15	12	3.0	1.1	.38	.15	0	
17			1.4	114	15	12	2.8	1.1	.38	.14	0	
18			1.3	73	13	11	2.7	1.1	.32	.14	0	
19			7.6	54	13	11	2.8	1.0	.32	.13	0	
20			14	51	12	10	2.7	1.1	.32	.12	0	
21			23	88	11	9.6	2.6	1.0	.32	.12	0	
22			11	180	11	9.2	2.6	.90	.26	.11	0	
23			7.7	314	11	8.7	2.4	.82	.26	.10	0	
24			6.2	283	10	8.2	2.4	.82	.26	.10	0	
25			6.6	139	9.5	7.9	2.4	.74	.26	.09	0	
26			5.4	117	9.2	7.4	2.6	.66	.32	.08	0	
27			4.4	129	9.5	7.0	2.4	.66	.38	.08	0	
28			3.7	77	19	6.6	2.3	.66	.44	.07	0	
29			3.3	57	-----	6.4	2.1	.66	.44	.06	0	
30			3.0	43	-----	6.0	2.0	.66	.38	.06	0	
31		-----	2.7	35	-----	5.8	-----	.66	-----	.05	0	-----
TOTAL	0	0	114.0	1,944.3	437.2	341.8	96.5	38.54	11.66	5.22	.06	0
MEAN	0	0	3.68	62.7	15.6	11.0	3.22	1.24	.39	.17	.001	0
MAX	0	0	23	314	30	17	5.4	1.9	.66	.38	.04	0
MIN	0	0	0	1.5	9.2	5.8	2.0	.66	.26	.05	0	0
AC-FT	0	0	226	3,860	867	678	191	76	23	10	.1	0
(a)	.34	1.56	11.70	19.94	3.57	1.90	1.17	.69	2.11	0	0	.10
CAL YR 1969	TOTAL	2,646.83	MEAN	7.25	MAX	53	MIN	0	ACFT	5,250		
WAT YR 1970	TOTAL	2,989.28	MEAN	8.19	MAX	314	MIN	0	ACFT	5,930		

a Precipitation, in inches (some precipitation falling as snow may not be included).

## 11355500 HAT CREEK NEAR HAT CREEK, CALIF.

LOCATION.--Lat 40°41'12", long 121°25'25", in SE $\frac{1}{4}$  sec.28, T.33 N., R.5 E., Shasta County, on right bank 0.8 mile northeast of Old Station Post Office, and 8 miles southeast of Hat Creek Post Office.

DRAINAGE AREA.--162 sq mi; hydrologic drainage boundary uncertain owing to ground-water exchange.

PERIOD OF RECORD.--July 1926 to September 1929, April 1930 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,300 ft (from topographic map). July 1926 to April 1928 at site 0.5 mile upstream at different datum. May 1928 to July 1965 at site 80 ft upstream at datum 2.76 ft higher.

AVERAGE DISCHARGE.--43 years, 135 cfs (97,810 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 960 cfs Jan. 23 (gage height, 6.00 ft); minimum daily, 136 cfs Jan. 5, 6.

Period of record: Maximum discharge, 3,320 cfs Dec. 11, 1937 (gage height, 7.75 ft in gage well, affected by drawdown, site and datum then in use), from rating curve extended above 610 cfs on basis of slope-area measurement of maximum flow; minimum, 67 cfs Sept. 7, 1934.

REMARKS.--Records excellent. Diversions for irrigations of 260 acres above station. See schematic diagram of Pit and McCloud River basins.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	141	154	150	143	208	190	166	153	232	202	171	152
2	144	153	150	141	204	184	166	157	240	200	170	152
3	147	153	150	138	204	181	166	163	251	196	168	150
4	147	154	150	137	203	184	166	172	256	194	167	152
5	147	183	149	136	200	183	167	181	256	193	166	154
6	144	162	153	136	200	180	170	184	251	188	166	153
7	144	158	152	140	198	184	171	184	247	186	166	150
8	147	157	153	143	197	188	170	187	235	184	164	157
9	146	157	150	148	197	184	171	191	223	181	159	158
10	144	155	152	150	196	181	170	190	227	184	154	153
11	146	155	152	149	194	179	171	183	215	186	154	152
12	148	154	170	149	197	177	171	179	209	184	153	153
13	149	154	167	153	197	176	172	179	209	183	154	153
14	149	154	162	170	193	181	171	183	219	181	153	153
15	157	154	158	160	193	180	168	187	212	179	153	153
16	171	154	157	215	193	179	164	200	209	177	153	152
17	159	150	155	198	193	177	158	219	208	177	153	152
18	155	152	155	183	188	174	158	228	206	177	154	152
19	153	153	174	180	187	172	159	227	209	172	162	153
20	154	152	197	181	187	171	157	219	215	170	163	153
21	155	152	380	293	186	171	157	211	227	170	162	155
22	155	152	249	483	184	170	154	220	225	168	160	159
23	155	152	197	705	184	171	153	227	222	167	159	160
24	154	152	177	595	184	171	153	227	220	166	159	159
25	154	152	171	353	184	170	154	230	214	164	159	158
26	154	152	160	300	184	170	158	240	215	163	159	157
27	154	153	154	281	183	168	158	246	230	162	159	155
28	154	150	146	239	186	168	155	237	244	162	159	157
29	154	150	144	225	-----	168	155	234	232	162	155	159
30	154	152	144	219	-----	168	153	228	212	168	152	160
31	154	-----	143	212	-----	166	-----	225	-----	171	150	-----
TOTAL	4,689	4,635	5,221	7,055	5,404	5,466	4,882	6,291	6,770	5,517	4,936	4,636
MEAN	151	155	168	228	193	176	163	203	226	178	159	155
MAX	171	183	380	705	208	190	172	246	256	202	171	160
MIN	141	150	143	136	183	166	153	153	206	162	150	150
AC-FT	9,300	9,190	10,360	13,990	10,720	10,840	9,680	12,480	13,430	10,940	9,790	9,200
CAL YR 1969	TOTAL 61,805	MEAN 169	MAX 380	MIN 128	AC-FT 122,600							
WAT YR 1970	TOTAL 65,502	MEAN 179	MAX 705	MIN 136	AC-FT 129,900							

## PEAK DISCHARGE (BASE, 180 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
10-16	0530	3.12	183	5-10	0100	3.22	197
11- 5	0800	3.39	223	5-19	0030	3.49	240
12-12	1500	3.12	183	5-27	0300	3.60	260
12-21	1400	4.79	541	6- 4	0100	3.66	271
1-16	1530	3.55	247	6-28	1600	3.62	264
1-23	2330	6.00	960				

## SACRAMENTO RIVER BASIN

## 11360500 BURNEY CREEK NEAR BURNEY, CALIF.

LOCATION.--Lat 40°52'16", long 121°40'57", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.19, T.35 N., R.3 E., Shasta County, on right bank 300 ft upstream from road bridge, 0.8 mile southwest of Burney, and 4.5 miles upstream from Goose Creek.

DRAINAGE AREA.--88.8 sq mi.

PERIOD OF RECORD.--August 1911 to August 1913 (published as "at Burney"), March 1921 to September 1922, April 1958 to September 1964, October 1965 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Altitude of gage is 3,180 ft (from topographic map). August 1911 to August 1913 and March 1921 to September 1922, nonrecording gage or water-stage recorder at different site and datum.

AVERAGE DISCHARGE.--14 years (1911-13, 1921-22, 1958-64, 1965-70), 63.9 cfs (46,300 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 4,910 cfs Jan. 23 (gage height, 15.89 ft), from rating curve extended above 2,500 cfs on basis of contracted-opening measurement of maximum flow; minimum daily, 3.7 cfs June 30 to July 13.

Period of record: Maximum discharge, 4,910 cfs Jan. 23, 1970 (gage height, 15.89 ft); minimum, 3.4 cfs Aug. 4, 1961.

REMARKS.--Small diversions upstream for irrigation. Slight regulation probably caused by logging operations.

COOPERATION.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	20	21	63	445	263	84	67	13	3.7	8.4	14
2	15	19	20	51	385	216	82	58	12	3.7	11	15
3	15	19	20	44	314	190	79	45	11	3.7	16	14
4	14	19	20	39	280	187	78	45	8.0	3.7	15	13
5	14	76	20	36	266	178	75	44	7.5	3.7	16	11
6	14	50	20	32	246	174	74	42	8.0	3.7	17	11
7	13	46	20	28	230	202	75	44	9.7	3.7	29	12
8	14	38	23	32	215	342	70	43	11	3.7	28	12
9	14	33	24	72	200	253	65	57	13	3.7	27	11
10	16	30	27	204	186	215	61	52	23	3.7	25	9.1
11	15	29	63	149	172	185	61	47	14	3.7	24	8.6
12	15	28	477	175	219	173	58	48	14	3.7	23	10
13	15	28	326	467	230	171	58	48	35	3.7	23	10
14	17	24	136	1,070	203	182	57	44	77	3.8	21	10
15	18	23	102	646	186	171	54	42	54	3.8	22	10
16	30	23	83	1,160	273	159	56	39	39	6.5	21	10
17	41	22	80	1,170	336	139	53	36	29	11	20	9.3
18	41	22	76	920	228	128	40	35	25	12	20	10
19	38	22	524	721	197	123	65	34	23	15	19	19
20	36	22	657	681	183	117	61	33	21	18	18	17
21	34	21	1,090	1,120	180	114	55	30	28	15	17	14
22	32	21	542	1,410	174	110	50	26	28	13	17	8.1
23	30	21	300	3,370	169	106	48	23	25	16	17	8.1
24	28	22	251	2,750	168	105	46	21	20	15	17	9.6
25	27	22	333	1,400	180	102	44	20	29	14	18	12
26	25	21	217	1,130	180	100	57	19	32	14	17	13
27	24	21	151	1,600	150	94	69	16	35	13	15	16
28	23	21	116	914	171	92	63	15	45	12	15	18
29	22	20	99	749	-----	91	56	15	7.0	12	15	15
30	21	20	83	623	-----	88	64	15	3.7	11	14	11
31	20	-----	69	526	-----	86	-----	14	-----	10	14	-----
TOTAL	696	803	5,990	23,352	6,366	4,856	1,858	1,117	699.9	263.2	579.4	460.8
MEAN	22.5	26.8	193	753	227	157	61.9	36.0	23.3	8.49	18.7	12.0
MAX	41	76	1,090	3,370	445	342	84	67	77	18	29	19
MIN	13	19	20	28	150	86	40	14	3.7	3.7	8.4	8.1
AC-FT	1,380	1,590	11,880	46,320	12,630	9,630	3,690	2,220	1,390	522	1,150	716
CAL YR 1969	TOTAL 45,956.0		MEAN 126	MAX 1,290	MIN 13	AC-FT 91,150						
WTR YR 1970	TOTAL 46,941.3		MEAN 129	MAX 3,370	MIN 3.7	AC-FT 93,110						



## RESERVOIRS IN PIT AND McCLOUD RIVER BASINS, CALIF.

11361400 LAKE BRITTON NEAR BURNEY.--Lat 41°01'20", long 121°40'32", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.30, T.37 N., R.3 E., Shasta County, Shasta National Forest, at control house on right bank 200 ft upstream from dam on Pit River, 1.1 miles downstream from Clark Creek, 1.3 miles northwest of Burney Falls, and 9 miles north of Burney. Drainage area, 4,606 sq mi. Period of record, October 1965 to current year. Gage is a remote telemark read once daily. Datum of gage is at mean sea level (levels by Pacific Gas and Electric Co.). Extremes for current year: Maximum contents, 20,445 acre-ft Jan. 25 (elevation, 2,761.55 ft); minimum, 1,101 acre-ft Oct. 20 (elevation, 2,745.15 ft). Extremes for period of record: Maximum contents, 20,445 acre-ft Jan. 25, 1970 (elevation, 2,761.55 ft); minimum, 719 acre-ft Feb. 1, 1968 (elevation, 2,744.75 ft).

Reservoir is formed by gravity-type concrete dam. Storage began July 15, 1925. Maximum storage, 40,600 acre-ft. Record of contents collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project. See schematic diagram of Pit and McCloud River basins.

11363920 IRON CANYON RESERVOIR NEAR BIG BEND.--Lat 41°02'41", long 121°58'52", in SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.21, T.37 N., R.1 W., Shasta County, Shasta National Forest, in control house on left bank 500 ft upstream from Iron Canyon Dam on Iron Canyon Creek, 3.7 miles northwest of Big Bend. Drainage area, 11.5 sq mi. Period of record, December 1965 to current year. Gage is a water-stage recorder. Datum of gage is at mean sea level (levels by Pacific Gas and Electric Co.). Extremes for current year: Maximum contents, 21,375 acre-ft Oct. 1 (elevation, 2,659.10 ft); minimum, 3,095 acre-ft Dec. 28 (elevation, 2,592.12 ft). Extremes for period of record: Maximum contents, 22,800 acre-ft July 24, 1968 (elevation, 2,662.07 ft); minimum since initial operation of reservoir, 2,860 acre-ft May 23, 24, 29, June 2, 7, 9, 14, 23, 24, 1966 (elevation, 2,590.00 ft).

Reservoir is formed by a rockfill dam completed in 1965. Capacity is 24,200 acre-ft between elevations 2,525.00 ft (invert of sluice pipe) and 2,665.00 ft (crest of spillway). No dead storage. Water is diverted from McCloud Reservoir through a tunnel to Iron Canyon Reservoir and thence into the Pit River via a powerplant. Record of contents collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project. See schematic diagram of Pit and McCloud River basins.

11367740 McCLOUD RESERVOIR NEAR McCLOUD.--Lat 41°08'06", long 122°04'26", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.22, T.38 N., R.2 W., Shasta County, Shasta National Forest, on McCloud Dam near spillway on McCloud River, 200 ft downstream from Panther Creek, and 8.8 miles southeast of McCloud. Drainage area, 403 sq mi. Period of record, October 1965 to current year. Gage is a water-stage recorder. Datum of gage is at mean sea level (levels by Pacific Gas and Electric Co.). Extremes for current year: Maximum contents, 35,652 acre-ft Jan. 21 (elevation, 2,680.80 ft); minimum, 23,825 acre-ft May 1 (elevation, 2,655.30 ft). Extremes for period of record: Maximum contents, 35,652 acre-ft Jan. 21, 1970 (elevation, 2,680.80 ft); minimum since storage pool first filled, 15,700 acre-ft Jan. 22, 1967 (elevation, 2,632.60 ft).

Reservoir is formed by a rockfill dam completed in 1965. Capacity, 36,548 acre-ft between elevations 2,571.30 ft (invert of sluice pipe) and 2,682.50 ft (top of radial gates). No dead storage. Water is diverted from McCloud Reservoir through a diversion tunnel to Iron Canyon Reservoir and thence into the Pit River. Record of contents collected by Pacific Gas and Electric Co., under the general supervision of the Geological Survey, in connection with a Federal Power Commission project. See schematic diagram of Pit and McCloud River basins.

## MONTHEND ELEVATIONS AND CONTENTS, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

Date	Elevation (feet)	Contents (acre- feet)	Change in contents (acre- feet)	Elevation (feet)	Contents (acre- feet)	Change in contents (acre- feet)	Elevation (feet)	Contents (acre- feet)	Change in contents (acre- feet)
LAKE BRITTON				McCLOUD RESERVOIR			IRON CANYON RESERVOIR		
Sept. 30.....	2,751.30	7,600	-	2,668.30	29,500	-	2,661.00	22,300	-
Oct. 31.....	2,747.90	3,886	-3,714	2,667.60	29,166	-334	2,637.10	12,750	-9,550
Nov. 30.....	2,747.75	3,729	-157	2,662.50	26,874	-2,292	2,649.90	17,378	+4,628
Dec. 31.....	2,751.40	7,711	+3,982	2,673.80	32,105	+5,231	2,602.10	4,427	-12,951
CAL YR 1969....	-	-	+5,321	-	-	+12,205	-	-	-1,743
Jan. 31.....	2,756.95	14,380	+6,669	2,680.20	35,338	+3,233	2,599.00	3,973	-454
Feb. 28.....	2,753.15	9,737	-4,643	2,675.60	32,994	-2,344	2,596.00	3,569	-404
Mar. 31.....	2,752.45	8,919	-818	2,672.50	31,474	-1,520	2,594.70	3,404	-165
Apr. 30.....	2,747.95	3,939	-4,980	2,655.40	23,866	-7,608	2,608.60	5,522	+2,118
May 31.....	2,747.55	3,521	-418	2,670.80	30,660	+6,794	2,639.10	13,406	+7,884
June 30.....	2,754.85	11,774	+8,253	2,670.40	30,471	-189	2,639.20	13,440	+34
July 31.....	2,748.70	4,734	-7,040	2,673.40	31,910	+1,439	2,650.40	17,581	+4,141
Aug. 31.....	2,750.70	6,923	+2,189	2,670.30	30,424	-1,486	2,633.60	11,651	-5,930
Sept. 31.....	2,751.70	8,054	+1,131	2,664.30	27,670	-2,754	2,636.50	12,557	+906
WTR YR 1970....	-	-	+454	-	-	-1,830	-	-	-9,743

## SACRAMENTO RIVER BASIN

## 11362500 PIT RIVER BELOW PIT NO. 4 DAM, CALIF.

LOCATION.--Lat 40°58'25", long 121°46'42", in SW $\frac{1}{4}$  sec.17, T.36 N., R.2 E., Shasta County, Shasta National Forest, on right bank 0.6 mile downstream from Ruling Creek, 1.3 miles downstream from Pit No. 4 Dam, and 2.7 miles downstream from Pit No. 3 powerhouse.

DRAINAGE AREA.--4,647 sq mi, excluding Goose Lake basin.

PERIOD OF RECORD.--May 1922 to current year. Monthly discharge only for some periods, published in WSP 1315-A. Published as "near Pecks Bridge" April to October 1922, and as "at Lindsay Flat" November 1922 to June 1927.

GAGE.--Water-stage recorder. Altitude of gage is 2,358 ft (from river-profile map). Prior to November 1922, water-stage recorder at site at Pecks Bridge 7.4 miles upstream at different datum. November 1922 to June 20, 1927, at site at Lindsay Flat 1.8 miles upstream at different datum.

AVERAGE DISCHARGE.--60 years (1910-70), 2,764 cfs (2,003,000 acre-ft per year), including diversion to Pit No. 4 powerplant. Period 1910-22 extrapolated on basis of records for Pit River at Big Bend.

EXTREMES.--Current year: Maximum discharge, 31,000 cfs Jan. 25 (gage height, 18.04 ft), from rating curve extended above 12,000 cfs; minimum daily, 22 cfs Dec. 2-4.

Period of record: Maximum discharge, 31,000 cfs Jan. 25, 1970 (gage height, 18.04 ft), from rating curve extended above 12,000 cfs; minimum daily, 234 cfs Sept. 13, 1953. Minimum daily discharge since diversion to Pit No. 4 powerplant in 1955, 22 cfs Dec. 2-4, 1969.

REMARKS.--Flow regulated by many small reservoirs and powerplants (total usable reservoir capacity, 253,000 acre-ft). Many diversions above station; diversion to Pit No. 4 powerplant began June 9, 1955. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	130	106	26	58	5,370	461	116	171	156	156	154	166
2	103	91	22	59	4,000	473	87	166	160	160	156	147
3	103	76	22	41	3,450	1,190	104	180	156	156	160	160
4	103	74	22	46	2,900	1,410	104	171	154	154	160	160
5	105	75	29	60	2,680	1,200	105	162	158	154	158	164
6	104	76	36	86	2,320	728	104	158	158	152	160	162
7	105	74	35	162	2,080	716	104	175	154	160	160	160
8	104	74	36	95	1,980	1,490	104	158	152	160	162	158
9	104	73	36	48	1,740	2,540	104	154	156	154	162	158
10	104	73	44	52	1,770	2,960	102	164	160	156	152	158
11	102	74	42	50	1,130	2,880	107	152	160	154	156	164
12	103	73	68	54	1,130	2,600	107	147	162	158	164	171
13	103	74	38	65	1,320	2,470	107	140	160	154	166	171
14	105	84	36	385	1,480	2,080	107	154	162	166	160	164
15	106	76	35	5,030	1,480	1,850	107	173	168	173	164	158
16	107	75	35	7,060	1,790	1,540	107	166	164	162	164	154
17	106	75	35	10,600	2,140	1,340	105	175	166	156	160	149
18	104	75	37	10,700	2,220	970	105	175	160	158	154	158
19	103	76	61	11,100	2,050	751	104	162	160	156	158	160
20	105	76	50	9,060	1,550	546	102	158	162	158	158	158
21	104	76	60	8,500	1,300	463	102	156	164	154	152	152
22	106	76	2,700	9,720	963	371	102	164	160	152	152	156
23	105	75	2,950	12,200	747	280	104	166	162	152	154	158
24	105	75	2,360	20,800	635	201	100	156	162	152	152	154
25	104	75	1,660	26,800	546	134	102	147	162	158	152	158
26	104	77	1,400	23,400	435	85	100	158	156	156	158	149
27	104	75	923	20,500	387	60	102	158	160	158	168	147
28	103	76	484	16,900	300	49	102	162	162	152	154	147
29	106	77	93	13,400	-----	48	102	162	154	154	160	142
30	106	76	38	10,300	-----	50	102	158	162	162	158	147
31	107	-----	56	7,420	-----	56	-----	160	-----	152	166	-----
TOTAL	3,265	2,308	13,469	224,751	49,893	31,992	3,110	5,008	4,792	4,859	4,914	4,710
MEAN	105	76.9	434	7,250	1,782	1,032	104	162	160	157	159	157
MAX	130	106	2,950	26,800	5,370	2,960	116	180	168	173	168	171
MIN	102	73	22	41	300	48	87	140	152	152	152	142
AC-FT	6,480	4,580	26,720	445,800	98,960	63,460	6,170	9,930	9,500	9,640	9,750	9,340
MEAN a	2,652	2,458	3,198	10,370	5,592	4,543	3,077	3,131	2,383	2,295	1,938	2,258
AC-FT a	163,080	146,280	196,620	637,800	310,560	279,360	183,070	192,530	146,800	141,140	119,150	134,340
CAL YR 1969	TOTAL 253,564		MEAN 695	MAX 7,830	MIN 22	AC-FT 502,900		MEAN a 3,625	AC-FT a 2,624,480			
WTR YR 1970	TOTAL 353,071		MEAN 967	MAX 26,800	MIN 22	AC-FT 700,300		MEAN a 3,654	AC-FT a 2,645,730			

a Adjusted for diversion to Pit No. 4 powerplant.

## 11363000 PIT RIVER AT BIG BEND, CALIF.

LOCATION.--Lat 41°01'10", long 121°54'36", in NW¼SW¼ sec.31, T.37 N., R.1 E., Shasta County, on left bank at Big Bend, 0.4 mile downstream from Nelson Creek, and 1.5 miles upstream from Kosk Creek.

DRAINAGE AREA.--4,710 sq mi, excluding Goose Lake basin.

PERIOD OF RECORD.--October 1910 to current year. Monthly discharge only for some periods, published in WSP 1315-A. Published as "at Henderson" 1910-23.

GAGE.--Water-stage recorder. Datum of gage is 1,674.47 ft above mean sea level. Prior to Dec. 28, 1912, nonrecording gage and Dec. 28, 1912, to June 21, 1924, water-stage recorder at same site at datum 7.69 ft higher.

AVERAGE DISCHARGE (prior to diversion to Pit No. 5 powerplant).--33 years (1910-43), 2,931 cfs (2,122,000 acre-ft per year); 27 years (1943-70), 569 cfs (412,200 acre-ft per year), unadjusted.

EXTREMES.--Current year: Maximum discharge, 49,000 cfs Jan. 25 (gage height, 18.17 ft in gage well, 19.0 ft, from floodmarks), from rating curve extended above 17,000 cfs, partly affected by gate operation at Pit No. 4 Dam; minimum daily, 50 cfs Dec. 7.

Period of record: Maximum discharge, 49,000 cfs Jan. 25, 1970 (gage height, 18.17 ft in gage well, 19.0 ft, from floodmarks), from rating curve extended above 17,000 cfs, partly affected by gate operation at Pit No. 4 Dam; minimum daily, 34 cfs Mar. 29, 1955.

REMARKS.--Flow regulated by many reservoirs and powerplants (total usable reservoir capacity, about 253,000 acre-ft). Many diversions above station; diversion to Pit No. 5 powerhouse began May, 1, 1944. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122	96	77	108	6,970	1,230	151	134	141	134	119	123
2	118	99	53	103	4,930	1,280	147	169	145	140	114	118
3	120	97	52	99	4,550	1,880	143	173	143	140	121	121
4	121	95	51	95	3,990	2,170	138	173	143	140	123	121
5	120	120	52	90	3,530	1,760	134	171	140	134	128	123
6	118	113	51	89	3,250	1,400	130	170	138	138	126	121
7	119	109	50	87	2,800	1,480	126	169	138	138	126	123
8	123	97	55	95	2,680	2,160	123	174	140	138	114	123
9	121	96	55	165	2,430	3,270	121	173	143	140	114	125
10	122	98	70	281	2,230	3,780	121	172	141	138	121	119
11	122	97	111	208	1,900	3,680	118	167	134	126	125	125
12	115	99	456	300	1,930	3,390	118	167	138	138	121	119
13	119	97	300	884	2,020	3,230	116	163	145	132	123	123
14	125	93	123	1,800	2,170	2,860	112	163	147	132	121	123
15	130	100	103	6,750	2,080	2,520	114	161	143	132	119	123
16	134	96	92	9,000	2,110	2,220	109	163	140	134	123	123
17	127	96	87	13,600	2,670	2,040	108	165	145	132	125	121
18	126	96	85	13,100	3,060	1,660	104	162	138	123	123	125
19	117	98	246	13,200	2,880	1,480	103	160	140	116	125	126
20	120	98	738	10,900	2,330	1,230	103	159	141	123	125	125
21	117	99	1,030	11,400	2,080	1,070	101	160	140	132	119	123
22	122	96	3,320	13,900	1,740	959	103	155	138	126	114	121
23	119	98	3,880	16,700	1,520	867	101	151	138	123	118	123
24	120	94	3,260	24,100	1,390	790	99	151	138	126	119	118
25	119	89	2,450	29,100	1,270	718	99	151	138	119	116	123
26	123	90	2,110	24,000	1,140	658	101	153	136	118	116	116
27	123	97	1,600	24,900	1,110	618	96	151	138	126	119	112
28	120	95	1,140	20,700	1,100	746	94	149	145	121	123	118
29	119	93	681	16,000	-----	446	93	145	141	126	114	118
30	122	92	521	11,900	-----	298	91	141	140	125	119	121
31	115	-----	124	9,260	-----	255	-----	145	-----	126	121	-----
TOTAL	3,758	2,933	23,023	272,914	71,860	52,145	3,417	4,960	4,215	4,036	3,734	3,643
MEAN	121	97.8	743	8,804	2,566	1,682	114	160	141	130	120	121
MAX	134	120	3,880	29,100	6,970	3,780	151	174	147	140	128	126
MIN	115	89	50	87	1,100	255	91	134	134	116	114	112
AC-FT	7,450	5,820	45,670	541,300	142,500	103,400	6,780	9,840	8,360	8,010	7,410	7,230
CAL YR 1969 TOTAL	372,503			MEAN 1,021	MAX 9,530	MIN 50	AC-FT 738,900					
WTR YR 1970 TOTAL	450,638			MEAN 1,235	MAX 29,100	MIN 50	AC-FT 893,800					

## SACRAMENTO RIVER BASIN

## 11363910 JAMES B. BLACK POWERPLANT NEAR BIG BEND, CALIF.

LOCATION.--Lat 40°59'12", long 121°58'35", in SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.9, T.36 N , R.1 W., Shasta County, at powerplant on right bank of Pit River, 5.8 miles downstream from Big Bend.

PERIOD OF RECORD.--December 1965 to current year.

GAGE.--Recorded output from powerplant turbines.

EXTREMES.--Period of record: Maximum daily discharge, 2,420 cfs July 15, 1966; no flow for several days in each year.

REMARKS.--Water is diverted from McCloud Reservoir (see sta 11367740) at SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.22, T.38 N., R.2 W., to Iron Canyon Reservoir (see sta 11363920) and then into the penstock for James B. Black powerplant. Records are combined flow of diversion from McCloud River at McCloud Dam plus Iron Canyon Creek.

COOPERATION.--Records furnished by Pacific Gas and Electric Co. in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	861	304	343	1,200	1,460	1,540	1,460	28	951	1,330	92	1,690
2	1,170	7.1	29	1,660	1,570	1,510	1,200	0	414	1,080	425	1,520
3	1,580	6.6	529	1,610	1,570	1,550	1,470	0	664	881	1,380	1,100
4	1,530	396	556	1,270	1,530	1,500	382	886	964	1,040	1,050	111
5	705	1,110	1,030	1,410	1,810	1,540	674	286	1,080	0	995	0
6	1,180	1,070	645	1,420	1,490	1,460	1,140	1,090	10	567	914	0
7	495	519	236	1,420	1,270	1,560	948	703	0	927	1,060	190
8	143	635	944	1,100	1,500	1,560	1,080	687	887	1,370	20	817
9	132	604	1,490	1,550	1,800	1,560	1,200	717	1,210	954	75	521
10	707	582	1,450	750	1,500	1,530	1,180	890	1,080	486	916	572
11	810	1,220	1,260	1,240	1,550	1,530	850	1,090	1,140	0	1,120	633
12	608	1,370	1,540	1,330	1,450	1,530	1,310	1,380	1,340	0	1,120	56
13	428	1,560	2,000	1,660	1,440	1,530	1,450	1,200	71	506	702	48
14	445	1,450	2,010	2,040	1,640	1,540	2,040	1,120	147	658	739	796
15	695	1,050	2,030	2,020	1,370	1,480	2,030	1,390	1,120	458	82	705
16	677	1,010	1,650	2,020	1,610	1,580	1,490	676	1,150	629	596	917
17	988	1,100	1,180	2,010	1,660	1,510	1,560	426	1,230	959	1,090	1,210
18	1,000	887	1,510	1,910	1,590	1,510	1,360	1,240	916	327	1,090	1,660
19	855	611	1,470	1,230	1,550	1,600	1,380	852	1,090	319	748	67
20	1,640	845	2,040	1,790	1,570	1,520	1,080	818	1,290	822	726	0
21	1,250	603	2,040	1,820	1,480	1,510	969	1,130	1,230	861	931	969
22	1,000	255	1,970	1,900	1,480	1,440	977	1,030	1,620	1,560	662	1,100
23	433	18	1,530	1,850	1,480	1,510	982	224	1,150	1,230	239	953
24	705	491	1,200	1,710	1,600	1,500	1,320	6.0	1,240	889	999	1,290
25	906	833	1,500	1,610	1,490	1,500	2,030	1,020	1,210	67	1,540	1,300
26	881	1,230	1,780	1,800	1,510	1,460	1,290	1,290	692	0	1,300	312
27	954	262	1,350	1,860	1,480	1,520	1,190	1,110	0	989	1,110	177
28	955	410	1,650	1,910	1,470	1,430	990	1,260	0	958	1,450	1,400
29	1,300	259	1,400	1,980	-----	1,480	990	841	1,080	742	1,010	1,270
30	1,330	225	1,330	2,020	-----	1,390	903	687	1,450	809	1,010	1,060
31	1,090	-----	1,240	2,030	-----	1,520	-----	665	-----	696	1,740	-----
TOTAL	27,453	20,922.7	40,932	51,180	42,920	46,900	36,925	24,742.0	26,426	22,114	26,931	22,444
MEAN	886	697	1,320	1,651	1,533	1,513	1,231	798	881	713	869	748
MAX	1,640	1,560	2,040	2,040	1,810	1,600	2,040	1,390	1,620	1,560	1,740	1,690
MIN	132	6.6	29	750	1,270	1,390	382	0	0	0	20	0
AC-FT	54,450	41,500	81,190	101,500	85,130	93,030	73,240	49,080	52,420	43,860	53,420	44,520
CAL YR 1969	TOTAL	406,261.7	MEAN	1,113	MAX	2,070	MIN	0	AC-FT	805,800		
WAT YR 1970	TOTAL	389,889.70	MEAN	1,068	MAX	2,040	MIN	0	AC-FT	773,300		

## 11363930 IRON CANYON CREEK BELOW IRON CANYON DAM, NEAR BIG BEND, CALIF.

LOCATION (revised).--Lat 41°02'27", long 121°59'02", in NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.28, T.37 N., R.1 W., Shasta County, on left bank 0.2 mile downstream from Iron Canyon Dam and 4.2 miles west of Big Bend.

DRAINAGE AREA.--11.6 sq mi.

PERIOD OF RECORD.--August 1966 to current year.

GAGE.--Water-stage recorder, 60° sharp-crested V-notch weir, and concrete control. Datum of gage is 2,461.52 ft above mean sea level (levels by Pacific Gas and Electric Co.).

EXTREMES.--Current year: Maximum discharge recorded, 26 cfs Jan. 23 (gage height, 1.75 ft); minimum daily, 2.8 cfs June 17.

Period of record: Maximum discharge, 361 cfs Jan. 24, 1969 (gage height, 3.03 ft), from rating curve extended above 40 cfs, as a result of sluicing at dam; no flow July 15-18, 1967.

REMARKS.--Flow is regulated by Iron Canyon Dam (see sta 11363920). There is inter-basin diversion from McCloud Reservoir (see sta 11367790) to Iron Canyon Reservoir (see sta 11363920), and then into a tunnel to James B. Black powerplant on the Pit River (see sta 11363910). See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	3.2	3.1	3.5	3.1	3.1	3.2	3.3	3.3	3.2	3.2	3.2
2	3.7	3.1	3.1	3.4	3.0	3.2	3.2	3.2	3.2	3.2	3.2	3.2
3	3.7	3.1	3.1	3.2	3.2	3.1	3.2	3.2	3.2	3.2	3.2	3.2
4	3.6	3.2	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
5	3.5	3.1	3.1	3.2	2.9	3.1	3.2	3.3	3.2	3.2	3.2	3.2
6	3.4	3.1	3.2	3.1	3.1	3.1	3.3	3.3	3.3	3.2	3.2	3.2
7	3.4	3.2	3.2	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2
8	3.5	3.1	3.1	3.1	3.1	3.1	3.2	3.3	3.3	3.2	3.2	3.2
9	3.6	3.1	3.1	3.2	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.2
10	3.6	3.1	3.2	3.1	3.1	3.1	3.2	3.2	3.3	3.2	3.2	3.2
11	3.6	3.1	3.3	3.1	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.2
12	3.6	3.1	3.5	3.1	3.2	3.1	3.3	3.2	3.2	3.2	3.2	3.2
13	3.6	3.2	3.1	5.0	3.1	3.1	3.2	3.3	3.2	3.2	3.2	3.2
14	3.7	3.1	3.1	4.7	3.2	3.2	3.1	3.2	3.2	3.2	3.2	3.2
15	3.7	3.1	3.1	3.9	3.2	3.1	3.2	3.2	3.2	3.2	3.2	3.2
16	3.9	3.1	3.1	5.9	3.3	3.1	3.3	3.2	3.2	3.2	3.2	3.2
17	3.7	3.1	3.1	6.4	3.1	2.9	3.1	3.2	2.8	3.2	3.0	3.2
18	3.7	2.9	3.1	4.4	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2
19	3.6	3.1	3.3	3.9	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.2
20	3.6	3.1	3.3	3.7	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.2
21	3.5	3.2	4.4	4.7	3.1	3.1	3.3	3.3	3.2	3.2	3.2	3.2
22	3.3	3.1	3.1	7.7	3.1	3.1	3.3	3.2	3.2	3.2	3.2	3.0
23	3.1	3.1	3.2	16	3.1	3.2	3.3	3.2	3.2	3.2	3.2	3.2
24	3.1	3.1	3.1	16	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2
25	3.2	3.1	3.2	8.9	3.1	3.2	3.2	3.3	3.2	3.2	3.2	3.2
26	3.2	3.1	3.1	7.0	3.1	3.2	3.3	3.2	3.2	3.2	3.2	3.2
27	3.1	3.1	3.1	7.4	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2
28	3.1	3.1	3.1	5.1	3.3	3.2	3.3	3.2	3.2	3.2	3.2	3.2
29	3.2	3.2	3.1	4.2	-----	3.2	3.2	3.3	3.2	3.2	3.2	3.2
30	3.1	3.2	3.2	3.5	-----	3.2	3.2	3.2	3.2	3.2	3.2	3.2
31	3.1	-----	3.4	3.1	-----	3.2	-----	3.3	-----	3.2	2.9	-----
TOTAL	107.5	93.5	99.3	159.7	87.4	97.3	96.6	100.1	96.0	99.2	98.7	95.8
MEAN	3.47	3.12	3.20	5.15	3.12	3.14	3.22	3.23	3.20	3.20	3.18	3.19
MAX	3.9	3.2	4.4	16	3.3	3.2	3.3	3.3	3.3	3.2	3.2	3.2
MIN	3.1	2.9	3.1	3.1	2.9	2.9	3.1	3.2	2.8	3.2	2.9	3.0
AC-FT	213	185	197	317	173	193	192	199	190	197	196	190

CAL YR 1969 TOTAL 1,508.3 MEAN 4.13 MAX 19 MIN 2.2 AC-FT 2,990  
WTR YR 1970 TOTAL 1,231.1 MEAN 3.37 MAX 16 MIN 2.8 AC-FT 2,440

## SACRAMENTO RIVER BASIN

## 11365000 PIT RIVER NEAR MONTGOMERY CREEK, CALIF.

LOCATION.--Lat 40°50'36", long 122°00'58", in SE $\frac{1}{4}$  sec.31, T.35 N., R.1 W., Shasta County, Shasta National Forest, on right bank 0.5 mile upstream from Potem Creek, 1.9 miles downstream from Pit No. 7 dam and powerhouse, and 5.0 miles west of town of Montgomery Creek.

DRAINAGE AREA.--4,951 sq mi, excluding Goose Lake basin.

PERIOD OF RECORD.--October 1944 to current year (monthly discharge only December 1964 to May 1965). Monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is 1,036 ft above mean sea level (levels by Pacific Gas and Electric Co.). October 1944 to Feb. 17, 1963, at site 1.9 miles upstream at different datum. Feb. 17, 1963, to May 21, 1965, at site 2.7 miles upstream at different datum.

EXTREMES.--Current year: Maximum discharge, 73,000 cfs Jan. 24 (gage height, 32.36 ft); minimum daily, 209 cfs July 26.

Period of record: Maximum discharge, 73,000 cfs Jan. 24, 1970 (gage height, 32.36 ft); minimum daily, 42 cfs July 22, 1967.

REMARKS.--Flow regulated by many reservoirs and powerplants (total usable reservoir capacity, 337,000 acre-ft). Many diversions above station for irrigation. Diversion from McCloud River to Pit River began December 1965 (see sta 11367720). See schematic diagram of Pit and McCloud River basins. Records of chemical analyses for the water year 1970 are published in Part 2 of this report.

COOPERATION.--Records collected by Pacific Gas and Electric Co. under general supervision of Geological Survey in connection with a Federal Power Commission project.

REVISIONS (WATER YEARS).--WRD Calif. 1967: 1966.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3,800	4,500	2,990	4,670	13,700	8,560	5,920	4,270	4,440	5,580	784	5,620
2	3,980	2,320	2,070	5,760	12,200	8,390	6,540	3,140	3,690	4,470	1,630	4,410
3	4,770	3,060	2,660	5,780	11,700	8,360	5,420	3,570	3,330	5,330	3,740	4,440
4	5,030	2,640	4,130	5,360	11,100	8,800	5,780	5,250	4,200	4,010	5,560	4,710
5	2,280	3,800	4,240	4,910	10,800	8,460	5,720	4,630	4,460	1,250	4,390	1,540
6	2,850	4,240	5,450	6,380	10,100	8,390	5,590	6,090	2,920	4,980	4,800	230
7	3,120	3,860	1,670	3,860	9,480	8,360	6,040	5,010	2,670	4,070	4,450	2,200
8	5,430	4,070	2,320	3,850	9,420	9,040	5,660	5,670	4,400	4,260	941	3,750
9	1,960	3,360	4,920	6,940	9,420	9,930	6,610	4,680	4,130	2,880	302	2,920
10	3,070	3,940	5,320	8,330	8,620	10,400	4,970	5,450	4,110	3,950	3,530	3,440
11	3,330	4,020	5,450	7,170	8,230	10,100	5,780	5,680	5,400	2,750	4,980	4,560
12	3,650	4,980	8,530	7,930	8,460	9,970	5,520	4,070	4,460	301	4,030	1,030
13	4,710	4,300	7,780	11,700	9,300	9,860	5,580	4,730	4,860	2,390	4,890	774
14	3,990	4,960	7,210	19,500	8,940	9,480	7,120	5,240	3,580	4,160	2,430	3,670
15	4,480	3,870	5,990	18,200	8,730	9,120	6,360	5,660	4,020	5,010	877	3,200
16	2,920	3,700	5,800	24,600	9,700	8,760	6,360	6,150	5,130	4,510	1,530	4,890
17	3,750	5,450	5,570	35,200	9,700	8,460	6,010	3,280	4,220	5,020	4,620	4,320
18	4,930	5,340	4,730	28,500	9,970	8,130	6,180	4,330	3,760	2,010	4,420	5,990
19	3,240	5,760	9,120	25,300	9,740	8,060	5,150	4,970	3,990	252	4,350	1,750
20	4,940	5,320	10,800	23,600	9,120	8,060	5,330	5,280	5,550	4,400	4,770	3,190
21	3,940	2,750	12,200	33,100	8,760	8,030	5,240	6,190	6,360	5,070	5,260	4,400
22	4,090	3,510	10,900	40,800	8,360	8,030	5,880	6,740	5,220	5,620	554	4,400
23	3,900	2,970	10,900	53,900	8,360	7,250	5,380	7,830	5,920	5,020	1,420	4,670
24	3,830	3,540	9,670	52,800	8,350	5,720	6,070	7,830	5,020	5,900	3,920	4,390
25	3,310	3,360	9,150	45,600	8,330	7,490	6,380	7,830	7,830	1,370	6,050	4,950
26	4,470	2,840	8,900	40,000	7,990	6,400	5,550	7,020	5,660	209	4,860	2,310
27	3,560	3,220	7,900	37,200	7,220	7,350	4,990	5,460	333	868	4,310	2,130
28	3,150	3,730	7,880	28,100	7,560	6,170	5,630	4,940	300	4,420	4,460	3,670
29	3,690	3,120	6,590	23,300	-----	6,740	5,590	4,080	2,980	4,260	4,420	3,920
30	4,230	3,430	6,320	19,100	-----	6,500	5,290	3,270	6,030	4,300	4,470	4,520
31	4,520	-----	6,270	16,300	-----	6,520	-----	4,550	-----	4,620	6,290	-----
TOTAL	119,420	116,010	203,430	647,740	263,360	254,890	173,640	162,890	128,973	113,240	113,038	105,994
MEAN	3,852	3,867	6,562	20,890	9,406	8,222	5,788	5,255	4,299	3,653	3,646	3,533
MAX	5,430	5,760	12,200	53,900	13,700	10,400	7,120	7,830	7,830	5,900	6,290	5,990
MIN	1,960	2,320	1,670	3,850	7,220	5,720	4,970	3,140	300	209	302	230
AC-FT	236,900	230,100	403,500	1,285M	522,400	505,600	344,400	323,100	255,800	224,600	224,200	210,200

CAL YR 1969 TOTAL 2,287,830 MEAN 6,268 MAX 29,400 MIN 89 AC-FT 4,538,000  
WTR YR 1970 TOTAL 2,402,625 MEAN 6,583 MAX 53,900 MIN 209 AC-FT 4,766,000

## 11367500 McCLOUD RIVER NEAR McCLOUD, CALIF.

LOCATION.--Lat 41°11'18", long 122°03'52", in NE $\frac{1}{4}$  sec.34, T.39 N., R.2 W., Siskiyou County, on right bank 0.4 mile downstream from Angel Creek and 6 miles southeast of McCloud.

DRAINAGE AREA.--358 sq mi.

PERIOD OF RECORD.--April 1931 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,711.2 ft above mean sea level (river-profile survey).

AVERAGE DISCHARGE.--39 years, 918 cfs (665,100 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 11,700 cfs Jan. 23 (gage height, 9.33 ft); minimum daily, 803 cfs Dec. 7.

Period of record: Maximum discharge, 11,800 cfs Dec. 21, 1955 (gage heights, 9.42 ft in gage well, 10.7 ft, from floodmarks), from rating curve extended above 8,800 cfs on basis of slope-area measurement of maximum flow; minimum, 524 cfs Nov. 23, 24, 1932.

REMARKS.--Two small diversions above station for irrigation, and one 22-inch pipe line for town of McCloud and millpond. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	866	836	808	945	1,640	1,620	1,210	1,070	1,040	958	886	858
2	865	835	807	926	1,560	1,460	1,210	1,070	1,040	958	886	858
3	864	833	807	911	1,520	1,400	1,200	1,080	1,040	958	879	858
4	864	840	807	898	1,490	1,380	1,190	1,090	1,030	958	879	858
5	863	866	807	883	1,440	1,350	1,190	1,090	1,020	958	879	858
6	861	856	804	872	1,410	1,340	1,190	1,090	1,020	951	879	858
7	860	864	803	871	1,380	1,400	1,180	1,070	1,020	951	879	858
8	864	870	808	875	1,360	1,510	1,170	1,080	1,020	944	879	858
9	860	848	806	902	1,340	1,460	1,170	1,100	1,010	944	879	851
10	859	840	816	925	1,330	1,410	1,180	1,080	1,010	944	879	851
11	857	835	893	949	1,310	1,390	1,170	1,070	995	944	879	851
12	857	831	1,350	1,000	1,430	1,370	1,160	1,060	988	944	872	851
13	856	829	1,370	1,540	1,530	1,370	1,170	1,050	988	936	872	851
14	859	829	1,160	3,670	1,430	1,480	1,150	1,040	988	936	872	851
15	870	829	1,080	2,360	1,390	1,480	1,140	1,040	988	944	872	851
16	874	828	990	2,450	1,440	1,440	1,140	1,050	981	936	872	851
17	863	823	958	2,700	1,440	1,410	1,130	1,070	981	936	872	844
18	856	822	954	2,340	1,370	1,380	1,120	1,100	973	936	872	844
19	853	821	1,250	2,130	1,340	1,350	1,120	1,120	973	929	865	844
20	850	820	1,810	2,310	1,330	1,340	1,110	1,110	981	922	865	844
21	849	819	3,910	2,970	1,320	1,320	1,100	1,100	981	908	865	844
22	848	818	2,090	4,090	1,300	1,310	1,100	1,090	981	893	865	844
23	845	817	1,520	10,000	1,280	1,300	1,090	1,090	981	893	865	844
24	845	816	1,300	7,490	1,270	1,290	1,090	1,080	981	893	865	844
25	843	814	1,300	3,810	1,260	1,280	1,090	1,080	973	893	865	837
26	843	814	1,220	3,010	1,250	1,270	1,090	1,080	973	893	865	837
27	842	814	1,120	2,940	1,250	1,260	1,090	1,080	973	893	865	837
28	841	814	1,060	2,310	1,380	1,250	1,080	1,070	973	886	865	837
29	839	814	1,020	2,070	-----	1,240	1,070	1,050	973	886	865	837
30	837	813	991	1,890	-----	1,230	1,070	1,050	958	886	858	837
31	836	-----	964	1,740	-----	1,220	-----	1,040	-----	886	858	-----
TOTAL	26,489	24,908	36,383	72,777	38,790	42,310	34,170	33,340	29,833	28,697	27,018	25,446
MEAN	854	830	1,174	2,348	1,385	1,365	1,139	1,075	994	926	872	848
MAX	874	870	3,910	10,000	1,640	1,620	1,210	1,120	1,040	958	886	858
MIN	836	813	803	871	1,250	1,220	1,070	1,040	958	886	858	837
AC-FT	52,540	49,410	72,170	144,400	76,940	83,920	67,780	66,130	59,170	56,920	53,590	50,470
CAL YR 1969	TOTAL 405,560	MEAN 1,111	MAX 3,910	MIN 758	AC-FT 804,400							
WTR YR 1970	TOTAL 420,161	MEAN 1,151	MAX 10,000	MIN 803	AC-FT 833,400							

## PEAK DISCHARGE (BASE, 1,500 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-12	2030	2.41	1,520	1-23	2230	9.36	11,700
12-21	1330	5.37	5,040	2-12	2400	2.35	1,590
1-14	1100	4.66	4,040	3-1	0400	2.51	1,730
1-17	1400	3.82	2,970				

## SACRAMENTO RIVER BASIN

## 11367720 McCloud-IRON CANYON DIVERSION TUNNEL NEAR McCLOUD, CALIF.

LOCATION.--Lat 41°08'06", long 122°04'26", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.22, T.38 N., R.2 W., Shasta County, Shasta National Forest, on left bank of McCloud Reservoir, 8.8 miles southeast of McCloud.

RECORDS AVAILABLE.--December 1965 to current year.

GAGE.--None. Water-stage recorders on McCloud Reservoir and Iron Canyon Reservoir used to compute record.

EXTREMES.--Period of record: Maximum daily discharge, 1,890 cfs May 20-22, June 1-3, 10, 1967; no flow for several days in 1965-68.

REMARKS.--Water is diverted from McCloud Reservoir (see sta 11367740) to Iron Canyon Reservoir (see sta 11363920) and thence into James B. Black powerplant (see sta 11363910) on the Pit River. Diversion began Dec. 1, 1965. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	564	872	606	1,450	1,560	1,580	1,540	1,040	946	1,020	771	1,120
2	657	798	545	1,480	1,570	1,590	1,490	928	950	1,020	753	1,150
3	763	717	572	1,480	1,570	1,600	1,490	841	934	1,020	821	1,140
4	843	696	591	1,470	1,570	1,600	1,340	877	952	1,020	650	1,020
5	832	753	659	1,460	1,610	1,600	1,270	836	974	923	873	911
6	866	794	671	1,470	1,600	1,590	1,260	894	896	879	882	815
7	832	775	633	1,450	1,560	1,600	1,240	899	926	909	904	737
8	767	771	680	1,390	1,560	1,610	1,230	903	848	963	828	777
9	713	765	773	1,420	1,600	1,620	1,240	904	896	968	763	763
10	724	753	845	1,300	1,590	1,610	1,250	929	926	926	792	755
11	745	808	897	1,300	1,590	1,610	1,210	962	955	836	832	751
12	740	864	1,010	1,300	1,580	1,610	1,230	1,020	998	763	864	687
13	710	929	1,140	1,350	1,580	1,610	1,270	1,050	918	757	854	629
14	702	976	1,240	1,510	1,600	1,620	1,360	1,070	863	765	845	671
15	715	974	1,330	1,490	1,570	1,600	1,460	1,120	897	753	783	691
16	728	973	1,370	1,590	1,580	1,610	1,470	1,080	933	757	781	732
17	761	979	1,350	1,600	1,600	1,610	1,490	1,020	966	744	817	788
18	792	963	1,370	1,620	1,610	1,600	1,470	1,060	971	765	852	864
19	806	918	1,390	1,540	1,600	1,610	1,460	1,050	988	736	848	802
20	880	909	1,510	1,550	1,610	1,600	1,400	1,040	1,020	763	845	726
21	914	873	1,560	1,550	1,590	1,600	1,330	1,060	1,040	788	856	761
22	919	800	1,570	1,500	1,580	1,580	1,280	1,070	1,100	868	845	806
23	875	702	1,580	1,400	1,580	1,590	1,240	993	1,110	911	794	825
24	861	696	1,540	1,340	1,590	1,580	1,260	908	1,120	914	826	830
25	864	722	1,540	1,330	1,580	1,580	1,380	936	1,130	839	894	921
26	870	787	1,590	1,350	1,570	1,570	1,380	984	1,090	775	931	859
27	877	730	1,560	1,360	1,570	1,570	1,350	1,010	985	804	946	788
28	884	702	1,580	1,400	1,560	1,560	1,290	1,040	897	828	993	861
29	923	659	1,560	1,450	-----	1,560	1,240	1,030	919	828	991	906
30	957	621	1,520	1,510	-----	1,530	1,200	1,010	977	839	991	923
31	966	-----	1,480	1,580	-----	1,540	-----	985	-----	839	1,060	-----
TOTAL	25,059	24,299	36,262	44,990	44,330	49,340	40,120	30,549	29,075	26,590	26,487	25,099
MEAN	808	810	1,170	1,451	1,583	1,592	1,337	985	969	858	854	837
MAX	966	979	1,590	1,620	1,610	1,620	1,540	1,120	1,130	1,020	1,060	1,150
MIN	564	621	545	1,300	1,560	1,530	1,200	836	826	736	650	629
AC-FT	49,700	48,200	71,930	89,240	87,930	97,870	79,580	60,590	57,670	52,740	52,540	49,780
CAL YR 1969	TOTAL	418,011	MEAN	1,145	MAX	1,630	MIN	443	AC-FT	829,100		
WAT YR 1970	TOTAL	402,200	MEAN	1,102	MAX	1,620	MIN	545	AC-FT	797,800		



## 11367760 McCLOUD RIVER BELOW McCLOUD DAM, NEAR McCLOUD, CALIF.

LOCATION.--Lat 41°07'44", long 122°04'08", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.27, T.38 N., R.2 W., Shasta County, Shasta National Forest, on left bank 0.1 mile downstream from Lizard Creek, 0.6 mile downstream from McCloud Dam, and 9 miles southeast of McCloud.

DRAINAGE AREA.--404 sq mi.

PERIOD OF RECORD.--April 1966 to current year (low flow only).

GAGE.--Water-stage recorder. Datum of gage is 2,401.76 ft above mean sea level (levels by Pacific Gas and Electric Co.).

REMARKS.--Flow regulated by McCloud Reservoir (see sta 11367740) since November 1965. Most of McCloud River runoff is diverted from reservoir through tunnel to Iron Canyon Reservoir (see sta 11363920) in Pit River basin. This station records fishwater release. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	210	204	205	44	-	88	114	147	179	181	182	184
2	210	203	207	50	-	68	114	147	179	181	184	182
3	296	203	207	54	377	50	119	147	179	179	184	182
4	364	203	207	51	339	50	124	147	179	179	184	181
5	364	205	209	54	248	50	124	148	181	179	184	181
6	259	279	209	89	172	49	125	148	181	181	184	181
7	202	344	210	109	167	50	125	148	181	181	184	181
8	202	344	204	109	160	53	125	149	181	181	184	181
9	202	344	244	82	154	154	125	149	181	181	184	181
10	202	264	212	48	169	159	127	150	181	181	184	181
11	202	203	126	45	143	157	129	150	182	181	184	181
12	202	202	55	47	144	154	129	150	181	181	184	181
13	202	202	54	64	144	95	131	150	181	181	184	181
14	202	202	52	117	214	58	131	151	181	181	184	181
15	204	200	52	-	161	204	131	165	181	181	184	181
16	269	200	58	-	210	165	130	176	182	181	184	181
17	307	204	74	-	262	160	141	176	182	182	184	182
18	252	207	72	-	168	152	137	176	182	182	184	182
19	240	207	60	-	157	148	137	176	182	182	184	181
20	208	205	51	-	155	94	142	176	182	182	184	181
21	204	205	-	-	150	84	147	177	181	182	184	181
22	203	205	-	-	145	83	146	177	182	182	184	181
23	202	205	128	-	141	83	146	177	182	182	184	181
24	202	205	68	-	134	82	146	175	182	182	184	181
25	202	205	69	-	127	85	147	177	181	182	184	181
26	201	205	72	-	123	90	146	177	181	182	184	181
27	202	205	67	-	97	96	147	177	181	182	182	181
28	204	205	56	-	84	103	147	177	181	182	184	181
29	203	205	45	-	-----	102	147	177	181	182	184	179
30	203	205	38	-	-----	109	146	177	181	182	182	179
31	205	-----	42	-	-----	114	-----	177	-----	182	182	-----
TOTAL	7,030	6,675	-	-	-	3,189	4,025	5,071	5,431	5,620	5,696	5,433
MEAN	227	223	-	-	-	103	134	164	181	181	184	181
MAX	364	344	-	-	-	204	147	177	182	182	184	184
MIN	201	200	-	-	-	49	114	147	179	179	182	179
AC-FT	13,940	13,240	-	-	-	6,330	7,980	10,060	10,770	11,150	11,300	10,780

## SACRAMENTO RIVER BASIN

## 11367800 McCLOUD RIVER AT AH-DI-NA, NEAR McCLOUD, CALIF.

LOCATION.--Lat 41°06'39", long 122°05'42", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.33, T.38 N., R.2 W., Shasta County, Shasta National Forest, on right bank at Ah-Di-Na, 1.8 miles downstream from Squirrel Creek, 3.9 miles downstream from McCloud Dam, and 9.6 miles south of McCloud.

DRAINAGE AREA.--427 sq mi.

PERIOD OF RECORD.--October 1964 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,160 ft (from topographic map).

AVERAGE DISCHARGE (adjusted for diversion to Iron Canyon Reservoir and change in contents in McCloud Reservoir).--6 years, 1,353 cfs (980,200 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 17,500 cfs Jan. 23 (gage height, 12.94 ft), from rating curve extended above 2,500 cfs; minimum daily, 128 cfs Jan. 5.  
Period of record: Maximum discharge prior to construction of McCloud Reservoir, 9,660 cfs Dec. 22, 1964 (gage height, 9.43 ft in gage well, from floodmarks), from rating curve extended above 2,500 cfs; minimum daily, 86 cfs Oct. 1-26, 1964.  
Maximum discharge since construction of McCloud Dam in 1965, 17,500 cfs Jan. 23, 1970 (gage height, 12.94 ft), from rating curve extended above 2,500 cfs; minimum daily, 107 cfs Mar. 11, 1969.  
Flood of Dec. 21, 1955, reached a stage of 12.5 ft (discharge, 16,800 cfs, from rating curve extended above 3,000 cfs).

REMARKS.--Flow regulated by McCloud Reservoir 3.9 miles upstream (see sta 11367740) since November 1965. Diversion to Iron Canyon Reservoir (see sta 11363920) through McCloud River diversion tunnel (see sta 11367720) started Dec. 1, 1965. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	210	204	207	156	957	370	181	178	206	204	201	210
2	212	204	207	147	744	298	178	178	207	203	201	216
3	205	204	207	143	641	245	179	178	207	202	201	216
4	198	209	209	134	556	229	184	178	207	202	201	213
5	198	226	210	128	427	209	182	178	207	201	201	213
6	202	211	210	147	348	197	181	179	207	202	201	213
7	202	215	210	156	329	209	179	179	207	203	201	213
8	204	209	208	156	310	246	178	181	210	202	198	213
9	204	192	247	238	295	358	176	179	212	202	198	213
10	204	199	210	357	278	343	177	179	210	202	198	213
11	203	210	333	353	264	332	176	181	210	202	198	213
12	203	208	545	409	285	322	176	181	208	202	198	213
13	204	207	363	1,050	310	254	179	181	208	202	198	213
14	206	206	246	1,870	384	241	176	180	210	202	198	213
15	213	204	190	2,150	321	438	174	196	209	203	198	216
16	211	202	155	2,810	401	350	173	209	210	204	198	216
17	203	205	157	2,840	531	328	185	209	209	204	198	216
18	201	210	150	2,170	397	306	178	208	208	204	201	213
19	200	210	320	1,750	356	289	176	209	207	204	198	213
20	200	210	605	2,050	329	229	180	209	207	203	198	213
21	204	208	5,250	3,110	310	198	185	207	206	202	198	213
22	204	207	3,470	5,270	292	189	184	208	207	203	198	213
23	204	207	541	11,600	278	183	182	207	207	202	198	213
24	202	207	358	9,540	264	178	181	207	207	202	201	213
25	201	207	366	4,870	251	174	181	207	206	201	201	213
26	201	207	343	3,790	241	176	181	207	205	201	201	213
27	202	207	283	4,010	205	178	180	207	206	201	201	213
28	204	207	239	2,620	275	183	181	207	207	201	201	210
29	204	207	206	1,930	-----	179	179	207	205	201	201	210
30	203	207	177	1,470	-----	181	178	206	204	201	201	210
31	204	-----	164	1,120	-----	183	-----	205	-----	201	201	-----
TOTAL	6,316	6,216	16,586	68,544	10,579	7,795	5,380	6,025	6,226	6,269	6,186	6,393
MEAN	204	207	535	2,211	378	251	179	194	208	202	200	213
MAX	213	226	5,250	11,600	957	438	185	209	212	204	201	216
MIN	198	192	150	128	205	174	173	178	204	201	198	210
AC-FT	12,530	12,330	32,900	136,000	20,980	15,460	10,670	11,950	12,350	12,430	12,270	12,680
MEAN a	1,007	979	1,790	3,716	1,919	1,818	1,889	1,290	1,174	1,083	1,030	1,003
AC-FT a	61,900	58,240	110,100	228,500	106,600	111,800	82,640	79,330	69,830	66,610	63,320	59,710
CAL YR 1969	TOTAL 126,929	MEAN 348	MAX 5,250	MIN 107	AC-FT 251,800	MEAN a 1,510	AC-FT a 1,093,000					
WTR YR 1970	TOTAL 152,515	MEAN 418	MAX 11,600	MIN 128	AC-FT 302,500	MEAN a 1,517	AC-FT a 1,098,000					

a Adjusted for diversion to Iron Canyon Reservoir and change in contents in McCloud Reservoir.

## 11368000 McCLOUD RIVER ABOVE SHASTA LAKE, CALIF.

LOCATION.--Lat 40°57'30", long 122°13'07", in NW¼ sec.28, T.36 N., R.3 W., Shasta County, on right bank just upstream from Shasta Lake, 0.2 mile downstream from Big Bollibokka Creek, and 11.3 miles east of Lamoine.

DRAINAGE AREA.--604 sq mi.

PERIOD OF RECORD.--October 1945 to current year. Published as "above Shasta Reservoir" prior to 1950.

GAGE.--Water-stage recorder. Datum of gage is 1,100.00 ft above mean sea level (levels by Bureau of Reclamation).

AVERAGE DISCHARGE (prior to regulation by McCloud Reservoir and diversion to Pit River basin).--20 years (1945-65), 1,699 cfs (1,230,000 acre-ft per year); 5 years (1966-70), 854 cfs (618,700 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 39,200 cfs Jan. 23 (gage height, 27.05 ft in gage well, 28.0 ft, from floodmarks), from rating curve extended above 15,000 cfs as explained below; minimum daily, 278 cfs Aug. 26-28.

Period of record: Maximum discharge 45,200 cfs Dec. 22, 1955 (gage height, 28.20 ft), from rating curve extended above 15,000 cfs on basis of slope-area measurement of maximum flow; minimum daily, 255 cfs Oct. 7, 8, 1968.

REMARKS.--Flow partially regulated by McCloud Reservoir (see sta 11367740) since Nov. 3, 1965. Diversions to Iron Canyon Reservoir (see sta 11363920) began Dec. 1, 1965. See schematic diagram of Pit and McCloud River basins. Records of chemical analyses for the water year 1970 are published in Part 2 of this report.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	294	294	299	680	2,590	2,030	581	399	358	332	290	290
2	298	294	299	619	2,160	1,580	565	395	358	328	294	290
3	298	290	303	584	1,910	1,340	554	390	358	319	290	294
4	286	307	303	546	1,740	1,280	549	386	358	315	294	294
5	286	428	303	509	1,490	1,160	538	381	358	315	290	298
6	290	390	303	500	1,310	1,080	522	381	358	311	294	298
7	290	409	303	510	1,220	1,130	512	381	358	311	290	294
8	298	452	319	554	1,140	1,260	507	390	376	311	290	294
9	303	341	345	1,310	1,080	1,370	497	390	390	307	290	290
10	298	319	399	2,650	1,010	1,330	487	381	372	307	286	294
11	294	324	1,370	2,320	966	1,310	482	390	363	307	286	294
12	294	315	3,140	2,310	1,160	1,280	467	390	358	307	286	290
13	294	311	2,030	4,740	1,310	1,210	482	381	358	307	286	286
14	315	311	1,310	9,290	1,370	1,230	477	372	363	303	286	286
15	345	307	1,010	6,080	1,240	1,300	467	372	354	303	286	286
16	390	307	739	6,810	1,560	1,230	462	390	354	303	286	286
17	341	303	638	7,140	2,230	1,150	467	386	354	303	286	290
18	311	311	621	5,530	1,820	1,070	452	386	345	303	282	290
19	307	307	1,920	4,550	1,530	1,000	447	386	345	299	282	290
20	303	307	3,430	4,990	1,350	919	437	390	341	303	282	294
21	303	307	14,100	8,160	1,220	840	447	381	341	303	282	290
22	298	303	6,460	13,800	1,120	783	437	376	341	299	282	294
23	298	303	2,740	28,900	1,040	745	437	376	341	299	282	294
24	298	303	2,160	24,500	980	715	428	372	341	299	282	290
25	298	303	1,980	11,400	919	685	432	367	337	294	282	290
26	294	303	1,730	8,770	866	667	428	367	332	294	278	290
27	294	303	1,400	11,000	821	644	423	372	337	294	278	290
28	294	299	1,150	6,770	1,240	632	418	367	345	290	278	290
29	294	299	968	4,890	-----	615	413	367	341	294	282	290
30	294	299	837	3,860	-----	609	409	367	332	290	286	286
31	294	-----	744	3,060	-----	592	-----	363	-----	294	286	-----
TOTAL	7,394	9,649	53,653	187,332	38,392	32,786	14,224	11,792	10,567	9,444	8,854	8,732
MEAN	303	322	1,731	6,043	1,371	1,058	474	380	352	305	286	291
MAX	390	452	14,100	28,900	2,590	2,030	581	399	390	332	294	298
MIN	286	290	299	500	821	592	409	363	332	290	278	286
AC-FT	18,630	19,140	106,400	371,600	76,150	65,030	28,210	23,390	20,960	18,730	17,560	17,320

CAL YR 1969 TOTAL 373,811 MEAN 1,024 MAX 14,100 MIN 286 AC-FT 741,500  
WTR YR 1970 TOTAL 394,819 MEAN 1,082 MAX 28,900 MIN 278 AC-FT 783,100

## SACRAMENTO RIVER BASIN

## 11370000 SHASTA LAKE NEAR REDDING, CALIF.

LOCATION.--Lat 40°43'08", long 122°25'12", in NW<sup>1</sup>/<sub>4</sub> sec.15, T.33 N., R.5 W., Shasta County, in Shasta Dam on Sacramento River near right bank, 2 miles downstream from Squaw Creek, and 9.5 miles north of Redding.

DRAINAGE AREA.--6,421 sq mi, excluding Goose Lake basin.

PERIOD OF RECORD.--November 1942 to current year. Prior to 1950, published as Shasta Reservoir near Redding.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Bureau of Reclamation). Prior to July 10, 1944, nonrecording gage at various sites near dam at same datum.

EXTREMES.--Current year: Maximum contents, 4,311,000 acre-ft Jan. 27 (elevation, 1,058.77 ft); minimum, 3,153,000 acre-ft Jan. 8 (elevation, 1,014.37 ft).

Period of record: Maximum contents, 4,550,300 acre-ft May 19, 1967 (elevation, 1,066.94 ft); minimum since reservoir first filled, 2,144,900 acre-ft Nov. 22, 1961 (elevation, 965.54 ft).

REMARKS.--Reservoir is formed by concrete gravity-type dam completed in 1949; regulation began Dec. 30, 1943. Usable capacity, 4,436,400 acre-ft between elevations 737.75 ft (bottom of lowest set of river outlets) and 1,067.0 ft (top of flashboard gates on drum-type spillway gates) above mean sea level. Dead storage, 115,700 acre-ft. Installation of flashboard gates on top of drum gates completed Nov. 12, 1964. Gates increased elevation to 1,067.0 ft, total capacity, 4,552,100 acre-ft. All water passes down the Sacramento River, most of which is through powerplant at dam. Records, including extremes, represent total contents at 2400 hours. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records furnished by Bureau of Reclamation, rounded to Geological Survey standards.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

960	2,047,000	1,010	3,052,000
970	2,226,000	1,020	3,287,000
980	2,416,000	1,030	3,534,000
990	2,617,000	1,050	4,063,000
1,000	2,829,000	1,067	4,552,000

## CONTENTS, IN THOUSANDS OF ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3,521	3,362	3,220	3,240	3,945	3,435	3,984	4,097	4,103	3,947	3,718	3,570
2	3,517	3,354	3,210	3,227	3,856	3,460	3,989	4,091	4,099	3,943	3,710	3,566
3	3,516	3,346	3,202	3,215	3,783	3,479	3,995	4,087	4,092	3,940	3,704	3,561
4	3,512	3,339	3,196	3,202	3,708	3,503	3,998	4,088	4,087	3,935	3,703	3,556
5	3,506	3,338	3,192	3,189	3,649	3,523	4,001	4,088	4,082	3,927	3,699	3,549
6	3,499	3,336	3,190	3,178	3,590	3,542	4,009	4,091	4,075	3,922	3,696	3,538
7	3,493	3,334	3,180	3,164	3,526	3,561	4,020	4,092	4,067	3,919	3,692	3,530
8	3,491	3,332	3,173	3,153	3,467	3,586	4,029	4,094	4,063	3,912	3,681	3,526
9	3,484	3,326	3,172	3,168	3,418	3,610	4,041	4,096	4,058	3,906	3,669	3,520
10	3,477	3,324	3,176	3,206	3,376	3,636	4,049	4,095	4,053	3,899	3,663	3,515
11	3,473	3,325	3,198	3,225	3,340	3,660	4,057	4,095	4,049	3,890	3,660	3,514
12	3,468	3,327	3,244	3,247	3,316	3,684	4,063	4,093	4,044	3,875	3,656	3,505
13	3,464	3,324	3,264	3,323	3,306	3,707	4,068	4,092	4,041	3,863	3,652	3,496
14	3,459	3,321	3,276	3,446	3,300	3,729	4,076	4,095	4,035	3,856	3,648	3,491
15	3,458	3,316	3,277	3,483	3,302	3,750	4,081	4,096	4,030	3,850	3,639	3,483
16	3,452	3,310	3,273	3,568	3,316	3,770	4,087	4,101	4,026	3,844	3,629	3,485
17	3,447	3,307	3,268	3,638	3,333	3,787	4,092	4,101	4,021	3,838	3,626	3,482
18	3,444	3,303	3,261	3,676	3,345	3,804	4,098	4,101	4,015	3,828	3,623	3,483
19	3,436	3,295	3,293	3,696	3,354	3,821	4,101	4,102	4,009	3,813	3,620	3,476
20	3,431	3,292	3,343	3,698	3,362	3,838	4,103	4,104	4,004	3,805	3,616	3,472
21	3,425	3,286	3,460	3,769	3,373	3,855	4,106	4,108	4,002	3,799	3,615	3,471
22	3,419	3,278	3,483	3,881	3,378	3,873	4,108	4,111	3,999	3,795	3,604	3,468
23	3,413	3,271	3,497	4,137	3,380	3,888	4,108	4,111	3,996	3,790	3,595	3,465
24	3,406	3,266	3,485	4,301	3,385	3,898	4,108	4,110	3,990	3,785	3,590	3,464
25	3,400	3,259	3,459	4,308	3,389	3,913	4,108	4,110	3,991	3,775	3,589	3,463
26	3,395	3,251	3,427	4,303	3,392	3,925	4,106	4,112	3,989	3,761	3,588	3,456
27	3,389	3,245	3,389	4,311	3,392	3,939	4,105	4,113	3,975	3,748	3,584	3,450
28	3,384	3,240	3,347	4,269	3,409	3,951	4,103	4,113	3,960	3,742	3,580	3,446
29	3,378	3,234	3,305	4,207	-----	3,963	4,102	4,111	3,951	3,737	3,577	3,444
30	3,372	3,228	3,282	4,127	-----	3,975	4,100	4,108	3,948	3,732	3,573	3,441
31	3,367	-----	3,263	4,037	-----	3,981	-----	4,107	-----	3,728	3,572	-----
MAX	3,521	3,362	3,497	4,311	3,945	3,981	4,108	4,113	4,103	3,947	3,718	3,570
MIN	3,367	3,228	3,172	3,153	3,300	3,435	3,984	4,087	3,948	3,728	3,572	3,441
(a)	1,023.30	1,017.54	1,019.01	1,049.06	1,025.01	1,047.01	1,051.33	1,051.58	1,045.80	1,037.55	1,031.52	1,026.31
(b)	-161,000	-139,000	+35,000	+774,000	-628,000	-572,000	+119,000	+7,000	-159,000	-220,000	-158,000	-131,000
(c)	6,110	5,220	2,080	1,670	3,430	5,950	8,240	12,000	13,290	17,440	15,920	12,090

CAL YR 1969 MAX 4,518 MIN 2,738 b+531,000  
WAT YR 1970 MAX 4,311 MIN 3,153 b -87,000

a Elevation, in feet, at end of month.  
b Change in contents, in acre-feet.  
c Evaporation, in acre-feet.

## 11370500 SACRAMENTO RIVER AT KESWICK, CALIF.

LOCATION.--Lat 40°36'04", long 122°26'36", in SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.28, T.32 N., R.5 W., Shasta County, on right bank 0.4 mile upstream from Middle Creek, 0.8 mile downstream from Keswick Dam, 1.6 miles downstream from Keswick, and 10 miles downstream from Shasta Dam.

DRAINAGE AREA.--6,468 sq mi, excluding Goose Lake basin.

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is 479.81 ft above mean sea level. Prior to Oct. 1, 1939, at site 1.5 miles upstream at datum 20.2 ft higher and Oct. 1, 1939, to Apr. 30, 1942, at site 1.5 miles upstream at datum 15.2 ft higher. Since Aug. 20, 1960, auxiliary water-stage recorder at city of Redding pumping plant 2.1 miles downstream.

AVERAGE DISCHARGE (adjusted for change in contents and evaporation from Shasta Lake and transbasin diversion into Keswick Reservoir).--32 years, 8,497 cfs (6,156,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 78,900 cfs Jan. 24 (gage height, 32.22 ft); minimum daily, 4,240 cfs Nov. 11.

Period of record: Maximum discharge, 186,000 cfs Feb. 23, 1940 (gage height, 47.2 ft, site and datum then in use), from rating curve extended above 75,000 cfs on basis of peak discharge at Kennet plus 4,000 cfs estimated inflow; minimum observed, 2,730 cfs Aug. 22, 1939. Maximum discharge since construction of Shasta Dam in 1944, 78,900 cfs Jan. 24, 1970 (gage height, 32.22 ft); minimum, 154 cfs May 15, 1948.

REMARKS.--Records good. Flow regulated by Shasta Dam beginning Dec. 30, 1943 (see sta 11370000). Diurnal fluctuations from Shasta powerplant re-regulated by Keswick Reservoir (capacity, 4,170 acre-ft between normal operation elevations 579.0 and 586.0 ft) and powerplant. No diversion for irrigation between Shasta Dam and station at Keswick. Since December 1963, water is released from Whiskeytown Lake (see sta 11371700) at lat 40°37'03", long 122°31'31", through a tunnel to Spring Creek powerplant (see sta 11371600) and then into Keswick Reservoir. See schematic diagram of Pit and McCloud River basins. Records of chemical analyses for the water year 1970 are published in Part 2 of this report.

COOPERATION.--Eleven discharge measurements furnished by Bureau of Reclamation.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8,480	7,850	7,630	19,600	70,300	8,830	7,080	11,400	9,190	10,300	9,780	9,190
2	7,900	7,850	7,650	16,900	65,200	6,600	7,060	11,400	9,140	10,300	9,720	8,570
3	7,910	7,850	7,650	15,200	58,600	8,180	7,050	11,400	9,030	10,300	9,780	8,600
4	7,860	7,850	7,630	15,300	57,000	8,270	7,060	9,710	9,060	10,300	9,800	8,520
5	7,870	7,860	7,640	15,300	48,900	8,130	7,060	9,600	9,350	10,300	9,800	8,010
6	7,860	7,860	7,640	15,200	47,400	8,060	7,060	9,610	9,750	10,300	9,820	8,070
7	7,860	7,860	7,640	15,200	47,900	8,060	7,050	9,620	9,770	10,300	9,820	8,070
8	7,490	7,860	7,340	15,200	45,900	8,060	7,040	9,580	9,770	10,400	9,800	8,090
9	7,860	7,860	6,830	15,400	40,400	8,050	7,040	9,570	9,800	10,400	9,770	8,090
10	7,860	5,590	6,310	15,300	36,600	7,930	7,070	9,590	9,780	11,100	9,850	8,040
11	7,860	4,240	6,140	15,200	32,500	7,860	7,870	9,570	9,800	11,500	9,400	7,620
12	7,860	5,020	8,190	15,300	28,900	7,800	8,190	9,530	9,780	11,500	9,610	7,580
13	7,870	7,680	12,100	15,400	25,100	7,810	8,380	8,360	9,780	11,700	9,080	7,500
14	7,860	7,690	12,100	18,000	21,400	7,800	8,390	7,910	9,780	11,700	9,260	7,620
15	7,860	7,690	12,000	34,100	18,600	7,800	8,330	7,910	9,750	11,700	9,140	7,620
16	7,860	7,650	12,000	22,700	16,900	7,790	8,320	7,900	9,750	11,700	9,290	7,620
17	7,860	7,670	12,000	36,200	16,500	7,810	8,320	7,910	9,750	11,700	9,300	7,640
18	7,860	7,670	12,400	36,100	16,400	7,810	8,320	7,910	9,750	11,700	9,380	7,640
19	7,860	7,660	12,800	40,900	16,000	7,790	8,340	7,900	10,000	11,700	9,460	7,590
20	7,860	7,670	13,400	50,400	15,600	6,920	8,720	7,900	10,300	11,700	9,290	7,590
21	7,860	7,670	13,900	51,600	15,400	6,800	9,170	7,900	10,300	11,700	9,140	7,610
22	7,860	7,670	23,700	54,200	15,100	6,820	9,710	7,900	10,300	11,800	9,380	7,610
23	7,860	7,680	25,800	38,900	14,900	6,930	10,300	7,930	10,300	11,700	9,340	7,640
24	7,860	7,670	30,600	39,500	14,900	7,090	11,400	8,300	10,300	11,700	9,320	7,620
25	7,860	7,660	35,300	77,200	14,900	7,140	11,400	8,390	10,300	11,000	9,260	7,660
26	7,870	7,650	35,200	76,000	14,700	7,140	11,400	8,460	10,300	11,100	9,260	7,690
27	7,860	7,650	35,100	74,500	14,600	7,140	11,400	8,470	10,300	11,200	9,260	7,480
28	7,850	7,650	35,000	75,800	12,300	7,140	11,400	8,520	10,300	11,100	9,290	7,480
29	7,850	7,650	33,000	74,700	-----	7,130	11,400	8,390	10,300	10,300	9,300	7,540
30	7,850	7,650	21,700	74,800	-----	7,110	11,400	8,700	10,300	10,400	9,200	7,480
31	7,850	-----	19,700	74,700	-----	7,070	-----	8,680	-----	9,820	9,290	-----
TOTAL	243,900	223,530	496,090	1,154,888	842,900	234,870	262,730	275,920	296,080	342,420	293,190	235,080
MEAN	7,868	7,451	16,000	37,250	30,100	7,576	8,758	8,901	9,869	11,050	9,458	7,836
MAX	8,480	7,860	35,300	77,200	70,300	8,830	11,400	11,400	10,300	11,800	9,850	9,190
MIN	7,400	4,240	6,140	15,200	12,300	6,600	7,040	7,900	9,030	9,820	9,080	7,480
AC-FT	483,800	443,400	984,000	2,291M	1,672M	465,900	521,100	547,300	587,300	679,200	581,500	466,300
MEAN a	4,737	4,637	15,450	47,910	15,540	13,650	7,911	6,686	5,425	4,653	4,211	3,850
AC-FT a	291,300	275,900	948,700	2,946,000	862,800	839,500	470,700	411,100	322,800	286,100	258,900	229,100

CAL YR 1969 TOTAL 4,611,490 MEAN 12,630 MAX 52,600 MIN 3,060 AC-FT 9,147,000 MEAN a 1,164 AC-FT a 842,600  
WTR YR 1970 TOTAL 4,901,510 MEAN 13,430 MAX 77,200 MIN 4,240 AC-FT 9,722,000 MEAN a 11,250 AC-FT a 8,143,000

a Adjusted for change in contents and evaporation from Shasta Lake and transbasin diversion into Keswick Reservoir.

## SACRAMENTO RIVER BASIN

## 11371000 CLEAR CREEK AT FRENCH GULCH, CALIF.

LOCATION.--Lat 40°41'42", long 122°38'08", (unsurveyed), Shasta County, on right bank 1,200 ft downstream from French Gulch, 0.3 mile south of town of French Gulch, and 15 miles northwest of Redding.

DRAINAGE AREA.--115 sq mi.

PERIOD OF RECORD.--July 1950 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,320.60 ft above mean sea level. Prior to Dec. 28, 1959, water-stage recorder at datum 3.00 ft higher.

AVERAGE DISCHARGE.--20 years, 215 cfs (155,800 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 4,920 cfs Jan. 23 (gage height, 11.06 ft); minimum daily, 8.0 cfs Sept. 12.

Period of record: Maximum discharge, 7,600 cfs Dec. 22, 1964 (gage height, 13.70 ft), from rating curve extended above 3,000 cfs; minimum, 3.9 cfs Sept. 6-8, 1955.

REMARKS.--Records excellent. No large diversion above station. See schematic diagram of Pit and McCloud River basins.

## DISCHARGE, IN CURIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	22	25	215	816	399	197	103	49	33	12	8.7
2	18	22	25	197	708	364	191	99	47	30	12	9.3
3	19	22	25	180	632	340	185	96	45	27	11	9.2
4	19	24	25	170	576	402	180	94	42	26	9.5	9.2
5	20	45	25	160	532	413	175	94	42	24	10	10
6	20	38	25	148	494	410	172	94	41	23	11	11
7	20	46	25	143	458	494	168	94	40	22	10	11
8	22	128	33	162	434	644	162	96	46	21	11	10
9	24	64	30	676	410	608	160	96	63	20	11	9.7
10	23	43	35	1,150	388	556	153	92	56	18	10	9.1
11	23	35	130	820	371	528	150	94	51	18	9.6	8.3
12	22	32	779	734	416	508	148	96	48	18	9.4	8.0
13	22	31	700	1,040	476	483	158	91	48	18	9.6	8.4
14	23	29	584	2,080	476	476	155	85	59	17	8.7	9.3
15	35	29	415	1,630	448	452	148	79	52	16	9.0	10
16	46	29	249	2,160	525	424	143	76	48	15	9.4	9.6
17	40	28	180	2,000	685	399	138	74	46	16	9.3	9.6
18	29	27	194	1,510	608	371	134	73	43	15	9.1	9.6
19	25	27	563	1,300	539	350	132	72	39	14	8.8	9.9
20	24	27	1,110	1,330	494	332	129	71	36	13	9.2	10
21	23	27	3,060	2,080	455	315	127	70	34	13	9.4	10
22	22	25	1,230	2,640	416	298	125	66	34	12	9.5	10
23	23	27	984	4,030	388	284	121	64	32	12	8.8	10
24	23	26	816	4,070	364	270	118	62	32	13	9.0	10
25	23	26	658	2,570	340	252	116	60	30	13	9.0	9.7
26	23	26	546	2,320	322	242	116	59	30	12	9.1	9.5
27	23	25	448	3,650	308	236	116	59	32	12	9.1	9.2
28	23	25	374	2,280	357	227	114	59	44	11	9.0	9.4
29	23	25	318	1,610	-----	218	110	56	42	12	9.1	9.4
30	23	25	273	1,220	-----	215	107	52	35	13	9.5	8.9
31	23	-----	239	972	-----	209	-----	51	-----	12	8.9	-----
TOTAL	744	1,007	14,123	45,247	13,436	11,719	4,348	2,427	1,286	539	300.0	286.0
MEAN	24.0	33.6	456	1,460	480	378	145	78.3	42.9	17.4	9.68	9.53
MAX	46	128	3,060	4,070	816	644	197	103	63	33	12	11
MIN	18	22	25	143	308	209	107	51	30	11	8.7	8.0
AC-FT	1,480	2,000	28,010	89,750	26,650	23,240	8,620	4,810	2,550	1,070	595	567
CAL YR 1969	TOTAL	109,758.0	MEAN	301	MAX	3,060	MIN	12	ACFT	217,700		
WAT YR 1970	TOTAL	95,462.0	MEAN	262	MAX	4,070	MIN	8.0	ACFT	189,300		

## PEAK DISCHARGE (BASE, 1,500 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	0930	10.63	4,490	1-23	2100	11.06	4,920
1-14	1230	8.30	2,340	1-27	0300	10.55	4,410
1-16	1300	8.27	2,320				

## KLAMATH RIVER BASIN

783

## 11525430 JUDGE FRANCIS CARR POWERPLANT NEAR FRENCH GULCH, CALIF.

LOCATION.--Lat 40°38'49", long 122°37'34", (unsurveyed), Shasta County, at powerplant 1.6 miles downstream from Mill Creek and 3.8 miles south of French Gulch.

PERIOD OF RECORD.--April 1963 to current year.

GAGE.--Recorded powerplant output.

EXTREMES.--Period of record: Maximum daily discharge, 3,910 cfs Feb. 11, 1970; no flow for several days in 1963, 1966, 1969.

REMARKS.--Water is diverted from Trinity River at NW¼SE¼ sec.8, T.33 N., R.8 W., through a tunnel to powerplant and then into Whiskeytown Lake (see sta 11371700). See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records furnished by Bureau of Reclamation, rounded to Geological Survey standards.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,190	0	373	490	1,790	2,610	2,410	3,730	1,960	3,010	3,020	2,020
2	1,090	0	389	401	2,510	2,900	2,630	3,400	1,950	3,010	3,020	2,010
3	1,000	0	399	399	3,170	2,560	2,470	3,730	1,940	3,010	3,020	2,010
4	995	0	396	399	3,280	2,280	3,290	3,410	1,950	3,010	3,020	2,010
5	1,010	0	404	384	3,060	2,140	3,690	3,480	1,900	3,010	3,020	2,010
6	977	0	358	348	3,400	2,050	3,740	3,270	1,900	2,870	2,880	2,020
7	971	0	248	632	2,730	2,010	3,800	3,250	1,900	2,990	2,880	2,010
8	993	3.0	380	362	2,320	2,210	181	3,320	1,910	2,870	2,870	1,960
9	1,030	12	391	371	2,790	3,120	1,170	3,400	1,930	3,010	2,890	1,910
10	1,020	650	339	374	3,460	3,730	3,360	1,960	1,920	3,010	2,870	1,780
11	1,060	533	364	378	3,910	3,400	3,360	1,960	1,910	3,020	2,870	1,400
12	1,060	528	493	439	3,840	3,730	3,560	1,880	1,900	3,020	2,880	1,380
13	141	477	495	789	3,800	3,730	3,520	2,020	1,900	3,020	2,880	1,230
14	0	531	420	341	3,590	3,230	3,460	2,040	1,910	2,940	3,030	1,380
15	0	570	450	379	2,600	2,470	3,530	1,930	1,900	2,920	2,920	1,420
16	0	603	452	403	2,870	3,170	3,530	1,940	1,910	3,020	2,880	1,400
17	0	613	418	681	2,930	3,730	3,180	1,490	1,900	3,020	2,880	1,410
18	0	633	422	538	3,120	3,400	3,160	2,030	1,900	3,020	2,880	1,420
19	0	617	408	401	3,410	2,760	3,280	1,930	1,900	3,020	2,880	1,020
20	0	705	395	587	3,380	2,770	3,380	1,930	1,900	3,020	2,880	1,010
21	0	570	463	782	2,690	2,760	3,380	1,960	2,010	3,020	2,880	1,390
22	0	614	488	655	1,680	2,310	3,380	1,930	1,900	3,020	2,880	1,340
23	0	604	396	761	2,670	2,290	3,350	1,870	1,900	3,020	2,880	1,380
24	0	647	331	396	3,730	2,260	3,610	1,930	1,900	2,950	2,880	1,380
25	0	582	335	380	3,730	2,260	3,730	1,920	1,910	3,050	2,880	1,380
26	0	627	345	318	3,460	2,370	3,670	1,940	1,890	3,150	2,960	1,010
27	0	574	405	368	3,490	2,790	3,800	1,940	1,900	3,050	2,880	1,020
28	0	571	376	1,290	2,320	2,680	3,730	1,950	1,890	3,020	2,880	1,380
29	0	588	403	3,070	-----	2,340	3,620	1,950	1,940	3,160	2,880	1,400
30	0	583	400	2,680	-----	2,410	3,640	1,940	1,970	3,050	2,880	1,410
31	0	-----	414	2,590	-----	2,490	-----	1,930	-----	3,020	2,020	-----
TOTAL	12,537	12,435.0	12,350	22,386	85,730	84,960	96,611	73,360	57,500	93,330	89,370	45,900
MEAN	404	415	398	722	3,062	2,741	3,220	2,366	1,917	3,011	2,883	1,530
MAX	1,190	705	495	3,070	3,910	3,730	3,800	3,730	2,010	3,160	3,030	2,020
MIN	0	0	248	318	1,680	2,010	181	1,490	1,890	2,870	2,020	1,010
AC-FT	24,870	24,660	24,500	44,400	170,000	168,500	191,600	145,500	114,100	185,100	177,300	91,040
CAL YR 1969	TOTAL 487,983.0		MEAN 1,337		MAX 3,870		MIN 0		ACFT 967,900			
WAT YR 1970	TOTAL 686,469.0		MEAN 1,881		MAX 3,910		MIN 0		ACFT 1,362,000			

## SACRAMENTO RIVER BASIN

## 11371600 SPRING CREEK POWERPLANT AT KESWICK, CALIF.

LOCATION.--Lat 40°37'41", long 122°27'59", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.18, T 32 N., R.5 W., Shasta County, at powerplant on Spring Creek, 0.4 mile northwest of Keswick, and 4.9 miles northwest of Redding.

PERIOD OF RECORD.--December 1963 to current year.

GAGE.--Discharge computed from powerplant output.

EXTREMES.--Period of record: Maximum daily discharge, 4,280 cfs Jan. 22, 1969; minimum daily, 10 cfs Dec. 15, 1963.

REMARKS.--Water is released from Whiskeytown Lake (see sta 11371700) at lat 40°37'03", long 122°31'31", through a tunnel to powerplant and then into Keswick Reservoir. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records furnished by Bureau of Reclamation, rounded to Geological Survey standards.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	897	467	311	726	2,200	3,400	24	3,920	2,000	3,190	3,160	2,000
2	778	475	238	841	2,560	3,410	285	3,620	2,010	3,190	3,160	2,000
3	1,120	470	248	726	3,400	3,410	2,090	3,800	1,980	3,190	3,160	2,000
4	1,120	479	234	726	3,400	3,400	24	3,490	1,970	3,190	3,160	2,000
5	1,110	807	239	720	3,400	3,400	1,340	3,440	1,940	3,190	3,160	2,000
6	1,110	479	252	656	3,400	3,410	2,460	3,470	1,940	3,080	3,040	2,000
7	1,080	471	351	808	3,400	3,410	4,050	3,470	1,930	3,100	3,040	2,000
8	1,090	468	342	463	3,400	3,410	4,110	3,440	2,010	2,940	3,040	2,000
9	1,090	477	352	1,130	3,400	3,400	4,080	3,310	2,010	2,990	2,940	2,000
10	1,080	565	346	2,310	3,400	3,400	3,690	2,270	2,010	2,990	2,910	2,000
11	1,080	384	1,160	2,370	3,400	3,400	3,570	2,290	2,010	2,980	2,910	2,000
12	1,090	583	1,990	2,350	3,400	3,400	3,270	2,360	2,040	3,000	2,850	2,000
13	512	603	1,980	1,170	3,400	3,400	3,340	2,230	2,040	3,010	2,900	2,000
14	514	603	1,690	1,310	3,400	3,400	3,320	2,200	2,040	3,100	3,040	2,000
15	478	591	1,130	3,250	3,380	3,400	3,270	1,920	2,100	2,980	3,000	2,000
16	509	590	562	3,220	3,380	3,400	3,250	2,100	2,030	2,980	2,910	2,010
17	500	591	600	3,220	3,370	3,400	3,070	2,170	2,090	3,040	2,900	2,010
18	173	583	672	3,220	3,380	3,400	3,160	2,030	2,080	3,080	2,900	2,010
19	24	582	1,120	3,220	3,390	3,410	3,120	2,040	2,090	3,080	2,900	2,010
20	24	575	1,180	3,220	3,400	3,410	3,150	2,100	2,030	3,080	2,970	2,010
21	24	603	2,050	2,640	3,380	3,420	3,170	2,140	1,990	3,080	2,970	2,010
22	24	600	3,460	3,160	3,380	3,420	3,160	2,040	1,990	3,080	2,980	1,520
23	24	606	3,240	2,630	3,400	3,420	3,180	2,020	2,000	3,070	2,970	2,020
24	24	602	3,240	2,420	3,400	3,430	3,250	2,030	1,990	3,230	2,970	2,020
25	49	635	2,140	1,710	3,390	3,440	3,510	2,020	1,970	3,080	2,970	2,020
26	277	649	2,270	382	3,390	3,440	3,620	1,970	1,990	3,070	2,950	2,020
27	405	638	2,110	337	3,400	3,440	3,800	2,000	2,000	3,220	2,970	2,020
28	1,240	635	728	2,220	3,400	3,450	3,790	2,090	2,000	3,230	2,970	2,040
29	487	655	732	3,400	-----	3,450	3,940	2,100	2,000	3,180	2,970	2,040
30	468	592	755	3,110	-----	3,460	3,850	1,980	2,000	3,160	2,900	2,040
31	477	-----	722	2,950	-----	535	-----	2,020	-----	3,150	2,060	-----
TOTAL	18,878	17,058	36,444	60,615	93,000	102,975	89,943	78,080	60,280	95,930	91,730	59,800
MEAN	609	569	1,176	1,955	3,321	3,322	2,998	2,519	2,009	3,095	2,959	1,993
MAX	1,240	807	3,460	3,400	3,400	3,460	4,110	3,920	2,100	3,230	3,160	2,040
MIN	24	384	234	337	2,200	535	24	1,920	1,930	2,940	2,060	1,520
AC-FT	37,440	33,830	72,290	120,200	184,500	204,300	178,400	154,900	119,600	190,300	181,900	118,600
CAL YR 1969	TOTAL	681,508	MEAN	1,867	MAX	4,280	MIN	24	ACFT	1,352,000		
WAT YR 1970	TOTAL	804,733	MEAN	2,205	MAX	4,110	MIN	24	ACFT	1,596,000		



## 11371700 WHISKEYTOWN LAKE NEAR IGO, CALIF.

LOCATION.--Lat 40°37'03", long 122°31'31", (unsurveyed), Shasta County, at outlet works to Spring Creek power-plant on Clear Creek, 1.8 miles downstream from Whiskey Creek, and 7.8 miles northeast of Igo.

DRAINAGE AREA.--200 sq mi.

PERIOD OF RECORD.--May 1963 to current year. Prior to October 1964 published as Whiskeytown Reservoir near Igo.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Bureau of Reclamation).

EXTREMES.--Current year: Maximum contents, 251,200 acre-ft Jan. 27 (elevation, 1,213.11 ft); minimum, 201,400 acre-ft Jan. 6 (elevation, 1,197.11 ft).

Period of record: Maximum contents, 251,200 acre-ft Jan. 27, 1970 (elevation, 1,213.11 ft); minimum since reservoir was first filled, 178,700 acre-ft Feb. 3, 1969 (elevation, 1,188.97 ft).

REMARKS.--Reservoir is formed by earthfill and rockfill dam. Storage began in May 1963. Capacity, 241,100 acre-ft between elevations 1,100.00 ft (minimum operating level) and 1,210.00 ft (crest of spillway). No dead storage. Transbasin water enters the reservoir through Judge Francis Carr powerplant (see sta 11525430) and is released through Spring Creek Tunnel to Spring Creek powerplant (see sta 11371600) and Keswick Reservoir. Records, including extremes, represent contents at 2400 hours. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records furnished by Bureau of Reclamation.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

1,015	714	1,080	15,100
1,020	994	1,100	27,500
1,030	1,800	1,120	46,700
1,040	3,060	1,140	74,000
1,050	4,900	1,180	155,300
1,060	7,420	1,220	274,400

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	222,900	209,300	201,700	202,500	245,000	242,600	216,900	238,100	237,700	237,400	238,400	238,900
2	223,600	208,300	201,900	202,200	245,000	242,600	222,100	238,000	237,700	237,400	238,300	239,000
3	223,300	207,400	202,200	202,000	244,700	242,000	223,400	238,000	237,800	237,300	238,200	239,100
4	223,100	206,600	202,400	201,800	244,600	241,900	230,400	238,200	237,800	237,300	238,100	239,200
5	223,000	205,100	202,700	201,600	244,300	241,200	235,400	238,500	237,900	237,200	238,000	239,300
6	222,800	204,300	202,800	201,400	244,400	240,200	238,400	238,400	238,000	237,000	237,900	239,500
7	222,500	203,600	202,500	201,500	243,400	239,500	238,200	238,300	238,000	237,000	237,700	239,600
8	222,300	203,200	202,700	202,100	242,400	239,000	231,200	238,400	238,200	237,100	237,500	239,700
9	222,200	202,400	202,700	205,200	242,400	240,400	226,000	238,800	238,400	237,200	237,500	239,600
10	222,100	202,600	203,200	205,800	243,100	242,600	225,800	238,600	238,300	237,500	237,600	239,300
11	222,100	202,900	203,900	204,900	244,100	243,600	225,900	238,300	238,300	237,800	237,700	238,200
12	222,100	202,900	204,500	203,800	244,800	244,300	226,800	237,900	238,200	238,000	238,000	237,000
13	221,400	202,700	203,800	208,300	245,300	244,500	227,700	237,800	238,300	238,200	238,100	235,500
14	220,300	202,500	203,200	214,500	245,000	244,100	228,600	237,800	238,400	238,100	238,200	234,300
15	219,800	202,500	202,800	214,500	243,600	242,900	229,600	238,100	238,300	238,100	238,200	233,300
16	218,900	202,500	203,200	216,700	244,300	243,000	230,600	238,200	238,200	238,400	238,300	232,100
17	218,000	202,500	203,500	218,100	244,500	243,100	231,500	237,000	238,000	238,400	238,400	231,100
18	217,600	202,500	203,600	217,500	244,500	242,000	232,000	237,400	237,900	238,500	238,500	230,000
19	217,500	202,500	205,000	216,700	244,500	240,100	232,900	237,400	237,600	238,600	238,600	228,100
20	217,400	202,700	207,700	216,300	244,400	238,100	233,800	237,400	237,600	238,600	238,600	226,200
21	217,300	202,600	215,200	220,000	243,100	236,100	234,700	237,300	237,700	238,700	238,600	225,000
22	217,200	202,500	213,000	224,600	241,000	233,100	235,500	237,300	237,700	238,700	238,500	224,700
23	217,100	202,500	210,900	238,500	240,700	230,100	236,400	237,300	237,700	238,800	238,500	223,600
24	217,100	202,500	207,800	246,300	242,400	226,900	237,400	237,300	237,700	238,400	238,400	222,400
25	217,000	202,400	206,300	247,200	243,400	223,500	238,200	237,300	237,600	238,500	238,400	221,200
26	216,400	202,300	204,300	250,100	243,500	220,400	238,500	237,500	237,500	238,900	238,500	219,300
27	215,600	202,100	202,100	251,200	243,600	218,100	238,700	237,600	237,500	238,700	238,600	217,400
28	213,100	201,900	202,400	248,300	243,000	215,500	238,800	237,600	237,400	238,500	238,600	216,200
29	212,200	201,800	202,500	247,400	-----	212,200	238,500	237,400	237,500	238,500	238,600	215,000
30	211,200	201,600	202,500	246,500	-----	209,000	238,300	237,500	237,500	238,500	238,700	213,800
31	210,300	-----	202,400	245,800	-----	211,900	-----	237,600	-----	238,500	238,800	-----
MAX	223,600	209,300	215,200	251,200	245,300	244,500	238,800	238,800	238,400	238,900	238,800	239,700
MIN	210,300	201,600	201,700	201,400	240,700	209,000	216,900	237,000	237,400	237,000	237,500	213,800
(a)	1,200.06	1,197.11	1,197.38	1,211.46	1,210.59	1,200.59	1,209.13	1,208.91	1,208.88	1,209.19	1,209.28	1,201.23
(b)	-12.1	-8.7	+0.8	+43.4	-2.8	-31.1	+26.4	-0.7	-0.1	+1.0	+0.3	-25.0
(c)	640	350	140	120	320	640	900	1,510	1,620	2,230	2,110	1,430
CAL YR 1969	MAX 239,700	MIN 178,700	b +22.0									
WAT YR 1970	MAX 251,200	MIN 201,400	b -8.6									

a Elevation, in feet, at end of month.

b Change in contents, in thousands of acre-feet.

c Evaporation, in acre-feet.

## SACRAMENTO RIVER BASIN

## 11372000 CLEAR CREEK NEAR IGO, CALIF.

LOCATION.--Lat 40°30'48", long 122°31'23", (unsurveyed), Shasta County, on left bank at highway bridge on Redding-Igo Road 1.0 mile northeast of Igo, 8.3 miles southwest of Redding, and 10.4 miles upstream from mouth.

DRAINAGE AREA.--228 sq mi.

PERIOD OF RECORD.--October 1940 to current year.

GAGE.--Water-stage recorder. Datum of gage is 672 ft above mean sea level.

AVERAGE DISCHARGE (adjusted for storage and diversions).--30 years, 432 cfs (313,200 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 8,260 cfs Jan. 26 (gage height, 8.73 ft); minimum daily, 45 cfs July 6.

Period of record: Maximum discharge, 24,500 cfs Dec. 21, 1955 (gage height, 13.75 ft); minimum, 8.6 cfs Sept. 4, 6, 7, 1950. Maximum discharge since construction of Whiskeytown Dam in 1963, 9,940 cfs Dec. 22, 1964 (gage height, 9.23 ft); minimum daily, 37 cfs for many days in August and September 1966.

REMARKS.--Records good. Flow regulated by Whiskeytown Lake since May 1963 (see sta 11371700). Transbasin diversion from Trinity River through Judge Francis Carr powerplant to Whiskeytown Lake began in April 1963 (see sta 11525430). Diversions from Whiskeytown Lake to Spring Creek powerplant (see sta 11371600) began in December 1963. See schematic diagram of Pit and McCloud River basins. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	54	93	107	1,660	417	292	65	52	46	47	48
2	55	54	92	75	1,390	302	101	65	52	46	48	48
3	55	54	93	74	1,240	248	89	64	52	46	47	48
4	55	55	93	72	1,160	291	89	64	51	46	48	52
5	55	59	93	70	1,000	265	88	64	51	46	47	50
6	55	61	94	69	1,000	197	87	64	51	45	47	49
7	55	60	94	69	802	202	86	64	52	46	48	49
8	55	62	99	82	378	191	86	66	60	46	48	49
9	55	57	96	399	237	181	84	65	69	46	47	48
10	56	56	108	443	386	225	84	63	57	46	47	48
11	53	55	160	273	695	582	82	63	54	46	47	48
12	53	55	368	287	1,070	880	81	64	52	46	47	49
13	54	67	177	827	1,420	1,070	83	62	53	46	47	48
14	55	93	205	1,850	1,380	1,060	85	70	59	46	47	48
15	63	93	142	686	811	580	83	60	55	46	47	48
16	58	93	120	1,120	857	403	81	59	53	46	47	48
17	57	93	116	562	1,070	920	79	58	52	46	49	48
18	56	93	130	380	1,040	1,330	78	58	51	46	49	48
19	55	93	480	705	1,080	1,040	79	57	50	46	49	48
20	55	93	1,160	686	1,030	1,000	77	58	50	47	49	48
21	55	92	1,670	1,780	913	999	77	57	49	47	49	48
22	55	92	327	1,260	306	991	75	55	49	47	49	48
23	55	93	476	2,450	134	983	73	56	47	46	49	49
24	57	93	292	2,150	178	1,010	71	55	47	47	49	48
25	57	93	224	2,810	464	1,050	69	53	47	46	49	48
26	57	92	189	3,980	594	1,050	67	48	47	46	49	48
27	55	92	169	6,410	630	1,040	67	55	48	46	49	48
28	55	92	153	4,660	656	1,040	66	54	50	47	49	48
29	55	92	138	3,320	-----	1,040	65	53	49	46	48	48
30	55	93	132	2,460	-----	1,040	65	53	47	46	48	48
31	54	-----	125	1,970	-----	902	-----	52	-----	47	48	-----
TOTAL	1,720	2,324	7,908	42,086	23,581	22,529	2,589	1,844	1,556	1,431	1,488	1,451
MEAN	55.5	77.5	255	1,358	842	727	86.3	59.5	51.9	46.2	48.0	48.4
MAX	63	93	1,670	6,410	1,660	1,330	292	70	69	47	49	52
MIN	53	54	92	69	134	181	65	48	47	45	47	48
AC-FT	3,410	4,610	15,690	83,480	46,770	44,690	5,140	3,660	3,090	2,840	2,950	2,880
MEAN a	74.0	91.3	1,048	3,299	1,057	812	323	225	169	184	166	114
AC-FT a	4,550	5,430	64,440	202,800	58,690	49,910	19,220	13,820	10,060	11,340	10,220	6,760
CAL YR 1969	TOTAL 55,151	MEAN 151	MAX 1,950	MIN 51	ACFT 109,400	MEAN a 727	AC-FT a 528,400					
WAT YR 1970	TOTAL 110,507	MEAN 303	MAX 6,410	MIN 45	ACFT 219,200	MEAN a 632	AC-FT a 457,300					

a Adjusted for change in contents and evaporation from Whiskeytown Lake, diversion from Trinity River through Judge Francis Carr powerplant, and diversion to Spring Creek powerplant.

## 11372060 CHURN CREEK BELOW NEWTOWN CREEK, NEAR REDDING, CALIF.

LOCATION.--Lat 40°38'17", long 122°22'02", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.7, T.32 N., R.4 W., Shasta County, on left bank 100 ft downstream from Newtown Creek, 0.1 mile upstream from Oasis Road bridge, and 4.2 miles north of Redding.

DRAINAGE AREA.--11.9 sq mi.

PERIOD OF RECORD.--October 1965 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 640 ft (from topographic map).

AVERAGE DISCHARGE.--5 years, 25.7 cfs (18,620 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 2,960 cfs Jan. 23 (gage height, 8.21 ft); no flow for several months.

Period of record: Maximum discharge, 2,960 cfs Jan. 23, 1970 (gage height, 8.21 ft); no flow for several months in each year.

Flood of Dec. 22, 1964, reached a stage of 8.68 ft (revised) from floodmarks (discharge, 4,000 cfs, from station above Newtown Creek adjusted for intervening drainage area).

REMARKS.--Records good. Small diversion above station for domestic supply.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		0	.22	13	40	51	6.2	2.1	.15			
2		0	.25	12	33	33	6.1	1.9	.13			
3		0	.30	12	29	28	5.9	1.9	.08			
4		0	.33	12	26	60	5.8	1.8	.05			
5		.27	.31	12	23	54	5.7	1.7	.03			
6		3.8	.30	12	20	44	5.4	1.6	.03			
7		.96	.33	11	19	52	4.7	1.9	.02			
8		1.3	.84	20	17	48	3.5	2.0	.03			
9		.60	.84	347	17	43	3.5	2.3	.73			
10		.41	2.2	359	16	39	3.6	1.8	.94			
11		.30	22	149	15	33	3.6	1.8	.52			
12		.30	125	178	16	28	2.8	2.0	.32			
13		.27	69	473	44	25	4.0	2.2	.28			
14		.25	67	714	28	24	4.6	2.0	.62			
15		.25	29	249	22	20	4.1	1.8	.54			
16		.25	16	385	86	18	4.1	1.5	.39			
17		.22	14	219	99	17	3.7	1.4	.30			
18		.22	22	127	59	15	3.4	1.4	.27			
19		.22	259	162	43	14	3.1	1.3	.33			
20		.22	370	200	35	12	3.0	1.2	.25			
21		.22	344	664	29	12	3.0	1.1	.18			
22		.22	87	568	24	11	2.8	.71	.05			
23		.20	188	1,150	21	11	2.8	.53	.03			
24		.20	110	678	19	10	2.8	.46	.01			
25		.20	77	202	17	9.1	2.6	.39	.01			
26		.20	45	324	16	8.5	2.7	.40	.01			
27		.18	32	450	15	7.9	2.6	.35	0			
28		.20	25	159	45	7.9	2.5	.38	0			
29		.20	21	95	-----	7.4	2.3	.30	0			
30		.22	17	65	-----	6.8	2.3	.26	0			
31		-----	14	49	-----	6.6	-----	.19	-----			
TOTAL	0	11.88	1,958.92	8,069	873	756.2	113.2	40.57	6.30	0	0	0
MEAN	0	.40	63.2	260	31.2	24.4	3.77	1.31	.21	0	0	0
MAX	0	3.8	370	1,150	99	60	6.2	2.3	.94	0	0	0
MIN	0	0	.22	11	15	6.6	2.3	.19	0	0	0	0
AC-FT	0	24	3,890	16,000	1,730	1,500	225	80	13	0	0	0
CAL YR 1969	TOTAL	13,917.15	MEAN	39.1	MAX	1,060	MIN	0	ACFT	27,600		
WAT YR 1970	TOTAL	11,829.07	MEAN	32.4	MAX	1,150	MIN	0	ACFT	23,460		

## PEAK DISCHARGE (BASE, 360 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	0715	5.85	905	1-21	2115	6.16	1,080
1-9	1915	6.07	1,020	1-23	2030	8.21	2,960
1-14	0630	6.32	1,170	1-26	2315	5.96	1,180
1-16	0830	4.82	466				

## SACRAMENTO RIVER BASIN

## 11372200 SOUTH COW CREEK NEAR MILLVILLE, CALIF.

LOCATION.--Lat 40°32'56", long 122°05'29", in NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.16, T.31 N., R.2 W., Shasta County, on left bank 2.5 miles upstream from Old Cow Creek and 4.4 miles east of Millville.

DRAINAGE AREA.--77.3 sq mi.

PERIOD OF RECORD.--October 1956 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 610 ft (from topographic map). Prior to Aug. 9, 1957, at site 1.0 mile downstream at different datum.

AVERAGE DISCHARGE.--14 years, 112 cfs (81,140 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 6,970 cfs Jan. 23 (gage height, 9.46 ft); minimum daily, 16 cfs Aug. 18.

Period of record: Maximum discharge, 6,970 cfs Jan. 23, 1970 (gage height, 9.46 ft); minimum, 0.3 cfs Aug. 30, 1960.

Flood of December 1955 reached a stage of 12.5 ft, from floodmarks, previous site and datum (discharge, unknown).

REMARKS.--Records excellent. Diversions above station of up to 35 cfs for irrigation of about 1,050 acres. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

REVISIONS (WATER YEARS).--WRD Calif. 1967: 1964(M), 1965(M).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	35	35	147	331	558	104	63	42	30	25	22
2	19	34	36	130	298	255	102	60	41	32	24	22
3	20	35	35	122	276	221	95	60	39	28	25	21
4	24	34	35	115	258	318	93	60	43	29	24	22
5	24	126	35	106	238	256	93	55	43	29	23	23
6	25	129	35	103	221	213	94	64	38	30	21	23
7	24	88	35	102	203	331	93	65	36	29	20	23
8	26	63	44	167	191	439	90	73	42	30	23	23
9	28	53	42	1,180	179	357	87	85	49	28	23	20
10	27	46	43	540	171	435	88	75	78	30	22	20
11	27	43	103	396	165	304	87	69	51	27	22	19
12	27	44	1,350	440	224	271	85	70	47	26	24	17
13	27	41	644	620	457	247	87	70	46	26	22	21
14	31	40	227	1,120	259	237	90	59	54	21	20	20
15	59	39	148	810	208	215	86	53	47	28	20	19
16	91	39	112	2,190	431	202	84	58	45	28	20	21
17	96	38	107	1,100	403	187	81	56	42	26	19	22
18	51	38	115	810	280	174	73	60	39	24	16	23
19	44	38	2,400	755	242	169	79	65	32	28	21	22
20	40	37	1,340	822	220	162	70	64	35	24	20	21
21	38	37	1,820	1,320	204	154	62	60	34	25	22	22
22	38	37	625	1,270	189	145	68	57	33	26	23	20
23	37	36	1,040	4,120	178	139	65	59	34	26	23	20
24	37	36	670	2,760	170	134	59	56	35	26	22	24
25	36	35	615	1,210	160	130	64	52	33	26	22	20
26	36	35	388	968	154	126	71	45	35	19	23	21
27	36	35	305	1,140	149	120	71	50	37	26	23	21
28	36	35	245	631	196	115	66	50	42	26	23	22
29	36	35	205	502	-----	113	64	49	50	23	19	21
30	35	35	179	430	-----	109	66	46	35	24	17	21
31	35	-----	161	374	-----	108	-----	44	-----	25	22	-----
TOTAL	1,131	1,396	13,174	26,500	6,655	6,944	2,417	1,852	1,257	825	673	636
MEAN	36.5	46.5	425	855	238	224	80.6	59.7	41.9	26.6	21.7	21.2
MAX	96	129	2,400	4,120	457	558	104	85	78	32	25	24
MIN	19	34	35	102	149	108	59	44	32	19	16	17
AC-FT	2,240	2,770	26,130	52,560	13,200	13,770	4,790	3,670	2,490	1,640	1,330	1,260
CAL YR 1969	TOTAL 78,937		MEAN 216		MAX 3,190		MIN 15		AC-FT 156,600			
WTR YR 1970	TOTAL 63,460		MEAN 174		MAX 4,120		MIN 16		AC-FT 125,900			

## PEAK DISCHARGE (BASE, 1,800 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-12	1145	6.42	2,740	1-16	0830	7.37	3,820
12-19	1215	9.07	6,310	1-23	2300	9.46	6,970
12-21	0815	8.57	5,510	1-27	0315	5.61	2,060
1- 9	1815	6.77	3,100				

## 11374000 COW CREEK NEAR MILLVILLE, CALIF.

LOCATION.--Lat 40°30'19", long 122°13'56", in NE¼NW¼ sec.32, T.31 N., R.3 W., Shasta County, on right bank 2.9 miles upstream from mouth, 4.2 miles southwest of Millville, and 4.3 miles downstream from Little Cow Creek.

DRAINAGE AREA.--425 sq mi.

PERIOD OF RECORD.--October 1949 to current year.

GAGE.--Water-stage recorder. Datum of gage is 408.3 ft above mean sea level.

AVERAGE DISCHARGE.--21 years, 677 cfs (490,500 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 36,400 cfs Dec. 19 (gage height, 18.17 ft); minimum daily, 16 cfs Aug. 18, 19.

Period of record: Maximum discharge, 45,200 cfs Dec. 27, 1951 (gage height, 21.55 ft); minimum daily, 0.80 cfs Aug. 13, 1966.

Flood of 1937 or 1940 reached a stage of 23.8 ft, from floodmarks. Probable backwater effect from high flows on the Sacramento River.

REMARKS.--Records good. Numerous small diversions above station for irrigation. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	87	134	475	1,570	5,240	451	224	136	73	33	35
2	58	90	135	406	1,360	2,000	431	219	130	73	28	35
3	56	98	134	365	1,240	1,000	420	209	125	68	33	38
4	61	130	131	329	1,130	1,350	403	205	124	69	30	31
5	72	460	132	288	1,010	1,250	384	198	120	71	27	37
6	71	500	132	264	940	980	377	210	108	59	25	39
7	76	330	133	252	900	1,480	364	222	96	54	23	33
8	73	240	157	329	870	2,000	348	224	103	50	29	34
9	93	200	184	8,850	860	1,550	339	274	140	50	30	35
10	86	180	177	6,350	829	1,800	337	261	262	51	28	32
11	79	165	363	3,160	789	1,500	306	243	191	51	26	34
12	79	170	6,000	3,910	932	1,200	302	255	147	44	28	31
13	81	160	4,480	4,510	2,190	1,100	300	246	134	45	32	28
14	93	155	1,510	9,100	1,580	1,000	314	219	154	37	28	29
15	169	150	921	5,130	1,090	950	307	194	155	35	25	30
16	398	150	570	16,100	2,210	926	311	195	131	36	22	32
17	358	145	525	7,240	2,850	864	310	195	119	34	22	29
18	209	145	750	5,180	1,600	794	298	189	108	27	16	36
19	178	145	20,500	5,730	1,260	754	301	195	99	30	16	50
20	152	140	13,600	6,390	1,100	722	285	188	92	35	19	43
21	142	140	10,700	14,500	992	688	261	187	89	30	25	41
22	137	140	3,630	10,800	908	662	254	171	79	32	33	37
23	137	142	6,220	17,700	836	636	249	162	70	32	35	25
24	136	139	4,140	15,900	802	604	240	163	67	32	28	33
25	135	138	3,060	6,060	744	571	249	153	73	32	25	37
26	135	136	1,900	5,270	714	553	261	146	74	25	24	36
27	135	138	1,330	8,190	690	532	276	147	78	35	27	39
28	130	135	992	3,630	1,170	518	261	146	88	36	28	40
29	130	134	782	2,820	-----	495	246	148	132	28	30	39
30	117	135	642	2,260	-----	483	234	141	101	30	25	32
31	98	-----	546	1,880	-----	467	-----	142	-----	32	29	-----
TOTAL	3,934	5,217	84,610	173,368	33,166	34,669	9,419	6,071	3,525	1,336	829	1,050
MEAN	127	174	2,729	5,593	1,185	1,118	314	196	118	43.1	26.7	35.0
MAX	398	500	20,500	17,700	2,850	5,240	451	274	262	73	35	50
MIN	56	87	131	252	690	467	234	141	67	25	16	25
AC-FT	7,800	10,350	167,800	343,900	65,780	68,770	18,680	12,040	6,990	2,650	1,640	2,080
CAL YR 1969	TOTAL 432,061		MEAN 1,184		MAX 20,500	MIN 35		AC-FT 857,000				
WTR YR 1970	TOTAL 357,194		MEAN 979		MAX 20,500	MIN 16		AC-FT 708,500				

## PEAK DISCHARGE (BASE, 10,000 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-12	1400	11.12	12,000	1-16	1130	15.10	24,400
12-19	1545	18.17	36,400	1-21	2215	14.80	23,300
12-21	1145	14.65	22,800	1-24	0115	16.82	30,700
1- 9	2030	14.44	22,000	1-27	0215	12.24	15,000
1-14	1045	11.98	14,200	3- 1	0330	10.77	11,100

## SACRAMENTO RIVER BASIN

11374400 MIDDLE FORK COTTONWOOD CREEK NEAR ONO, CALIF.

LOCATION.--Lat 40°22'03", long 122°34'19", in SW¼NW¼ sec.17, T.29 N., R.6 W., Shasta County, on right bank 700 ft downstream from Poverty Gulch, 4.6 miles upstream from North Fork Cottonwood Creek, and 7.8 miles southeast of Ono. Prior to Nov. 1, 1969, at site 4.2 miles downstream.

DRAINAGE AREA.--244 sq mi.

PERIOD OF RECORD.--October 1956 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 610 ft (from topographic map). Prior to Nov. 1, 1969, at site 4.2 miles downstream at different datum.

AVERAGE DISCHARGE.--14 years, 251 cfs (181,800 acre-ft per year); median of yearly mean discharges, 184 cfs (133,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 12,900 cfs Jan. 23 (gage height, 10.7 ft), from rating curve extended above 5,900 cfs on basis of slope-area measurement at gage height 10.7 ft; minimum daily, 6.1 cfs Sept. 13.  
Period of record: Maximum discharge, 13,500 cfs Dec. 22, 1964 (gage height, 19.08 ft, from floodmarks in gage well, site and datum then in use), from rating curve extended above 7,800 cfs on basis of slope-area measurement of maximum flow; minimum daily, 1.2 cfs Aug. 28, 1964.

REMARKS.--Records good. No regulation or diversion above station. Records of water temperatures and suspended-sediment loads at or near this gaging station for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.8	22	25	212	1,060	442	240	119	65	36	13	8.2
2	9.4	22	25	187	882	385	230	116	64	33	12	8.2
3	9.8	22	25	170	762	361	225	114	62	31	12	7.8
4	10	22	25	160	674	1,330	215	112	59	29	12	7.4
5	12	31	25	146	614	602	210	106	57	26	12	7.4
6	12	50	25	136	557	535	205	106	56	24	12	8.2
7	12	38	25	133	513	924	200	109	53	24	11	8.7
8	13	36	32	146	480	1,280	191	109	54	22	11	8.7
9	13	37	38	593	452	1,090	187	114	79	21	11	8.2
10	15	35	33	1,010	432	910	187	112	72	20	10	7.8
11	14	31	41	857	423	788	183	106	59	20	10	7.4
12	14	30	765	848	423	710	179	112	57	19	9.1	7.4
13	14	28	877	1,010	602	650	191	112	57	19	8.7	6.1
14	14	26	788	3,100	470	626	187	102	69	18	8.2	7.0
15	25	26	511	2,360	432	590	176	95	64	18	8.2	7.8
16	103	26	226	6,410	650	546	172	93	57	18	8.2	8.2
17	63	26	170	3,760	1,010	524	168	93	53	18	8.2	8.2
18	41	26	231	1,940	736	491	160	97	50	17	8.2	7.8
19	28	25	1,060	2,470	650	470	153	95	47	16	8.2	7.4
20	24	25	1,340	2,600	579	432	150	95	44	15	8.2	7.8
21	21	25	2,180	4,460	546	404	150	93	44	14	8.2	8.2
22	21	25	1,050	4,460	502	394	150	93	42	14	8.2	8.7
23	20	25	1,710	7,820	491	361	146	89	39	14	8.2	9.1
24	20	25	1,330	8,270	461	329	140	87	38	14	8.2	8.7
25	21	25	938	4,470	442	313	137	87	37	14	8.2	8.7
26	21	24	686	3,910	414	299	134	82	36	14	8.2	9.1
27	21	24	511	6,770	394	287	134	83	36	14	8.2	8.2
28	20	24	399	3,420	404	281	130	81	50	14	8.7	8.2
29	20	24	325	2,290	-----	263	127	76	49	14	8.2	8.7
30	20	24	277	1,650	-----	257	124	72	40	14	7.8	8.7
31	20	-----	240	1,270	-----	251	-----	69	-----	14	8.2	-----
TOTAL	681.0	829	15,933	77,038	16,055	17,125	5,181	3,029	1,589	598	291.5	242.0
MEAN	22.0	27.6	514	2,485	573	552	173	97.7	53.0	19.3	9.40	8.07
MAX	103	50	2,180	8,270	1,060	1,330	240	119	79	36	13	9.1
MIN	9.4	22	25	133	394	251	124	69	36	14	7.8	6.1
AC-FT	1,350	1,640	31,600	152,800	31,850	33,970	10,280	6,010	3,150	1,190	578	480
CAL YR 1969	TOTAL	168,966.0	MEAN	463	MAX	4,620	MIN	9.3	AC-FT	335,100		
WTR YR 1970	TOTAL	138,591.5	MEAN	380	MAX	8,270	MIN	6.1	AC-FT	274,900		

## PEAK DISCHARGE (BASE, 1,800 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1400	5.23	3,410	1-23	1900	11.3	12,900
12-23	1200	4.54	2,340	1-27	0030	9.42	11,300
1-14	0900	5.80	4,420	3- 4	1530	4.06	3,150
1-16	0200	7.97	8,050	3- 7	2230	3.35	1,870

LOCATION.---Lat 40°26'32", long 122°32'57", in SE¼NW¼ sec.21, T.30 N., R.6 W., Shasta County, near right bank on downstream side of bridge on Gas Point Road, 1.2 miles downstream from Huling Creek, 4.4 miles south of Igo, and 4.5 miles upstream from Middle Fork.

REVISIONS (WATER YEARS).--WRD Calif. 1966: 1960(M), 1961(M), 1963(M), 1964(M).

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.6	12	18	157	600	170	178	83	18	21	2.0	2.1
2	8.1	9.9	17	130	505	127	159	76	18	19	2.0	2.0
3	7.8	11	17	77	417	105	157	70	20	17	1.9	2.2
4	7.8	8.3	17	54	361	585	132	71	18	16	2.0	2.5
5	8.0	15	17	51	313	300	128	69	16	15	2.4	2.5
6	8.0	19	17	52	285	242	126	70	16	15	2.8	2.5
7	7.9	17	18	51	256	431	125	66	16	13	2.6	3.2
8	8.3	25	26	84	232	371	112	59	34	13	2.5	3.4
9	13	17	20	574	190	356	120	69	65	14	2.5	3.8
10	11	14	24	511	155	338	118	68	36	9.7	2.7	3.9
11	8.9	14	71	481	129	342	107	67	30	8.3	2.5	3.9
12	7.9	12	615	429	127	317	66	69	26	8.1	2.5	3.9
13	8.4	12	190	748	320	319	114	68	26	7.8	2.7	3.9
14	11	12	279	2,470	131	331	75	61	35	7.2	2.6	3.9
15	34	12	153	1,820	104	309	61	55	31	6.6	2.4	3.9
16	29	11	127	2,610	393	298	86	54	25	6.5	3.1	3.9
17	21	9.3	116	1,580	312	228	106	49	23	6.4	3.6	3.9
18	18	11	156	1,270	211	295	103	48	20	5.4	3.4	3.9
19	15	11	905	2,110	187	287	99	27	25	4.7	2.1	3.9
20	14	13	1,020	1,850	165	261	99	29	23	4.3	1.8	3.9
21	13	19	1,330	3,170	151	227	97	28	20	3.9	1.8	3.7
22	11	18	509	2,300	132	239	95	37	21	2.2	2.1	3.6
23	12	18	1,090	4,170	115	233	92	31	20	2.2	1.8	3.6
24	13	18	541	3,140	128	223	83	27	20	2.1	1.8	3.6
25	13	19	468	1,790	115	207	82	29	20	2.4	1.9	2.9
26	13	18	361	2,320	111	210	82	26	20	2.3	2.2	2.8
27	13	18	310	2,690	92	178	81	23	20	2.5	2.8	2.7
28	13	17	262	1,560	220	154	80	24	22	2.7	2.5	2.7
29	13	18	231	1,210	-----	193	80	23	24	2.9	2.5	2.8
30	11	17	202	916	-----	190	81	24	17	2.3	1.3	3.0
31	9.7	-----	182	683	-----	185	-----	18	-----	2.0	1.6	-----
TOTAL	390.4	445.5	9,309	41,058	6,457	8,251	3,124	1,518	725	245.5	72.4	98.5
MEAN	12.6	14.9	300	1,324	231	266	104	49.0	24.2	7.92	2.34	3.28
MAX	34	25	1,330	4,170	600	585	178	83	65	21	3.6	3.9
MIN	7.8	8.3	17	51	92	105	61	18	16	2.0	1.3	2.0
AC-FT	774	884	18,460	81,440	12,810	16,370	6,200	3,010	1,440	487	144	195
CAL YR 1969	TOTAL	91,230.4	MEAN	250	MAX	2,840	MIN	5.8	AC-FT	181,000		
WTR YR 1970	TOTAL	71,694.3	MEAN	196	MAX	4,170	MIN	1.3	AC-FT	142,200		

## SACRAMENTO RIVER BASIN

11375820 SOUTH FORK COTTONWOOD CREEK NEAR COTTONWOOD, CALIF.

LOCATION.--Lat 40°18'59", long 122°26'52", in SE $\frac{1}{4}$  sec.32, T.29 N., R.5 W., Tehama County, on right bank 15 ft downstream from highway bridge, 0.7 mile upstream from Dry Fork, and 10.3 miles southwest of Cottonwood.

DRAINAGE AREA.--217 sq mi.

PERIOD OF RECORD.--October 1962 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 525 ft (from topographic map). October 1962 to Dec. 22, 1964, at site 85 ft upstream at different datum.

AVERAGE DISCHARGE.--8 years, 219 cfs (158,700 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 14,000 cfs Jan. 23 (gage height, 12.15 ft); no flow many days.

Period of record: Maximum discharge, 14,000 cfs Jan. 23, 1970 (gage height, 12.15 ft); no flow many days in each year.

REMARKS.--Small diversion above station. Records of suspended-sediment loads for the water year 1970 are published in Part 2 of this report.

COOPERATION.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	7.5	6.4	164	673	330	186	50	60	24		
2	2.9	7.3	6.3	139	565	228	178	47	61	22		
3	2.6	7.2	6.3	119	485	173	174	50	65	20		
4	2.6	7.0	5.9	102	427	1,280	170	60	65	19		
5	2.8	7.7	5.7	86	367	688	166	74	61	16		
6	3.4	26	5.6	80	302	453	162	81	58	15		
7	4.0	29	5.3	80	242	473	158	82	57	13		
8	4.3	28	7.9	93	188	1,270	154	84	68	12		
9	4.4	23	8.7	912	146	976	150	119	96	9.3		
10	4.7	20	8.8	827	111	831	145	102	79	6.9		
11	5.4	18	9.0	529	88	659	142	89	66	6.3		
12	5.4	15	540	454	121	563	137	90	55	4.2		
13	4.2	14	920	755	358	495	133	79	51	2.1		
14	4.4	13	431	2,390	218	482	129	66	67	1.0		
15	13	12	354	1,820	130	463	125	56	82	0		
16	42	11	193	4,170	416	410	121	60	57	0		
17	52	11	121	3,740	939	370	117	90	50	0		
18	43	10	97	2,450	576	330	113	133	49	0		
19	23	9.9	896	1,880	452	284	109	148	47	0		
20	16	9.9	1,240	1,750	366	267	107	154	47	0		
21	12	9.7	2,000	2,720	305	253	99	108	46	0		
22	9.8	9.3	1,290	3,630	259	233	88	87	44	0		
23	9.3	9.3	1,140	7,140	215	221	81	83	42	0		
24	9.5	9.2	1,020	9,030	180	213	74	84	40	0		
25	9.4	8.3	647	5,170	144	207	68	80	37	0		
26	9.3	8.1	517	3,890	114	204	63	87	35	0		
27	9.3	8.1	400	6,110	103	202	64	116	33	0		
28	9.2	7.5	324	3,230	127	199	61	113	31	0		
29	8.5	7.1	271	1,940	-----	197	56	85	29	0		
30	8.0	6.9	229	1,310	-----	194	53	71	26	0		
31	7.5	-----	192	885	-----	192	-----	63	-----	0		-----
TOTAL	345.5	370.0	12,897.9	67,595	8,617	13,340	3,583	2,691	1,604	170.8	0	0
MEAN	11.1	12.3	416	2,180	308	430	119	86.8	53.5	5.51	0	0
MAX	52	29	2,000	9,030	939	1,280	186	154	96	24	0	0
MIN	2.6	6.9	5.3	80	88	173	53	47	26	0	0	0
AC-FT	685	734	25,580	134,100	17,090	26,460	7,110	5,340	3,180	339	0	0
CAL YR 1969	TOTAL	131,851.2	MEAN	361	MAX	4,450	MIN	1.4	AC-FT	261,500		
WTR YR 1970	TOTAL	111,214.2	MEAN	305	MAX	9,030	MIN	0	AC-FT	220,600		



## 11376000 COTTONWOOD CREEK NEAR COTTONWOOD, CALIF.

LOCATION.--Lat 40°23'10", long 122°14'12", in NE¼ sec.7, T.29 N., R.3 W., Tehama County, on right bank 2 miles east of Cottonwood and 2.4 miles upstream from mouth.

DRAINAGE AREA.--927 sq mi (revised).

PERIOD OF RECORD.--October 1940 to current year.

GAGE.--Water-stage recorder. Datum of gage is 364.0 ft above mean sea level (levels by Corps of Engineers). Prior to July 26, 1963, at site 250 ft upstream at datum 3.59 ft higher. Sept. 21, 1967, to Jan. 14, 1968, auxiliary gage at a site 1,200 ft downstream at datum 2.35 ft higher.

AVERAGE DISCHARGE.--30 years, 841 cfs (609,300 acre-ft per year); median of yearly mean discharges, 660 cfs (478,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 58,500 cfs Jan. 24 (gage height, 19.46 ft); minimum daily, 44 cfs July 27.

Period of record: Maximum discharge, 60,000 cfs Dec. 22, 1964 (gage height, 19.64 ft); minimum, 15 cfs for several days in September 1945.

REMARKS.--Records good. Small diversions for irrigation above station. At times during irrigation season, Cottonwood Creek receives water above station from Sacramento River by way of Anderson-Cottonwood Canal. Records of chemical analyses for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	120	79	74	840	3,680	2,500	805	360	250	143	59	54
2	117	74	74	742	3,250	1,550	792	360	237	133	57	52
3	102	74	83	639	2,940	1,370	755	351	207	125	57	55
4	96	74	83	548	2,710	3,760	730	351	195	125	55	55
5	88	79	81	511	2,460	3,820	680	351	178	121	57	55
6	88	117	81	476	2,290	2,320	668	360	173	117	52	59
7	81	112	81	462	2,120	2,390	618	386	178	109	50	66
8	93	104	88	483	1,980	3,700	618	425	173	105	50	59
9	115	101	104	3,380	1,870	2,940	582	446	219	93	50	57
10	115	96	104	4,560	1,710	2,900	570	415	272	84	54	57
11	123	88	106	2,700	1,610	2,460	558	404	243	78	52	61
12	117	83	876	2,840	1,630	2,260	570	395	219	72	52	63
13	112	81	2,350	3,240	2,810	2,070	606	377	213	69	57	66
14	123	79	1,290	10,800	2,260	1,970	655	351	213	66	61	61
15	145	76	1,280	7,040	1,790	1,870	606	324	225	66	57	61
16	177	74	1,190	18,500	2,380	1,740	594	315	213	61	55	75
17	181	71	690	11,100	3,950	1,600	570	324	189	61	57	69
18	184	71	705	7,200	2,810	1,520	546	342	178	63	54	78
19	151	71	3,110	6,750	2,340	1,430	534	368	183	66	50	63
20	120	71	5,760	7,150	2,090	1,360	510	360	173	69	48	63
21	112	76	7,490	12,500	1,900	1,280	510	342	173	63	48	61
22	109	76	4,530	14,400	1,760	1,210	499	324	168	61	50	59
23	106	76	5,150	21,600	1,610	1,150	478	308	173	54	55	59
24	101	76	4,650	31,900	1,540	1,090	468	308	168	54	54	75
25	98	74	2,760	12,100	1,460	1,040	468	286	168	50	57	78
26	98	74	2,110	8,540	1,380	1,000	478	286	168	46	61	72
27	93	74	1,740	20,000	1,310	958	478	293	153	44	61	78
28	98	74	1,490	8,930	1,310	919	446	293	153	46	55	84
29	88	74	1,310	6,330	-----	893	386	293	163	48	59	75
30	83	74	1,160	4,980	-----	855	368	265	168	46	54	72
31	81	-----	972	4,240	-----	830	-----	257	-----	50	59	-----
TOTAL	3,515	2,423	51,572	235,481	60,950	56,755	17,146	10,620	5,786	2,388	1,697	1,942
MEAN	113	80.8	1,664	7,596	2,177	1,831	572	343	193	77.0	54.7	64.7
MAX	184	117	7,490	31,900	3,950	3,820	805	446	272	143	61	84
MIN	81	71	74	462	1,310	830	368	257	153	44	48	52
AC-FT	6,970	4,810	102,300	467,100	120,900	112,600	34,010	21,060	11,480	4,740	3,370	3,850
CAL YR 1969	TOTAL 556,044	MEAN 1,523	MAX 18,400	MIN 65	ACFT 1,103,000							
WAT YR 1970	TOTAL 450,275	MEAN 1,234	MAX 31,900	MIN 44	ACFT 893,100							

## PEAK DISCHARGE (BASE, 7,100 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1300	12.08	10,400	1-16	1030	15.37	24,900
12-23	1730	11.19	7,920	1-24	0100	19.46	58,500
1-9	2130	11.24	8,050	1-27	0600	16.28	30,700
1-14	1300	13.56	15,400	3-4	2030	12.24	10,600

## SACRAMENTO RIVER BASIN

## 11376550 BATTLE CREEK BELOW COLEMAN FISH HATCHERY NEAR COTTONWOOD, CALIF.

LOCATION.--Lat 40°23'54", long 122°08'43", in SW¼NE¼ sec.1, T.29 N., R.3 W., Shasta County, U.S. Fish and Wildlife Service land, on right bank 3.7 miles downstream from Spring Branch, 5.7 miles upstream from mouth, and 7.0 miles east of Cottonwood.

DRAINAGE AREA.--357 sq mi (revised).

PERIOD OF RECORD.--October 1961 to current year. October 1940 to September 1961 at site 0.6 mile upstream published as "near Cottonwood"; low flow records not equivalent owing to Coleman Fish Hatchery diversion.

GAGE.--Water-stage recorder. Altitude of gage is 415 ft (from topographic map).

AVERAGE DISCHARGE.--9 years, 509 cfs (368,800 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 24,300 cfs Jan. 24 (gage height, 14.75 ft), from rating curve extended as explained below; minimum daily, 271 cfs Aug. 29.

Period of record: Maximum discharge, 24,300 cfs Jan. 24, 1970 (gage height, 14.75 ft), from rating curve extended above 1,600 cfs on basis of slope-area measurement of peak flow; minimum since 1961, 52 cfs Aug. 8, 1962.

Maximum stage known, 15.8 ft Dec. 11, 1937, from floodmarks at former site and datum (discharge, 35,000 cfs, by slope-area measurement).

REMARKS.--Records good except those for March through June, which are fair. Flow regulated by four small powerplants, several small reservoirs, and Coleman Fish Hatchery. Coleman Fish Hatchery diverts 50 to 90 cfs which is returned above the station. Ten cfs diverted above station for irrigation. Maximum flows considered equivalent to former station Battle Creek near Cottonwood. Records of water temperatures and suspended-sediment loads for the water year 1970 are published in Part 2 of this report.

REVISIONS (WATER YEARS).--WRD Calif. 1965: 1963.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	296	316	334	556	1,270	1,410	632	583	576	481	337	281
2	296	316	336	518	1,230	989	625	576	576	473	327	281
3	296	314	335	496	1,160	822	620	576	569	465	329	273
4	298	310	331	474	1,080	887	617	597	562	457	312	289
5	297	609	333	457	1,020	898	610	604	562	457	313	289
6	297	636	330	446	968	772	605	611	562	457	308	289
7	298	458	330	457	912	820	600	604	555	449	310	289
8	305	407	348	520	868	1,510	595	604	555	441	279	289
9	310	382	357	2,300	845	1,120	581	611	548	433	289	289
10	305	366	344	1,520	829	1,370	604	604	541	425	289	297
11	300	358	360	1,090	823	1,020	597	604	531	417	297	289
12	301	353	2,600	1,050	946	896	611	604	497	409	295	291
13	301	353	1,670	1,440	1,290	851	611	597	504	393	289	289
14	303	350	812	3,410	1,020	869	611	590	551	385	296	296
15	326	349	612	2,030	849	837	604	590	544	385	289	297
16	440	347	505	5,460	933	798	604	583	518	385	281	307
17	422	342	484	3,140	1,310	759	611	590	501	385	283	304
18	357	343	510	2,170	966	715	611	618	490	377	289	305
19	335	341	3,230	1,750	839	710	611	604	487	361	281	321
20	329	341	2,320	1,710	791	711	611	604	478	361	273	310
21	323	345	3,580	3,480	767	695	611	604	471	361	284	310
22	322	343	1,700	3,730	736	690	604	590	468	361	281	307
23	325	340	2,590	9,640	715	680	604	597	467	361	281	289
24	321	341	1,860	9,800	711	675	590	597	463	361	272	304
25	324	341	1,530	3,550	710	670	590	597	460	345	273	292
26	321	338	1,070	2,870	710	665	604	590	455	345	281	289
27	322	339	857	4,150	710	660	597	590	465	337	277	293
28	318	338	728	2,900	730	655	597	590	520	345	273	292
29	323	336	664	1,650	-----	648	583	583	650	337	271	294
30	319	334	620	1,380	-----	642	590	583	513	329	273	292
31	317	-----	576	1,320	-----	639	-----	583	-----	336	281	-----
TOTAL	9,947	10,986	32,256	75,464	25,738	26,083	18,141	18,458	15,639	12,214	9,013	8,837
MEAN	321	366	1,041	2,434	919	841	605	595	521	394	291	295
MAX	440	636	3,580	9,800	1,310	1,510	632	618	650	481	337	321
MIN	296	310	330	446	710	639	581	576	455	329	271	273
AC-FT	19,730	21,790	63,980	149,700	51,050	51,740	35,980	36,610	31,020	24,230	17,880	17,530
CAL YR 1969	TOTAL 268,982		MEAN 737		MAX 6,310		MIN 286		AC-FT 533,500			
WTR YR 1970	TOTAL 262,776		MEAN 720		MAX 9,800		MIN 271		AC-FT 521,200			

## PEAK DISCHARGE (BASE, 2,500 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-12	1830	8.56	5,470	1-14	1100	8.31	5,120
12-19	1300	9.02	6,320	1-16	1400	10.62	9,570
12-21	1415	9.55	7,380	1-21	1945	8.71	5,820
12-23	1545	7.34	3,530	1-24	0015	14.75	24,300
1- 9	1745	8.17	4,890	1-27	unknown	-	unknown

## SACRAMENTO RIVER BASIN

795

## 11377100 SACRAMENTO RIVER ABOVE BEND BRIDGE, NEAR RED BLUFF, CALIF.

LOCATION.--Lat 40°17'19", long 122°11'08", in SW¼SE¼ sec.10, T.28 N., R.3 W., Tehama County, on left bank 2.7 miles upstream from Bend Bridge and 8.1 miles northeast of Red Bluff.

DRAINAGE AREA.--8,900 sq mi (revised), excluding Goose Lake basin.

PERIOD OF RECORD.--1879-88 annual observed maximums only, published in WSP 1315-A. January 1892 to current year. Monthly discharges only for some periods and yearly estimates for some incomplete years, published in WSP 1315-A. Published as "at Red Bluff" 1894-96, as "at Jellys Ferry" 1895-1902, and as "near Red Bluff" 1903-68.

GAGE.--Water-stage recorder. Altitude of gage is 310 ft (from topographic map). Prior to January 1902, non-recording gage at site 6.1 miles upstream at different datum. January 1902 to December 1919, nonrecording gage at several sites about 10 miles downstream at different datum. December 1919 to September 1968, water-stage recorder at site 10.1 miles downstream at different datum.

AVERAGE DISCHARGE.--79 years, 11,620 cfs (8,419,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 157,000 cfs Jan. 24 (gage height, 36.60 ft); minimum daily, 5,560 cfs Nov. 12.  
Period of record: Maximum discharge, 291,000 cfs Feb. 28, 1940 (gage height, 38.9 ft, site and datum then in use), from rating curve extended above 170,000 cfs on basis of velocity-area studies; minimum since 1892, 2,000 cfs Mar. 29, 1944.

REMARKS.--Records excellent except those for period Jan. 17 to Feb. 12, which are good. Flow regulated by Shasta Lake since Dec. 30, 1943 (see sta 11370000). Diversions, in addition to those on tributaries, for irrigation of 22,000 acres between stations at Keswick and above Bend Bridge. Transbasin diversions from Trinity River to Whiskeytown Lake via Judge Francis Carr powerplant (see sta 11525430) started in April 1963. Records of chemical analyses, water temperatures, and suspended-sediment loads at or near this gaging station for the water year 1970 are published in Part 2 of this report.

REVISIONS (WATER YEARS).--WRD Calif. 1969: 1965.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9,120	8,390	8,350	22,800	86,400	23,200	9,050	11,900	9,320	10,400	9,840	9,360
2	8,440	8,400	8,350	20,400	79,800	13,200	8,480	11,900	9,410	10,300	9,830	8,980
3	8,280	8,390	8,330	16,700	71,600	12,200	8,210	11,900	9,660	10,300	9,770	8,820
4	8,170	8,370	8,330	16,200	69,400	15,700	8,130	10,800	9,770	10,300	9,790	8,800
5	8,210	8,850	8,310	15,900	63,000	18,200	8,100	10,100	9,840	10,300	9,810	8,580
6	8,150	9,300	8,330	15,800	60,300	13,500	8,060	10,200	10,200	10,200	9,840	8,530
7	8,150	9,110	8,330	15,600	59,600	13,200	8,030	10,200	10,300	10,200	9,830	8,460
8	7,850	8,760	8,350	15,700	58,600	18,300	7,950	10,300	10,300	10,300	9,830	8,440
9	8,210	8,660	8,100	30,800	52,600	14,900	7,900	10,300	10,500	10,300	9,830	8,440
10	8,210	7,680	7,430	40,400	46,800	16,100	7,880	10,300	10,700	10,600	9,830	8,420
11	8,210	6,260	7,350	24,500	42,600	14,000	8,330	10,300	10,500	11,000	9,650	8,170
12	8,220	5,560	17,600	26,000	38,800	13,500	8,840	10,300	10,400	11,200	9,740	8,060
13	8,210	8,040	27,500	28,200	38,200	13,300	9,070	9,610	10,300	11,300	9,290	7,970
14	8,240	8,510	16,800	54,000	33,100	13,200	9,270	8,820	10,400	11,200	9,390	7,920
15	8,550	8,490	15,800	53,600	26,100	12,700	9,180	8,570	10,400	11,200	9,250	7,990
16	9,050	8,480	14,200	83,100	24,300	12,000	9,110	8,530	10,300	11,300	9,340	7,990
17	9,020	8,460	13,900	68,000	29,900	11,800	9,090	8,550	10,200	11,200	9,360	7,970
18	8,690	8,460	14,400	59,000	24,500	12,300	9,030	8,570	10,200	11,200	9,470	7,990
19	8,660	8,420	43,000	50,700	22,600	11,900	9,050	8,580	10,200	11,200	9,540	7,990
20	8,570	8,440	48,600	74,800	20,600	11,300	9,230	8,570	10,600	11,300	9,380	7,940
21	8,490	8,440	46,700	93,900	19,800	10,600	9,560	8,530	10,600	11,300	9,200	7,920
22	8,480	8,460	36,300	104,000	18,500	10,500	9,990	8,510	10,500	11,300	9,360	7,880
23	8,460	8,440	44,900	111,000	17,400	10,300	10,500	8,460	10,500	11,300	9,410	7,900
24	8,440	8,420	46,600	123,000	17,200	10,200	11,300	8,690	10,500	11,400	9,360	7,900
25	8,480	8,400	47,400	112,000	17,100	10,200	11,800	8,870	10,500	11,100	9,290	7,940
26	8,480	8,400	43,900	103,000	17,000	10,100	11,800	8,910	10,600	10,800	9,300	7,950
27	8,440	8,390	41,600	127,000	16,800	9,990	11,800	8,940	10,600	10,800	9,340	7,860
28	8,480	8,390	40,200	107,000	15,800	9,930	11,800	8,980	10,600	10,900	9,340	7,680
29	8,460	8,390	39,000	97,100	-----	9,830	11,700	8,940	10,700	10,400	9,410	7,760
30	8,440	8,370	28,900	92,400	-----	9,750	11,700	8,930	10,600	10,300	9,390	7,720
31	8,400	-----	23,300	90,400	-----	9,570	-----	9,050	-----	9,990	9,380	-----
TOTAL	261,260	249,130	740,160	1,893,000	1,088,400	395,470	283,940	295,110	309,200	334,890	295,390	245,330
MEAN	8,428	8,304	23,880	61,060	38,870	12,760	9,465	9,520	10,310	10,800	9,529	8,178
MAX	9,120	9,300	48,600	127,000	86,400	23,200	11,800	11,900	10,700	11,400	9,840	9,360
MIN	7,850	5,560	7,350	15,600	15,800	9,570	7,880	8,460	9,320	9,990	9,200	7,680
AC-FT	518,200	494,100	1,468M	3,755M	2,159M	784,400	563,200	585,400	613,300	664,300	585,900	486,600
CAL YR 1969	TOTAL 6,228,250		MEAN 17,060		MAX 81,100		MIN 5,560		ACFT 12,350,000			
WAT YR 1970	TOTAL 6,391,280		MEAN 17,510		MAX 127,000		MIN 5,560		ACFT 12,680,000			

## SACRAMENTO RIVER BASIN

11378800 RED BANK CREEK NEAR RED BLUFF, CALIF.

LOCATION (revised).--Lat 40°05'25", long 122°24'45", in NE¼SE¼ sec.22, T.26 N., R.5 W., Tehama County, on road bridge near bank 0.1 mile downstream from unnamed tributary, 1.8 miles southeast of town of Red Bank, and 11 miles southwest of Red Bluff.

DRAINAGE AREA.--93.5 sq mi.

PERIOD OF RECORD.--October 1959 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 470 ft (from topographic map).

AVERAGE DISCHARGE.--11 years, 46.6 cfs (33,760 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 8,740 cfs Jan. 23 (gage height, 10.01 ft); no flow for several months.

Period of record: Maximum discharge, 9,730 cfs Jan. 5, 1965 (gage height, 10.06 ft); no flow for several months in each year.

REMARKS.--Some small storage ponds and possibly some diversions for irrigation upstream.

COOPERATION.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			0	41	187	53	18	5.1	1.5			
2			0	39	168	47	18	4.8	1.4			
3			0	38	156	44	17	4.6	1.3			
4			0	37	146	495	16	3.7	1.0			
5			0	36	134	281	15	3.7	.80			
6			0	35	127	162	15	4.0	.60			
7			0	37	120	147	14	4.3	.40			
8			0	44	114	166	14	4.5	.50			
9			0	1,290	107	153	14	5.0	.80			
10			0	365	101	131	13	4.7	.70			
11			0	192	99	103	12	4.4	.30			
12			30	159	111	91	12	4.5	.10			
13			45	323	237	81	15	4.3	0			
14			14	828	143	73	16	3.6	.20			
15			11	308	114	65	14	3.3	.10			
16			9.1	1,720	236	55	13	3.1	0			
17			11	415	199	46	12	3.0	0			
18			18	264	145	42	11	2.9	0			
19			274	238	126	39	9.9	2.7	0			
20			282	310	116	37	9.2	2.8	0			
21			362	748	101	35	9.2	2.8	0			
22			132	514	80	33	8.5	2.6	0			
23			253	3,250	75	30	8.2	2.3	0			
24			160	1,630	70	28	7.7	2.1	0			
25			112	551	64	25	7.3	2.0	0			
26			86	922	59	24	7.3	1.9	0			
27			69	1,570	54	22	7.0	1.9	0			
28			59	420	54	22	6.6	2.0	0			
29			53	298	-----	21	5.9	1.9	0			
30			49	244	-----	20	5.6	1.7	0			
31		-----	46	212	-----	19	-----	1.6	-----			-----
TOTAL	0	0	2,075.1	17,078	3,443	2,590	351.4	101.8	9.70	0	0	0
MEAN	0	0	66.9	551	123	83.5	11.7	3.28	.32	0	0	0
MAX	0	0	362	3,250	237	495	18	5.1	1.5	0	0	0
MIN	0	0	0	35	54	19	5.6	1.6	0	0	0	0
AC-FT	0	0	4,120	33,870	6,830	5,140	697	202	19	0	0	0
CAL YR 1969	TOTAL	37,338.10	MEAN	102	MAX	3,200	MIN	0	AC-FT	74,060		
WTR YR 1970	TOTAL	25,649.00	MEAN	70.3	MAX	3,250	MIN	0	AC-FT	50,870		

## SACRAMENTO RIVER BASIN

797

## 11379000 ANTELOPE CREEK NEAR RED BLUFF, CALIF.

LOCATION.--Lat 40°12'14", long 122°07'02", in Rio De Los Berrendos Grant, Tehama County, on right bank 1.8 miles upstream from diversion dam of Los Molinos Mutual Water Co., 6.5 miles east of Red Bluff, and 9.7 miles upstream from mouth.

DRAINAGE AREA.--123 sq mi.

PERIOD OF RECORD.--October 1940 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 360 ft (from topographic map). Prior to Sept. 18, 1954, at site 0.6 mile downstream at different datum. Sept. 18, 1954, to July 9, 1969, at datum 2.00 ft higher.

AVERAGE DISCHARGE.--30 years, 149 cfs (108,000 acre-ft per year); median of yearly mean discharges, 130 cfs (94,200 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 17,200 cfs Jan. 23 (gage height, 17.95 ft), from rating curve extended as explained below; minimum daily, 41 cfs Aug. 25, Sept. 25-30.

Period of record: Maximum discharge, 17,200 cfs Jan. 23, 1970 (gage height, 17.95 ft), from rating curve extended above 6,000 cfs on basis of slope-area measurement at gage height, 15.96 ft (present datum; minimum discharge, 8.2 cfs Oct. 27, 1961.

Flood of December 1937 reached a stage of about 22 ft, from floodmarks, at former site and datum.

REMARKS.--Records good. No diversion above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	48	47	140	426	1,200	127	88	69	57	45	43
2	42	48	47	128	368	710	125	87	67	56	45	43
3	42	48	47	117	327	479	121	87	66	54	44	43
4	43	48	47	111	299	499	120	87	65	53	44	45
5	43	374	47	103	270	505	117	87	64	51	44	46
6	42	118	47	98	247	360	116	89	63	50	43	45
7	42	95	47	96	231	323	115	91	62	50	43	45
8	46	83	55	104	215	980	110	91	62	50	43	44
9	49	70	59	1,250	204	590	108	98	68	50	43	44
10	47	61	55	829	193	703	107	103	88	49	43	44
11	45	57	109	462	185	484	106	98	74	49	43	44
12	45	55	2,040	449	257	390	104	100	66	49	42	44
13	45	53	890	1,120	476	336	105	93	66	48	42	44
14	47	51	285	2,970	416	301	111	90	81	48	42	44
15	59	51	183	1,350	288	276	110	88	74	48	42	44
16	132	51	128	2,290	493	251	107	88	67	48	42	43
17	113	51	112	1,580	800	233	104	91	65	48	42	43
18	62	49	105	1,030	440	215	100	93	62	47	42	43
19	54	49	1,720	791	344	202	101	93	61	46	42	43
20	51	49	1,210	769	290	191	98	91	58	46	42	43
21	49	49	2,050	1,740	257	182	97	89	57	47	42	43
22	48	49	942	1,820	231	173	96	87	56	47	42	42
23	48	49	1,040	5,670	212	168	94	86	56	46	42	42
24	48	48	1,130	4,700	199	159	91	84	55	46	42	42
25	48	48	799	1,660	185	155	91	83	55	46	41	41
26	48	48	551	1,140	175	151	96	83	54	45	42	41
27	48	48	357	1,530	168	147	100	82	55	45	42	41
28	48	48	262	1,000	177	141	95	81	62	45	43	41
29	48	47	214	769	-----	138	91	78	77	45	42	41
30	48	47	182	615	-----	135	90	75	61	45	43	41
31	48	-----	156	505	-----	131	-----	72	-----	45	43	-----
TOTAL	1,620	1,990	14,963	36,936	8,373	10,908	3,153	2,733	1,936	1,499	1,322	1,292
MEAN	52.3	66.3	483	1,191	299	352	105	88.2	64.5	48.4	42.6	43.1
MAX	132	374	2,050	5,670	800	1,200	127	103	88	57	45	46
MIN	42	47	47	96	168	131	90	72	54	45	41	41
AC-FT	3,210	3,950	29,680	73,260	16,610	21,640	6,250	5,420	3,840	2,970	2,620	2,560
CAL YR 1969	TOTAL 96,443		MEAN 264		MAX 4,240		MIN 39		AC-FT 191,300			
WTR YR 1970	TOTAL 86,725		MEAN 238		MAX 5,670		MIN 41		AC-FT 172,000			

## PEAK DISCHARGE (BASE, 2,200 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-12	1530	12.13	4,120	1-14	1130	12.34	4,370
12-19	1330	11.85	3,800	1-16	1330	11.70	3,640
12-21	1500	12.10	4,080	1-21	1800	10.19	2,390
1- 9	1800	10.59	2,670	1-23	2330	17.95	17,200

## SACRAMENTO RIVER BASIN

11379500 ELDER CREEK NEAR PASKENTA, CALIF.

LOCATION.--Lat 40°01'29", long 122°30'31", in SE¼NW¼ sec.14, T.25 N., R.6 W., Tehama County, on left bank 2.5 miles downstream from South Fork Elder Creek, 8.2 miles northwest of Flournoy, and 10 miles north of Paskenta.

DRAINAGE AREA.--92.9 sq mi.

PERIOD OF RECORD.--October 1948 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is 718.1 ft above mean sea level. Prior to Aug. 13, 1965, water-stage recorder at site 300 ft downstream at datum 5.13 ft lower.

AVERAGE DISCHARGE.--22 years, 100 cfs (72,450 acre-ft per year); median of yearly mean discharges, 80 cfs (58,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 7,200 cfs Jan. 23 (gage height, 11.05 ft in gage well, 12.57 ft, from floodmarks), from rating curve extended above 1,700 cfs on basis of a step-backwater computation; minimum daily, 1.6 cfs Sept. 12.

Period of record: Maximum discharge, 11,700 cfs Feb. 24, 1958 (gage height, 13.90 ft, site and datum then in use), from rating curve extended above 3,500 cfs on basis of slope-area measurements at gage heights 10.97 and 13.90 ft; no flow at times in some years.

REVISIONS.--The maximum discharge for the water year 1967 has been revised to 3,380 cfs Dec. 4, 1966 (gage height, 7.91 ft), superseding figure published in WRD Calif. 1967.

REMARKS:--Records excellent except those for period of no gage-height record, which are fair. No regulation or large diversion above station. Records of suspended-sediment loads for the water year 1970 are published in Part 2 of this report.

REVISED.--The figures of peak discharge for the water year 1967 have been revised as shown in the following table. They supersede figures published in WRD Calif. 1967.

REVISED PEAK DISCHARGE.--Nov. 19 (1930) 2,610 cfs (7.04 ft); Dec. 2 (1915) 1,710 cfs (5.73 ft); Dec. 4 (2245) 3,380 cfs (7.91 ft); Jan. 21 (0730) 2,170 cfs (6.49 ft); Jan. 26 (0900) 2,550 cfs (6.96 ft); Jan. 29 (0530) 3,150 cfs (7.67 ft); June 2 (0300) 1,410 cfs (5.33 ft).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	4.0	7.1	62	395	135	64	40	19	12	3.6	2.2
2	3.2	4.0	7.1	57	338	121	61	39	19	11	3.4	2.2
3	3.3	4.0	7.1	51	295	114	58	40	19	9.7	3.1	2.1
4	3.4	4.0	7.2	46	254	676	53	40	19	9.1	3.0	2.0
5	3.5	24	7.1	41	230	358	50	40	19	8.4	3.1	2.0
6	3.4	17	7.2	38	195	242	49	41	19	8.0	3.2	2.2
7	3.3	12	7.2	38	176	327	49	41	19	7.5	3.0	2.2
8	3.4	11	9.8	100	162	409	49	42	19	7.0	2.9	2.2
9	3.8	11	10	168	152	344	49	42	21	6.7	2.7	2.0
10	3.5	10	9.1	160	145	299	49	40	23	6.5	2.5	1.8
11	3.5	9.6	18	133	140	258	49	39	18	6.4	2.3	1.7
12	3.5	9.6	579	200	164	230	49	39	17	6.2	2.2	1.6
13	3.6	9.2	254	550	306	217	51	38	17	5.8	2.1	1.7
14	4.2	8.8	124	1,550	216	222	56	35	22	5.2	2.1	1.9
15	9.5	8.6	92	605	174	207	54	32	20	4.8	2.0	2.1
16	20	8.3	61	2,690	340	192	53	31	18	5.0	2.0	2.1
17	17	8.2	49	910	351	179	52	30	17	5.1	2.0	2.0
18	10	8.1	66	870	253	165	52	30	16	4.7	2.0	2.0
19	6.0	8.0	548	810	207	146	52	29	16	4.4	2.1	2.2
20	4.7	8.0	572	750	182	143	51	30	16	4.2	2.1	2.5
21	4.4	8.0	909	1,700	165	135	51	28	16	4.1	2.1	2.6
22	4.3	7.9	317	1,460	153	127	50	26	16	4.0	2.0	2.2
23	4.2	7.6	553	3,810	144	120	49	25	15	3.9	2.0	2.1
24	4.2	7.6	380	2,780	137	115	48	23	15	3.8	2.1	1.9
25	4.1	7.6	249	1,220	129	108	47	22	15	3.8	2.1	1.7
26	4.1	7.6	176	1,640	123	104	47	22	14	3.6	2.1	1.8
27	4.1	7.4	134	2,220	120	97	46	23	14	3.8	2.1	1.8
28	4.0	7.3	110	1,100	128	91	46	23	16	3.9	2.0	1.9
29	4.0	7.1	93	720	-----	81	44	22	20	3.9	1.9	2.0
30	4.0	7.1	80	560	-----	77	42	20	13	3.8	2.0	1.9
31	4.0	-----	70	470	-----	69	-----	20	-----	3.7	2.3	-----
TOTAL	161.6	262.8	5,512.9	27,509	5,774	6,108	1,520	992	527	180.0	74.1	60.6
MEAN	5.21	8.76	178	887	206	197	50.7	32.0	17.6	5.81	2.39	2.02
MAX	20	24	909	3,810	395	676	64	42	23	12	3.6	2.6
MIN	3.2	4.0	7.1	38	120	69	42	20	13	3.6	1.9	1.6
AC-FT	321	521	10,930	54,560	11,450	12,120	3,010	1,970	1,050	357	147	120
CAL YR 1969	TOTAL	64,955.4	MEAN	178	MAX	2,340	MIN	3.2	AC-FT	128,800		
WTR YR 1970	TOTAL	48,682.0	MEAN	133	MAX	3,810	MIN	1.6	AC-FT	96,560		

NOTE.--No gage-height record Oct. 4 to Nov. 19.

		PEAK DISCHARGE (BASE, 1,200 CFS)					
DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	0730	5.86	1,730	1-23	2100	11.05	7,200
1-14	unknown	-	unknown	1-26	2300	9.57	5,080
1-16	unknown	7.69	3,170	3- 4	1545	6.36	2,080
1-21	2115	6.29	2,030				

## 11381500 MILL CREEK NEAR LOS MOLINOS, CALIF.

LOCATION.--Lat 40°03'17", long 122°01'23", in NE¼NW¼ sec.6, T.25 N., R.1 W., Tehama County, on right bank 4.5 miles northeast of Los Molinos and 5.5 miles upstream from mouth.

DRAINAGE AREA.--131 sq mi.

PERIOD OF RECORD.--September 1909 to August 1913 (fragmentary), October 1928 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 385 ft (from topographic map). Prior to September 1913, nonrecording gage at site 0.3 mile downstream at different datum.

AVERAGE DISCHARGE.--42 years (1928-70), 299 cfs (216,600 acre-ft per year); median of yearly mean discharges, 265 cfs (192,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 17,100 cfs Jan. 23 (gage height, 15.63 ft); minimum daily, 107 cfs Sept. 25-30.  
1928 to current year: Maximum discharge, 36,400 cfs Dec. 11, 1937 (gage height, 23.4 ft, from floodmarks), from rating curve extended above 14,000 cfs on basis of step-backwater computation and slope-area measurement of maximum flow; minimum, 49 cfs Dec. 13, 1932.

REMARKS.--Records good. No storage or large diversion above station. Records of chemical analyses near this station for the water year 1970 are published in Part 2 of this report.

REVISIONS (WATER YEARS).--WRD Calif. 1969: 1938(M).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	117	117	121	259	605	2,410	280	234	402	259	131	113
2	117	117	121	237	520	940	280	248	420	256	130	113
3	117	117	121	222	468	671	276	280	444	248	128	113
4	117	118	121	212	442	655	273	325	463	242	128	114
5	117	745	119	199	422	579	276	350	455	238	126	118
6	117	234	119	190	390	483	287	357	434	231	125	117
7	117	202	119	186	367	535	290	350	427	220	124	116
8	123	209	127	192	348	1,240	284	354	399	214	123	115
9	128	177	130	1,060	332	784	284	392	371	204	123	113
10	120	156	135	973	320	794	290	388	385	195	122	113
11	117	147	253	615	307	595	294	332	329	189	120	111
12	117	146	3,020	667	445	551	284	314	296	183	119	111
13	117	141	1,440	2,100	719	507	287	294	298	177	119	112
14	118	136	533	5,200	550	499	287	287	343	174	119	113
15	141	133	402	1,940	418	491	273	309	308	171	119	112
16	423	133	307	3,090	657	452	262	364	294	165	117	113
17	289	124	262	2,430	980	434	259	441	294	162	117	111
18	157	122	240	1,580	563	399	248	479	301	156	117	109
19	137	125	2,310	1,230	455	378	259	452	326	153	117	110
20	130	126	2,180	1,270	416	360	245	424	350	150	117	111
21	130	125	4,140	3,340	385	346	238	399	368	153	117	111
22	128	125	1,650	3,730	357	340	234	416	374	150	116	111
23	125	125	1,640	8,840	336	332	228	444	360	145	115	111
24	124	125	1,510	6,520	315	332	228	438	350	142	115	109
25	123	123	1,010	2,530	304	332	224	444	329	140	113	107
26	121	123	699	1,700	301	329	242	479	312	138	113	107
27	121	123	512	2,420	294	318	242	511	326	138	113	107
28	121	121	420	1,440	357	312	231	463	364	136	113	107
29	119	121	355	1,050	-----	304	224	430	368	134	113	107
30	119	121	313	840	-----	298	234	413	287	133	113	107
31	119	-----	280	699	-----	290	-----	399	-----	132	113	-----
TOTAL	4,285	4,757	24,714	56,961	12,373	17,290	7,843	11,810	10,777	5,528	3,695	3,342
MEAN	138	159	797	1,837	442	558	261	381	359	178	119	111
MAX	423	745	4,140	8,840	980	2,410	294	511	463	259	131	118
MIN	117	117	119	186	294	290	224	234	287	132	113	107
AC-FT	8,500	9,440	49,020	113,000	24,540	34,290	15,560	23,430	21,380	10,960	7,330	6,630
CAL YR 1969	TOTAL 175,410			MEAN 481	MAX 6,880	MIN 117	AC-FT 347,900					
WTR YR 1970	TOTAL 163,375			MEAN 448	MAX 8,840	MIN 107	AC-FT 324,100					

## PEAK DISCHARGE (BASE, 2,400 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-12	1700	9.55	6,080	1-21	1830	8.24	4,350
12-19	1230	8.64	4,830	1-23	2330	15.63	17,100
12-21	1330	10.90	8,230	1-27	0630	7.46	3,390
1-14	1000	10.72	7,920	3- 1	0630	8.79	5,000
1-16	1200	8.43	4,580				

## SACRAMENTO RIVER BASIN

## 11381990 THOMES CREEK TRIBUTARY AT PASKENTA, CALIF.

LOCATION.--Lat 39°52'15", long 122°33'22", in NW¼NE¼ sec.8, T.23 N., R.6 W., Tehama County, on left bank at culvert on county road, 1.0 mile southwest of Paskenta.

DRAINAGE AREA.--0.65 sq mi (revised).

PERIOD OF RECORD.--Water years 1961-67 (annual maximum), October 1967 to current year.

GAGE.--Water-stage recorder with tipping-bucket rain-gage attachment and crest-stage gages. Altitude of gage is 825 ft (from topographic map). Prior to Aug. 7, 1967, crest-stage gages only, at same site and datum.

EXTREMES.--Current year: Maximum discharge, 83 cfs Jan. 23 (gage height, 6.80 ft); no flow for several months. Period of record: Maximum discharge, 107 cfs Jan. 5, 1965 (gage height, 7.99 ft), from rating curve extended above 43 cfs on basis of computation of flow through culvert at 114 cfs; no flow for several months each year.

REMARKS.--Records fair. No storage or diversion above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			0	0	.55	.01						
2			0	0	.40	0						
3			0	0	.36	0						
4			0	0	.32	12						
5			0	0	.24	1.2						
6			0	0	.24	.65						
7			0	0	.20	1.9						
8			0	2.9	.10	.60						
9			0	19	.07	3.7						
10			0	.82	.06	3.2						
11			0	.55	.13	2.1						
12			.26	.88	.45	1.6						
13			.04	6.6	6.7	1.5						
14			.01	11	.28	1.2						
15			.01	9.4	.07	1.2						
16			0	12	3.8	1.1						
17			0	2.2	.40	.70						
18			.01	.95	.07	.32						
19			1.9	4.0	.04	.05						
20			3.7	7.0	.04	.05						
21			3.0	9.9	.03	.04						
22			.28	2.5	.02	.03						
23			6.6	24	.02	.01						
24			1.2	4.8	.02	0						
25			.50	1.6	.01	0						
26			.20	12	.01	0						
27			.05	4.8	.01	0						
28			.02	1.3	.02	0						
29			.01	.95	-----	0						
30			0	.76	-----	0						
31		-----	0	.65	-----	0	-----		-----			-----
TOTAL	0	0	17.79	140.56	14.66	33.16	0	0	0	0	0	0
MEAN	0	0	.57	4.53	.52	1.07	0	0	0	0	0	0
MAX	0	0	6.6	24	6.7	12	0	0	0	0	0	0
MIN	0	0	0	0	.01	0	0	0	0	0	0	0
AC-FT	0	0	35	279	29	66	0	0	0	0	0	0
(a)	.8	.3	7.0	10.8	1.8	2.7	.1	0	.5	0	0	0

CAL YR 1969 TOTAL 246.66 MEAN .68 MAX 21 MIN 0 ACFT 489  
WAT YR 1970 TOTAL 206.17 MEAN .56 MAX 24 MIN 0 ACFT 409

a Precipitation, in inches.



## 11382000 THOMES CREEK AT PASKENTA, CALIF.

LOCATION.--Lat 39°52'57", long 122°33'03", in SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.4, T.23 N., R.6 W., Tehama County, on left bank 0.2 mile upstream from Digger Creek and 0.3 mile upstream from highway bridge at Paskenta.

DRAINAGE AREA.--194 sq mi.

PERIOD OF RECORD.--October 1920 to current year. Monthly discharge only for some periods, published in WSP 1315-A. Prior to 1943, published as Thomas Creek at Paskenta.

GAGE.--Water-stage recorder. Datum of gage is 731.1 ft above mean sea level. Prior to Oct. 1, 1930, nonrecording gage at site 0.3 mile downstream at different datum. Oct. 1, 1930, to Dec. 28, 1938, water-stage recorder at site 1,300 ft upstream and Dec. 29, 1938, to June 20, 1942, at site 1,000 ft upstream at different datum. June 21, 1942, to Sept. 30, 1959, at present site at datum 1.75 ft higher.

AVERAGE DISCHARGE.--50 years, 282 cfs (204,300 acre-ft per year); median of yearly mean discharges, 240 cfs (174,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 18,000 cfs Jan. 23 (gage height, 12.00 ft); minimum daily, 2.2 cfs Sept. 30.

Period of record: Maximum discharge, 37,800 cfs Dec. 22, 1964 (gage height, 15.32 ft, in gage well, 16.4 ft, from floodmarks), from rating curve extended above 14,000 cfs on basis of slope-area measurement of maximum flow; no flow at times in many years.

REMARKS.--Records fair. No storage or large diversions above station. Records of chemical analyses, water temperatures, and suspended-sediment loads for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.1	4.2	16	335	822	617	215	141	91	26	7.0	6.2
2	7.1	4.2	16	285	718	447	208	148	90	24	6.6	5.7
3	6.5	52	15	246	637	404	203	160	87	22	6.6	5.7
4	6.5	35	16	201	600	661	201	173	80	21	6.6	6.2
5	6.5	150	16	152	540	416	198	178	74	19	6.6	6.2
6	7.1	91	16	134	493	422	198	173	71	18	6.2	6.6
7	7.1	33	16	130	447	822	198	168	66	16	6.2	7.0
8	2.6	28	19	174	416	1,070	195	165	71	14	5.7	5.7
9	3.0	33	22	951	404	830	188	186	80	14	5.3	5.0
10	5.9	25	22	980	398	752	190	174	66	14	5.3	4.7
11	5.9	23	37	645	386	698	196	165	58	13	5.3	4.4
12	6.5	25	2,690	737	461	626	186	157	52	13	5.0	4.4
13	7.7	28	1,790	1,800	635	590	184	154	51	12	4.7	4.7
14	11	27	1,150	5,380	475	680	182	148	63	12	4.4	4.4
15	21	25	930	2,330	468	635	174	148	62	12	4.4	4.7
16	123	25	640	8,830	768	582	173	171	54	12	4.4	4.7
17	76	24	564	5,680	840	526	166	188	51	11	4.7	4.4
18	12	23	650	2,760	542	454	162	186	46	10	4.7	4.7
19	8.2	22	2,250	2,710	503	410	156	178	42	10	4.4	4.7
20	7.0	20	2,090	2,560	489	360	146	158	40	9.6	4.7	4.4
21	6.1	20	4,130	7,180	475	345	142	140	38	9.2	4.4	4.1
22	6.1	20	1,340	5,960	447	330	137	135	35	8.3	4.4	3.8
23	5.6	19	1,940	11,500	428	317	132	135	33	7.9	4.7	3.4
24	5.6	19	1,640	7,610	416	313	132	132	33	7.9	4.7	3.1
25	5.2	19	1,190	3,780	410	313	133	130	31	7.4	4.7	2.5
26	5.2	18	1,070	3,840	422	305	138	133	29	7.4	4.7	2.5
27	5.2	16	900	6,200	434	284	142	135	30	7.4	4.7	2.8
28	4.7	16	660	2,870	468	261	142	120	33	7.9	5.0	2.8
29	4.2	16	548	1,730	-----	254	141	111	34	7.9	5.3	3.1
30	4.2	16	470	1,240	-----	244	140	103	30	7.4	5.3	2.2
31	4.2	-----	399	974	-----	229	-----	96	-----	7.4	6.2	-----
TOTAL	394.0	876.4	27,252	89,904	14,542	15,197	5,098	4,689	1,621	388.7	162.9	134.8
MEAN	12.7	29.2	879	2,900	519	490	170	151	54.0	12.5	5.25	4.49
MAX	123	150	4,130	11,500	840	1,070	215	188	91	26	7.0	7.0
MIN	2.6	4.2	15	130	386	229	132	96	29	7.4	4.4	2.2
AC-FT	702	1,740	54,050	178,300	28,840	30,140	10,110	9,300	3,220	771	323	267
CAL YR 1969	TOTAL 238,374.9											
HAT YR 1970	TOTAL 160,259.8											
PEAK DISCHARGE (BASE, 1,800 CFS)												
DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE					
12-12	2100	8.07	4,540	1-16	0730	10.60	12,600					
12-19	1800	7.71	3,820	1-19	1600	7.10	3,660					
12-21	1030	9.19	7,790	1-21	2400	9.20	8,180					
12-23	1030	6.66	2,500	1-23	2100	12.00	18,000					
1-14	1000	9.06	7,820	1-27	0130	10.30	11,500					

## SACRAMENTO RIVER BASIN

11382550 DEER CREEK BELOW SLATE CREEK, NEAR DEER CREEK MEADOWS, CALIF.

LOCATION.--Lat 40°14'02", long 121°27'50", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.1, T.27 N , R.4 E., Tehama County, Lassen National Forest, on right bank 0.4 mile downstream from Slate Creek, 3.2 miles southwest of Deer Creek Meadows, and 15 miles southwest of Chester.

DRAINAGE AREA.--69.4 sq mi.

PERIOD OF RECORD.--August 1961 to September 1970 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 4,300 ft (from topographic map).

AVERAGE DISCHARGE.--9 years, 138 cfs (99,980 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 5,860 cfs Jan. 23 (gage height, 9.69 ft); minimum daily, 55 cfs Oct. 31 to Nov. 3.

Period of record: Maximum discharge, 7,900 cfs Dec. 22, 1964 (gage height, 11.06 ft in gage well, 11.95 ft, from floodmarks), from rating curve extended above 1,500 cfs on basis of slope-area measurement at gage height 9.06 ft; minimum, 37 cfs Nov. 17, 1961, Sept. 17, 1962.

REMARKS.--Records good. No storage or diversion above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	55	62	143	383	319	155	123	109	88	67	60
2	63	55	62	131	341	252	153	119	106	85	66	60
3	63	55	64	121	320	220	150	119	106	83	65	60
4	63	56	64	117	301	211	148	120	105	81	65	61
5	61	163	63	110	280	204	146	120	107	80	65	62
6	62	102	64	106	262	205	145	121	105	78	65	60
7	62	98	63	109	250	243	143	121	102	78	65	60
8	63	96	66	116	240	327	141	127	107	77	65	60
9	64	82	67	200	232	264	139	145	112	76	64	59
10	62	75	68	313	224	249	140	156	130	75	63	59
11	61	73	89	228	221	232	139	139	106	75	63	59
12	61	70	440	278	292	226	136	139	102	74	63	59
13	61	68	346	670	261	229	139	137	109	73	63	59
14	63	68	194	1,500	245	248	142	127	130	73	63	58
15	98	69	160	767	229	243	138	123	110	73	63	59
16	135	69	131	1,620	233	238	139	121	105	71	62	59
17	113	65	117	1,350	247	230	135	123	100	71	62	58
18	79	64	117	819	230	214	131	124	95	71	62	58
19	70	64	509	692	212	205	160	125	92	70	62	59
20	66	64	631	645	204	199	135	124	92	73	61	59
21	64	64	1,100	1,740	197	194	133	122	91	74	61	58
22	63	64	496	2,010	195	191	128	120	88	71	61	58
23	62	63	330	2,810	194	187	125	120	88	70	61	58
24	62	63	415	2,520	189	184	123	118	86	69	61	57
25	61	63	462	1,110	185	181	125	118	85	69	60	57
26	61	63	327	859	184	178	144	118	87	68	60	57
27	60	64	251	1,190	183	172	138	120	95	67	60	57
28	60	64	205	707	226	169	130	118	121	67	60	57
29	61	63	184	577	-----	166	131	117	116	67	61	57
30	57	63	167	493	-----	164	130	113	93	67	60	57
31	55	-----	151	429	-----	159	-----	110	-----	67	60	-----
TOTAL	2,104	2,145	7,465	24,480	6,762	6,703	4,161	3,847	3,080	2,281	1,939	1,761
MEAN	67.9	71.5	241	790	242	216	139	124	103	73.6	62.5	58.7
MAX	135	163	1,100	2,810	383	327	160	156	130	88	67	62
MIN	55	55	62	106	183	159	123	110	85	67	60	57
AC-FT	4,170	4,250	14,810	48,560	13,410	13,300	8,250	7,630	6,110	4,520	3,850	3,490
CAL YR 1969	TOTAL 72,104	MEAN 198	MAX 1,920	MIN 55	AC-FT 143,100							
WTR YR 1970	TOTAL 66,728	MEAN 183	MAX 2,810	MIN 55	AC-FT 132,400							

## PEAK DISCHARGE((BASE, 300 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-12	1830	4.50	700	1-21	2330	6.97	2,510
12-21	1200	6.38	2,020	1-23	2245	9.69	5,860
12-25	1000	4.25	575	1-27	0300	6.01	1,640
1- 9	2100	3.75	354	2-12	1700	3.87	370
1-14	1000	6.34	1,950	3- 1	0200	3.89	382
1-16	0930	6.59	2,150	3- 7	2230	3.96	410

## 11383500 DEER CREEK NEAR VINA, CALIF.

LOCATION.--Lat 40°00'51", long 121°56'50", in NW¼NE¼ sec.23, T.25 N., R.1 W., Tehama County, on left bank 0.5 mile upstream from concrete diversion dam and 7.9 miles northeast of Vina.

DRAINAGE AREA.--208 sq mi.

PERIOD OF RECORD.--October 1911 to December 1915, March 1920 to December 1937, January 1939 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is 479.5 ft above mean sea level (river-profile survey). Prior to Oct. 9, 1928, nonrecording gage at site 0.8 mile downstream at different datum. Oct. 9, 1928, to Jan. 19, 1939, water-stage recorder at present site at datum 2.64 ft higher.

AVERAGE DISCHARGE.--52 years, 313 cfs (226,800 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 20,100 cfs Jan. 23 (gage height, 15.14 ft); minimum daily, 94 cfs Sept. 26.

Period of record: Maximum discharge, 23,800 cfs Dec. 10, 1937 (gage height, 19.2 ft, present datum, from floodmarks), from rating curve extended above 9,200 cfs on basis of velocity-area studies; minimum, 43 cfs Dec. 13, 1932.

REMARKS.--Records good. No storage or large diversions above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	108	112	112	307	1,050	2,380	312	231	191	152	113	99
2	108	112	111	272	910	1,250	308	224	187	149	113	99
3	110	114	112	250	814	934	300	222	185	143	112	99
4	110	116	112	241	755	916	292	222	181	139	112	100
5	110	413	112	220	690	802	288	224	179	137	110	103
6	110	227	112	209	631	700	282	224	179	132	110	102
7	110	177	112	205	582	872	280	227	173	132	110	102
8	116	194	120	250	546	1,660	275	227	173	130	109	100
9	124	165	122	1,650	514	1,140	270	247	191	130	109	99
10	114	144	135	1,550	490	1,040	268	275	214	128	107	98
11	112	135	280	934	470	892	270	260	197	127	106	97
12	111	132	2,070	916	626	780	263	256	175	127	106	98
13	112	130	1,200	2,730	1,020	720	268	251	175	125	104	98
14	116	128	466	6,470	814	680	275	240	203	125	104	98
15	132	124	358	3,000	665	660	272	231	195	125	104	98
16	214	126	272	4,180	844	604	268	227	179	123	104	99
17	225	123	232	3,570	1,200	568	265	229	171	123	104	99
18	160	120	216	2,490	880	518	256	229	164	121	104	99
19	134	118	1,980	1,820	750	486	275	231	158	121	104	100
20	126	120	1,830	1,660	670	466	263	229	152	121	102	102
21	122	118	3,680	4,130	608	438	254	227	150	130	102	100
22	118	118	1,660	4,790	564	421	251	222	149	125	102	99
23	118	117	1,490	8,740	522	400	242	218	145	121	102	98
24	118	117	1,810	8,420	494	388	238	214	143	120	100	98
25	117	116	1,290	3,810	463	379	235	212	141	118	100	95
26	117	116	952	2,680	442	367	247	212	143	118	100	94
27	117	114	702	3,650	424	355	258	212	147	117	100	95
28	116	114	529	2,450	509	343	247	210	170	115	99	97
29	116	112	449	1,860	-----	335	238	205	214	115	100	95
30	114	112	388	1,520	-----	328	238	201	168	113	100	95
31	114	-----	337	1,230	-----	322	-----	193	-----	113	99	-----
TOTAL	3,849	4,184	23,351	76,204	18,947	22,144	7,998	7,032	5,192	3,915	3,251	2,955
MEAN	124	139	753	2,458	677	714	267	227	173	126	105	98.5
MAX	225	413	3,680	8,740	1,200	2,380	312	275	214	152	113	103
MIN	108	112	111	205	424	322	235	193	141	113	99	94
AC-FT	7,630	8,300	46,320	151,200	37,580	43,920	15,860	13,950	10,300	7,770	6,450	5,860
CAL YR 1969	TOTAL 204,305	MEAN 560	MAX 9,970	MIN 108	ACFT 405,200							
WAT YR 1970	TOTAL 179,022	MEAN 490	MAX 8,740	MIN 94	ACFT 355,100							

## PEAK DISCHARGE (BASE, 2,500 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-12	1500	7.18	3,480	1-16	1300	8.74	5,350
12-19	1400	7.56	3,930	1-23	2300	15.14	20,100
12-21	1430	9.03	5,970	1-27	0700	8.17	4,720
1- 9	1800	6.91	3,160	3- 1	0700	7.91	4,370
1-14	0900	10.53	8,660	3- 8	0100	6.11	2,500

## SACRAMENTO RIVER BASIN

## 11384000 BIG CHICO CREEK NEAR CHICO, CALIF.

LOCATION.--Lat 39°46'35", long 121°45'10", in Arroyo Chico Grant, Butte County, on right bank 1.8 miles upstream from golf clubhouse in Bidwell Park, 2.6 miles upstream from Lindo Channel, and 7 miles northeast of Chico.

DRAINAGE AREA.--72.4 sq mi (revised).

PERIOD OF RECORD.--May 1930 to current year. Prior to October 1952, published as Chico Creek near Chico.

GAGE.--Water-stage recorder. Altitude of gage is 300 ft (from topographic map). Prior to Oct. 1, 1955, at site 0.6 mile downstream at different datum.

AVERAGE DISCHARGE.--40 years, 145 cfs (105,100 acre-ft per year); median of yearly mean discharges, 122 cfs (88,390 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 9,270 cfs Jan. 24 (gage height, 15.10 ft); minimum daily, 19 cfs Sept. 27.

Period of record: Maximum discharge, 9,580 cfs Jan. 5, 1965 (gage height, 15.36 ft); minimum, 10 cfs Dec. 11, 1932, Aug. 15, 1939, Sept. 18, 1947.

REMARKS.--Records good. No storage or large diversion above station. Records of chemical analyses for the water year 1970 are published in Part 2 of this report.

REVISIONS (WATER YEARS).--WRD Calif. 1965: 1964(M).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	29	31	115	444	1,500	90	57	39	32	28	25
2	25	28	30	102	376	941	88	56	38	32	28	24
3	25	29	31	92	330	611	85	55	37	31	27	24
4	25	29	31	85	300	547	83	54	35	31	27	24
5	26	116	31	79	270	465	80	53	33	31	27	26
6	26	64	30	74	241	380	79	52	33	30	27	26
7	26	53	31	71	218	341	78	52	32	30	27	26
8	28	68	35	83	200	567	76	52	32	30	27	26
9	31	52	38	794	184	485	74	54	36	28	27	25
10	28	43	46	1,220	170	451	73	57	38	29	27	25
11	28	39	154	665	159	389	74	55	37	29	27	25
12	28	37	1,160	681	213	341	70	55	35	30	26	25
13	29	35	623	2,300	392	304	70	54	35	30	27	28
14	30	34	191	4,980	387	276	71	52	37	30	26	25
15	42	33	119	2,060	320	249	75	50	36	29	26	25
16	76	34	87	2,240	394	227	75	48	34	30	27	25
17	44	34	69	1,890	749	207	73	46	33	29	25	24
18	34	33	62	1,270	543	192	72	45	32	29	27	24
19	31	33	943	948	423	180	69	45	32	29	27	23
20	30	33	905	859	357	168	67	45	31	29	26	23
21	29	33	2,030	2,650	315	157	66	45	32	29	26	22
22	29	33	892	2,280	275	149	65	44	34	29	25	22
23	29	34	867	4,500	244	140	64	43	33	29	26	21
24	29	35	1,360	6,000	223	131	61	43	32	29	25	21
25	30	35	752	2,800	202	122	61	42	32	28	25	20
26	30	34	469	1,800	184	113	62	41	32	29	25	20
27	30	31	326	2,600	172	107	64	40	32	28	25	19
28	30	30	239	1,310	216	103	62	41	37	28	25	21
29	29	30	187	939	-----	99	60	41	42	28	25	21
30	29	30	153	703	-----	97	58	40	34	27	25	21
31	29	-----	129	545	-----	94	-----	39	-----	28	24	-----
TOTAL	960	1,181	12,051	46,735	8,501	10,133	2,145	1,496	1,035	910	812	706
MEAN	31.0	39.4	389	1,508	304	327	71.5	48.3	34.5	29.4	26.2	23.5
MAX	76	116	2,030	6,000	749	1,500	90	57	42	32	28	28
MIN	25	28	30	71	159	94	58	39	31	27	24	19
AC-FT	1,900	2,340	23,900	92,700	16,860	20,100	4,250	2,970	2,050	1,800	1,610	1,400
CAL YR 1969	TOTAL	96,954	MEAN	266	MAX	6,140	MIN	25	AC-FT	192,300		
WTR YR 1970	TOTAL	86,665	MEAN	237	MAX	6,000	MIN	19	AC-FT	171,900		

## PEAK DISCHARGE (BASE, 1,600 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-12	1745	6.26	1,730	1-16	1000	7.84	2,770
12-19	1615	6.73	2,040	1-21	1645	8.20	3,060
12-21	1330	8.51	3,440	1-24	unknown	15.10	9,270
12-24	0245	6.34	1,840	1-27	1715	6.56	1,730
1- 9	2030	6.70	2,070	3- 1	0845	6.99	2,030
1-14	0730	12.21	6,390				

LOCATION.--Lat 39°47'02", long 121°53'06", in SW<sup>1</sup>SE<sup>4</sup> sec.5, T.22 N., R.1 E., Butte County, on left bank 0.1 mile upstream from bridge on State Highway 99E and 5 miles northwest of Chico.

AVERAGE DISCHARGE.--5 years, 66.7 cfs (48,320 acre-ft per year).

Flood of Dec. 22, 1964, reached a stage of 13.23 ft (discharge, 9,880 cfs); maximum stage recorded since reconstruction of the channel, 13.55 ft Jan. 15, 1965 (backwater from debris).

REMARKS.--No storage or diversion above station. During periods of flood flows on Big Chico Creek, flood waters are diverted at Mud Creek diversion dam in sec.18, T.22 N., R.2 E., to Lindo channel and Mud Creek, however, most of the water is diverted to Mud Creek.

COOPERATION.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	.10	8.8	118	401	13	5.2	0	1.4	0	0
2	0	0	.10	7.0	97	185	12	4.7	0	.60	0	0
3	0	0	.20	6.0	81	136	12	4.4	0	.20	0	.40
4	0	0	.20	5.3	73	334	11	4.3	0	.30	0	.40
5	0	2.0	.20	4.3	62	203	11	4.5	0	.10	.10	.30
6	0	2.8	.20	3.7	54	130	10	8.8	0	.30	0	.20
7	0	1.0	.30	3.6	47	115	10	5.4	0	.40	.10	.10
8	0	.50	.80	38	42	265	9.7	5.1	0	.30	.20	.20
9	0	.80	1.2	1,210	38	142	9.2	5.9	2.4	.50	.10	0
10	0	.40	1.2	362	33	157	8.7	5.6	1.8	.40	0	0
11	0	.10	8.4	176	30	115	9.2	6.7	.10	.20	0	.30
12	0	0	387	239	53	89	8.4	8.4	0	.10	.10	.30
13	0	0	186	813	332	71	8.7	6.9	0	5.5	0	0
14	0	0	23	3,990	183	60	9.4	5.4	0	1.8	0	0
15	0	0	11	813	113	51	8.8	3.9	0	.40	0	.20
16	.80	0	6.9	918	211	44	8.5	8.7	0	.10	0	0
17	0	0	4.8	430	228	38	8.4	11	.10	.10	.10	0
18	0	0	9.6	275	136	33	7.8	8.8	.20	.10	.60	0
19	0	0	1,220	294	102	29	7.7	2.7	.30	0	.90	0
20	0	0	488	326	80	26	7.6	1.9	.10	0	.80	0
21	0	0	589	1,430	65	24	7.5	1.6	.10	0	.80	0
22	0	0	192	640	52	22	7.0	1.3	0	0	.50	0
23	0	0	871	1,880	45	20	6.7	.90	0	0	.40	0
24	0	0	791	4,520	40	19	6.5	.60	.10	0	0	0
25	0	0	221	582	34	18	6.4	.40	.20	0	.10	0
26	0	0	105	348	30	17	6.4	.30	.40	0	.30	0
27	0	.10	55	705	27	16	6.5	.30	.70	0	0	0
28	0	.10	29	280	39	15	6.2	.50	0	0	0	0
29	0	.10	19	209	-----	15	5.8	.30	3.5	0	0	0
30	0	.10	14	169	-----	14	5.4	.10	4.4	0	0	0
31	0	-----	11	140	-----	13	-----	0	-----	0	0	-----
TOTAL	.80	8.00	5,246.20	20,825.7	2,445	2,817	255.5	124.60	14.40	12.80	5.10	2.40
MEAN	.026	.27	169	672	87.3	90.9	8.52	4.02	.48	.41	.16	.080
MAX	.80	2.8	1,220	4,520	332	401	13	11	4.4	5.5	.90	.40
MIN	0	0	.10	3.6	27	13	5.4	0	0	0	0	0
AC-FT	1.6	16	10,410	41,310	4,850	5,590	507	247	29	25	10	4.8
CAL YR 1969	TOTAL	46,548.70	MEAN	128	MAX	6,270	MIN	0	AC-FT	92,330		
WTR YR 1970	TOTAL	31,757.50	MEAN	87.0	MAX	4,520	MIN	0	AC-FT	62,990		

## SACRAMENTO RIVER BASIN

11384600 LITTLE STONY CREEK ABOVE EAST PARK RESERVOIR, NEAR LODOGA, CALIF.

LOCATION.--Lat 39°17'48", long 122°32'22", in SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.28, T.17 N., R.6 W., Colusa County, on left bank 1.1 miles upstream from county bridge on Lodoga-Stonyford Road, 1.4 miles downstream from Frenzel Creek, and 2.8 miles southwest of Lodoga.

DRAINAGE AREA.--45.6 sq mi.

PERIOD OF RECORD.--September 1966 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,300 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 4,000 cfs Jan. 23 (gage height, 11.39 ft); minimum daily, 0.30 cfs Aug. 19, 21, 22.

Period of record: Maximum discharge, 4,000 cfs Jan. 23, 1970 (gage height, 11.39 ft), from rating curve extended above 1,400 cfs; minimum daily, 0.30 cfs Aug. 19, 21, 22, 1970.

REMARKS.--Records good. No known storage or diversions above station. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

REVISIONS (WATER YEARS).--WRD Calif. 1968: 1967.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.94	2.7	3.3	50	222	122	37	20	8.3	3.8	.92	.34
2	.93	2.7	3.2	44	192	87	35	19	7.9	3.4	.89	.35
3	.95	2.7	3.2	40	171	80	34	19	7.2	3.1	.81	.36
4	.98	2.7	3.3	36	156	125	33	18	6.8	2.9	.82	.38
5	1.1	7.6	3.3	33	141	107	33	18	6.6	2.6	.71	.40
6	1.2	5.6	3.3	30	129	97	32	18	6.4	2.4	.68	.44
7	1.2	4.5	3.3	29	118	98	32	18	6.4	2.4	.65	.39
8	1.2	5.3	4.6	75	110	107	31	18	7.1	2.2	.64	.39
9	1.2	4.8	4.5	1,050	104	104	30	17	8.3	2.2	.60	.47
10	1.3	4.1	5.6	605	98	100	29	17	7.9	2.1	.56	.43
11	1.3	3.8	21	327	94	93	29	17	7.5	2.1	.52	.39
12	1.3	3.5	170	324	128	87	28	17	7.0	1.9	.49	.37
13	1.3	3.5	69	539	287	82	28	17	6.7	1.8	.46	.36
14	1.6	3.4	26	1,570	168	79	29	16	8.0	1.7	.46	.36
15	7.2	3.5	19	883	130	75	28	15	9.1	1.6	.45	.36
16	6.2	3.5	14	1,650	210	71	28	14	7.4	1.5	.34	.41
17	4.9	3.3	11	1,130	238	67	27	14	6.6	1.6	.32	.37
18	3.1	3.3	17	751	190	65	26	13	6.0	1.5	.31	.40
19	2.6	3.3	433	585	168	62	25	13	5.4	1.3	.30	.40
20	2.4	3.3	250	601	155	60	25	13	5.0	1.2	.31	.45
21	2.3	3.3	544	1,350	138	58	25	13	4.6	1.1	.30	.49
22	2.4	3.3	181	1,130	119	55	25	12	4.5	1.2	.30	.44
23	2.5	3.3	419	1,980	107	53	24	12	4.1	1.1	.32	.37
24	2.6	3.3	547	1,820	96	50	24	11	3.9	1.1	.33	.46
25	2.6	3.3	261	934	87	48	22	10	3.9	1.0	.35	.46
26	2.7	3.3	161	627	81	46	23	10	3.8	1.0	.38	.46
27	2.7	3.3	124	943	76	44	23	10	3.9	1.0	.37	.44
28	2.6	3.3	101	575	89	43	22	10	4.9	.98	.36	.44
29	2.6	3.3	84	408	-----	41	21	10	4.6	.88	.35	.45
30	2.7	3.3	69	323	-----	40	21	9.3	4.1	.86	.36	.45
31	2.7	-----	58	263	-----	38	-----	8.7	-----	.90	.36	-----
TOTAL	71.30	110.1	3,616.6	20,705	4,002	2,284	829	447.0	183.9	54.42	15.02	12.28
MEAN	2.30	3.67	117	668	143	73.7	27.6	14.4	6.13	1.76	.48	.41
MAX	7.2	7.6	547	1,980	287	125	37	20	9.1	3.8	.92	.49
MIN	.93	2.7	3.2	29	76	38	21	8.7	3.8	.86	.30	.34
AC-FT	141	218	7,170	41,070	7,940	4,530	1,640	887	365	108	30	24
CAL YR 1969	TOTAL 35,588.21	MEAN 97.5	MAX 1,380	MIN .84	AC-FT 70,590							
WTR YR 1970	TOTAL 32,330.62	MEAN 88.6	MAX 1,980	MIN .30	AC-FT 64,130							

## PEAK DISCHARGE (BASE, 1,000 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-19	1100	6.96	1,130	1-16	0530	9.19	2,310
12-21	0630	6.81	1,060	1-21	0315	8.06	1,670
1-9	1500	9.14	2,280	1-23	2145	11.39	4,000
1-14	0900	9.04	2,220	1-27	0200	7.58	1,430

## RESERVOIRS IN STONY CREEK BASIN, CALIF.

11385100 EAST PARK RESERVOIR NEAR STONYFORD.--Lat 39°21'24", long 122°30'53", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.3, T.17 N., R.6 W., Colusa County, near south side of spillway section on East Park Dam on Little Stony Creek, 1.9 miles southeast of Stonyford. Drainage area, 98.2 sq mi. Period of record, October 1969 to September 1970. Gage is nonrecording read once daily. Datum of gage is at mean sea level (levels by Bureau of Reclamation). Extremes for current year: Maximum contents, 51,353 acre-ft Mar. 4-7 (elevation, 1,199.94 ft); minimum, 2,419 acre-ft Sept. 26-30 (elevation, 1,147.85 ft).  
Reservoir is formed by a concrete arch-type dam. Storage began in 1910. Capacity, 48,211 acre-ft between elevations 1,131.68 ft (invert of sluice pipe) and 1,198.18 ft (crest of spillway). Capacity increased to 50,889 acre-ft with the addition of flashboards to an elevation of 1,199.68 ft. No dead storage. Record of contents furnished by Bureau of Reclamation.

11386100 STONY GORGE RESERVOIR NEAR ELK CREEK.--Lat 39°35'09", long 122°31'54", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.16, T.20 N., R.6 W., Glenn County, on south end of Stony Gorge Dam on Stony Creek, 1.3 miles southeast of Elk Creek. Drainage area, 301 sq mi. Period of record, October 1969 to September 1970. Gage is nonrecording read once daily. Datum of gage is at mean sea level (levels by Bureau of Reclamation). Extremes for current year: Maximum contents, 51,216 acre-ft Mar. 26, 27 (elevation, 841.64 ft); minimum, 6,435 acre-ft (elevation, 787.31 ft).  
Reservoir is formed by slab and buttress-type dam. Storage began in 1928. Capacity, 50,383 acre-ft between elevations, 728.0 ft (top of low intake) and 841.0 ft (crest of spillway). No dead storage. Record of contents furnished by Bureau of Reclamation.

## MONTHEND ELEVATIONS AND CONTENTS, AT 0800, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
EAST PARK RESERVOIR				STONY GORGE RESERVOIR		
Sept. 30.....	1,176.20	18,452	-	789.55	7,245	-
Oct. 31.....	1,169.64	12,882	-5,570	790.70	7,714	+469
Nov. 30.....	1,169.48	12,762	-120	793.75	9,062	+1,348
Dec. 31.....	1,181.84	24,410	+11,648	824.48	31,358	+22,296
CAL YR 1969.....	-	-	-	-	-	-
Jan. 31.....	1,198.66	49,048	+24,638	830.04	37,134	+5,776
Feb. 28.....	1,198.43	48,639	-409	836.10	44,026	+6,892
Mar. 31.....	1,199.58	50,698	+2,059	841.60	50,829	+6,803
Apr. 30.....	1,198.26	48,339	-2,359	838.80	47,297	-3,532
May 31.....	1,191.04	36,598	-11,741	839.40	48,042	+745
June 30.....	1,185.13	28,409	-8,189	834.70	42,380	-5,662
July 31.....	1,175.94	18,204	-10,205	821.39	28,373	-14,007
Aug. 31.....	1,157.89	5,914	-12,290	806.95	16,667	-11,706
Sept. 30.....	1,147.92	2,419	-3,495	787.45	6,435	-10,232
WTR YR 1970.....	-	-	-16,033	-	-	-810

## 11386500 GRINDSTONE CREEK NEAR ELK CREEK, CALIF.

LOCATION.--Lat 39°40'38", long 122°31'51", on line between secs. 15 and 16, T.21 N., R.6 W., Glenn County, on right bank 600 ft upstream from highway bridge, 4.5 miles north of Elk Creek.

DRAINAGE AREA.--156 sq mi (revised).

PERIOD OF RECORD.--October 1935 to November 1937, October 1939 to April 1940, October 1965 to current year. Monthly and yearly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Altitude of gage is 640 ft (from topographic map). October 1935 to November 1937, at site 0.2 mile downstream at different datum. October 1939 to April 1940, at site 600 ft downstream at different datum.

AVERAGE DISCHARGE.--7 years (1936-37, 1966-70), 172 cfs (124,600 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 15,600 cfs Jan. 23 (gage height, 14.55 ft); minimum daily, 0.20 cfs Aug. 11, 12.

Period of record: Maximum discharge, 15,600 cfs Jan. 23, 1970 (gage height, 14.55 ft), from rating curve extended above 10,000 cfs on basis of slope-area measurement of maximum flow; no flow at times in many years.

Flood of Dec. 22, 1964, reached a stage of 9.38 ft, from floodmarks, at site 600 ft downstream at different datum (discharge, 22,200 cfs, by slope-area measurement).

REMARKS.--No known diversions above station.

COOPERATION.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	3.4	7.0	102	709	254	138	61	28	12	1.5	.60
2	1.5	3.4	6.0	89	588	262	138	61	26	11	1.5	.40
3	1.5	3.4	6.0	81	522	238	132	61	26	11	1.5	.60
4	1.0	4.2	6.0	76	470	254	132	61	24	9.4	1.5	.60
5	1.5	14	6.0	65	420	294	121	61	24	8.2	2.0	1.5
6	1.5	31	5.0	68	373	294	116	61	24	8.2	2.6	1.0
7	1.5	20	5.0	65	346	391	110	58	22	7.0	2.6	1.0
8	1.5	17	7.0	76	319	588	106	61	22	6.0	2.6	.60
9	2.0	24	8.2	698	294	480	89	72	26	6.0	2.0	.60
10	2.6	17	9.4	632	270	391	85	68	26	6.0	1.5	1.0
11	2.6	14	18	346	254	346	85	68	24	7.0	.20	1.0
12	2.6	11	826	381	319	310	81	68	20	6.0	.20	.60
13	2.0	9.4	462	1,040	511	294	76	76	20	5.0	.40	.60
14	2.0	9.4	198	3,950	490	302	76	72	33	5.0	.60	.60
15	17	8.2	138	1,760	420	278	76	68	28	4.2	.60	.60
16	65	7.0	102	6,370	507	254	81	65	24	4.2	1.0	.40
17	58	7.0	68	5,290	1,210	238	76	61	22	3.4	1.0	.40
18	31	7.0	76	2,370	874	217	68	61	20	3.4	1.0	.40
19	18	6.0	646	1,710	654	204	61	61	18	2.6	1.0	.60
20	14	6.0	440	1,410	544	198	61	61	18	2.6	1.0	1.0
21	11	6.0	1,240	4,170	460	191	58	55	17	2.0	1.5	.60
22	8.2	6.0	496	3,000	400	184	61	52	17	2.0	1.5	.60
23	8.2	6.0	998	6,810	346	178	68	52	17	2.6	1.5	.60
24	8.2	6.0	891	9,750	319	172	68	46	15	2.6	1.0	.40
25	7.0	6.0	480	3,930	286	165	65	43	15	2.6	1.0	.40
26	6.0	6.0	328	2,730	270	165	65	41	15	2.6	1.0	.40
27	6.0	6.0	224	6,410	254	154	68	38	14	2.6	1.0	.60
28	6.0	6.0	172	2,630	246	143	65	38	14	2.0	1.0	1.0
29	6.0	6.0	148	1,640	-----	148	65	36	14	2.0	1.0	.60
30	5.0	6.0	132	1,150	-----	138	65	33	14	2.0	1.0	.40
31	3.4	-----	106	874	-----	138	-----	31	-----	2.0	1.0	-----
TOTAL	302.8	282.4	8,254.6	69,673	12,675	7,863	2,556	1,751	627	153.2	38.80	19.70
MEAN	9.77	9.41	266	2,248	453	254	85.2	56.5	20.9	4.94	1.25	.66
MAX	65	31	1,240	9,750	1,210	588	138	76	33	12	2.6	1.5
MIN	1.0	3.4	5.0	65	246	138	58	31	14	2.0	.20	.40
AC-FT	601	560	16,370	138,200	25,140	15,600	5,070	3,470	1,240	304	77	39
CAL YR 1969	TOTAL	113,866.10	MEAN	312	MAX	5,550	MIN	.20	AC-FT	225,900		
WTR YR 1970	TOTAL	104,196.50	MEAN	285	MAX	9,750	MIN	.20	AC-FT	206,700		



## 11387000 STONY CREEK NEAR FRUTO, CALIF.

LOCATION --Lat 39°40'18", long 122°31'01", in SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.15, T.21 N., R.6 W., Glenn County, on right bank 0.3 mile downstream from Grindstone Creek and 6.5 miles northwest of Fruto.

DRAINAGE AREA.--597 sq mi (revised).

PERIOD OF RECORD.--January 1901 to October 1912, October 1960 to current year.

GAGE.--Water-stage recorder and two crest-stage gages. Altitude of gage is 600 ft (from topographic map). Prior to Oct. 6, 1912, nonrecording gage at site 1.0 mile downstream at different datum.

AVERAGE DISCHARGE (unadjusted).--21 years, 678 cfs (491,200 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 32,000 cfs Jan. 24 (gage height, 15.02 ft); minimum daily, 8.5 cfs Nov. 29, 30.

Period of record: Maximum discharge, 40,200 cfs Dec. 23, 1964 (gage heights, 15.94 ft in gage well, 16.1 ft, from floodmarks); no flow July 5-13, Oct. 25, 26, 1901.

REMARKS.--Records good. Many diversions above station for irrigation. Flow regulated by Stony Gorge Reservoir 6.9 miles upstream since 1928 and by East Park Reservoir since 1910 (combined usable capacity, 100,700 acre-ft).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	224	132	9.0	160	1,650	520	300	542	156	395	318	321
2	220	132	9.0	144	1,840	455	295	526	154	393	321	321
3	297	132	9.5	132	1,760	420	330	526	152	391	323	321
4	374	108	9.5	125	1,480	914	390	523	150	390	331	306
5	312	23	9.5	118	1,250	987	370	514	164	389	331	273
6	118	33	13	112	1,300	948	345	499	184	387	340	269
7	114	22	76	107	1,250	1,030	335	515	181	384	353	269
8	112	22	81	140	1,180	1,310	320	515	183	388	358	269
9	112	29	85	4,260	1,100	1,290	293	454	193	295	357	266
10	127	23	89	4,010	1,050	1,350	285	328	191	379	355	259
11	214	20	99	1,650	1,010	1,180	273	319	185	384	351	232
12	198	17	878	1,380	1,130	1,060	269	320	209	388	341	220
13	198	12	624	2,660	2,510	948	261	324	283	388	334	217
14	192	13	245	4,250	2,560	902	277	288	294	388	334	217
15	148	12	189	4,370	1,810	851	343	259	292	388	330	209
16	62	14	123	9,960	1,830	799	348	220	287	379	330	186
17	54	13	101	9,160	2,460	763	361	223	284	361	330	183
18	29	13	109	6,450	1,960	715	402	217	283	361	330	153
19	19	12	1,320	4,840	1,740	620	410	214	283	361	326	101
20	14	12	1,200	4,500	1,570	305	455	212	286	343	324	97
21	13	11	1,480	10,000	1,430	289	505	181	282	343	325	97
22	11	12	835	9,460	1,260	301	495	178	282	338	325	99
23	11	11	1,550	14,200	1,150	338	435	173	297	338	325	101
24	11	11	3,100	23,600	844	374	435	170	339	338	325	103
25	11	11	2,040	9,890	485	356	435	169	359	334	329	105
26	11	10	1,380	5,450	465	334	430	167	391	334	326	99
27	11	10	987	9,990	455	317	435	167	391	334	322	97
28	11	9.0	751	4,920	460	361	465	162	393	330	321	103
29	58	8.5	608	4,460	-----	392	495	163	394	330	321	126
30	130	8.5	495	3,680	-----	334	537	158	395	325	324	127
31	132	-----	207	2,160	-----	313	-----	157	-----	321	322	-----
TOTAL	3,548	899.0	18,701.0	161,338	38,989	21,076	11,329	9,383	7,917	11,197	10,282	5,746
MEAN	114	30.0	603	5,204	1,392	680	378	303	264	361	332	192
MAX	374	132	3,100	23,600	2,560	1,350	537	542	395	395	350	321
MIN	11	8.5	9.0	107	455	289	261	157	150	295	318	97
AC-FT	7,040	1,780	37,090	320,000	77,330	41,800	22,470	18,610	15,700	22,210	20,390	11,400
CAL YR 1969	TOTAL	369,678.0	MEAN	1,013	MAX	11,200	MIN	8.5	AC-FT	733,300		
WTR YR 1970	TOTAL	300,405.0	MEAN	823	MAX	23,600	MIN	8.5	AC-FT	595,900		

## SACRAMENTO RIVER BASIN

11387800 NORTH FORK STONY CREEK NEAR NEWVILLE, CALIF.

LOCATION.--Lat 39°47'05", long 122°28'34", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.6, T.22 N., R.5 W., Glenn County, on right bank 150 ft downstream from Bedford Creek and 2.7 miles east of Newville.

DRAINAGE AREA.--63.4 sq mi (revised).

PERIOD OF RECORD.--May 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is 531.43 ft above mean sea level.

AVERAGE DISCHARGE.--7 years, 42.4 cfs (30,720 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 6,050 cfs Jan. 23 (gage height, 8.18 ft); no flow for several days.

Period of record: Maximum discharge, 12,500 cfs Jan. 5, 1965 (gage height, 11.48 ft), from rating curve extended above 2,500 cfs on basis of slope-area measurements at gage heights 7.3 and 11.48 ft; no flow at times in each year.

Flood of Apr. 7, 1963, reached a stage of 7.3 ft, from floodmarks (discharge, 4,600 cfs by slope-area measurement).

REMARKS.--Records good. No regulation above station. Probably a few small diversions above the station for irrigation.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.14	.42	12	109	45	22	11	1.5	.83	.03	.04
2	.01	.14	.42	11	93	41	21	11	1.5	.71	0	.01
3	.02	.14	.42	10	84	39	20	10	1.4	.67	0	.01
4	.02	.14	.42	9.6	77	606	20	8.7	1.3	.60	0	.02
5	.02	.04	.42	8.4	68	174	19	9.6	1.2	.54	.01	.04
6	.04	.02	.42	8.0	62	93	20	10	1.2	.47	.01	.04
7	.04	.07	.42	8.4	58	114	18	9.7	1.1	.43	.03	.03
8	.04	.14	.56	33	54	174	18	9.6	1.3	.40	.02	.03
9	.04	.14	.56	1,250	50	184	18	10	1.6	.38	.02	.03
10	.04	.07	.49	243	47	152	17	9.3	1.7	.38	.02	.03
11	.04	.01	.77	95	47	97	16	9.5	1.5	.38	.04	.03
12	.04	.02	93	106	79	83	16	11	1.2	.40	.03	.04
13	.04	.04	49	208	440	75	16	11	1.2	.35	.03	.07
14	.04	.04	7.0	1,060	135	68	17	10	1.2	.37	.04	.07
15	.07	.14	3.2	454	81	60	16	8.8	1.3	.45	.03	.20
16	.07	.21	2.1	938	345	55	16	8.4	1.2	.42	.02	.04
17	.04	.14	1.9	280	200	48	16	7.9	1.1	.38	.02	0
18	.04	.21	2.0	159	117	44	15	7.8	.97	.30	.01	0
19	.04	.28	404	207	90	41	14	8.2	.88	.28	.01	.02
20	.04	.28	232	271	78	40	14	8.8	.81	.25	.01	.01
21	.07	.28	190	605	68	38	14	8.6	.80	.23	.01	.01
22	.07	.28	50	291	61	36	13	8.2	.81	.18	.01	.01
23	.07	.28	262	2,120	57	34	13	7.0	.74	.19	.01	.04
24	.07	.35	138	937	54	32	13	5.6	.76	.20	.01	.03
25	.07	.35	55	327	50	29	13	4.4	.89	.17	.01	.02
26	.07	.42	35	500	48	28	13	3.9	.89	.12	.05	.01
27	.07	.42	25	805	46	26	13	4.5	.92	.11	.04	.01
28	.07	.42	20	256	48	26	13	6.2	1.1	.06	.03	.01
29	.07	.42	18	194	-----	25	12	6.0	1.1	.06	.01	0
30	.07	.42	15	157	-----	24	12	2.9	.91	.04	.03	0
31	.14	-----	14	130	-----	22	-----	2.0	-----	.03	.04	-----
TOTAL	1.59	6.05	1,621.52	11,693.4	2,746	2,553	478	249.6	34.08	10.38	0.63	0.90
MEAN	.051	.20	52.3	377	98.1	82.4	15.9	8.05	1.14	.33	.020	.030
MAX	.14	.42	404	2,120	440	606	22	11	1.7	.83	.05	.20
MIN	.01	.01	.42	8.0	46	22	12	2.0	.74	.03	0	0
AC-FT	3.2	12	3,220	23,190	5,450	5,060	948	495	68	21	1.2	1.8
CAL YR 1969	TOTAL 26,782.71	MEAN 73.4	MAX 1,360	MIN 0	AC-FT 53,120							
WTR YR 1970	TOTAL 19,395.15	MEAN 53.1	MAX 2,120	MIN 0	AC-FT 38,470							

## PEAK DISCHARGE (BASE, 2,000 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1- 9	1515	5.95	2,740	1-23	2130	8.18	6,050
1-14	0100	5.34	2,090	1-27	0015	6.22	3,060
1-16	0545	5.32	2,070	3- 4	1500	5.29	2,040

LOCATION.--Lat 39°48'36", long 122°19'45", in NE $\frac{1}{4}$  sec.32, T.23 N., R.4 W., Tehama County, on left bank 0.4 mile downstream from Black Butte Dam and 8.2 miles northwest of Orland.

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 372.64 ft above mean sea level. Prior to Oct. 23, 1956, at site 0.5 mile upstream at different datum. Oct. 23, 1956, to Sept. 30, 1960, at present site and datum. Oct. 1, 1960, to Sept. 30, 1961, at datum 1.00 ft lower.

REMARKS.--Records good. canal diverts from Black Butte Reservoir at right end of Black Butte Dam; water is used for irrigation. A pump with a capacity of 6 cfs diverted water at times above station and was included in the canal record prior to Mar. 1, 1970. Total diverted Oct. 1, 1969, to Feb. 28, 1970 was 73 acre-ft.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	177	16	12	2.3	2.5	1.3	245	182	230	194	284	160
2	165	3.0	22	2.3	3.2	2.2	232	190	230	212	247	151
3	159	86	30	2.3	3.5	.70	218	206	226	238	212	163
4	164	123	34	2.3	3.2	3.0	236	180	223	251	203	202
5	134	80	34	2.3	4.9	2.1	232	170	264	268	225	242
6	124	32	12	2.3	4.1	1.5	214	158	270	280	232	222
7	134	7.6	5.5	2.3	2.5	2.3	192	139	270	290	217	173
8	139	6.6	17	2.3	2.8	1.9	135	159	247	264	226	200
9	132	7.0	8.5	2.3	2.9	2.3	129	187	198	246	205	212
10	124	13	3.0	1.8	2.9	1.9	161	205	139	231	230	203
11	120	7.1	3.0	1.2	2.6	1.9	205	220	175	240	231	226
12	109	.10	3.0	1.0	2.5	1.9	214	220	210	226	255	229
13	134	.80	2.9	1.0	5.0	1.7	215	194	222	146	265	211
14	152	4.5	2.6	1.0	5.8	1.7	216	188	232	201	255	172
15	47	5.0	2.9	1.0	5.8	1.7	171	209	186	216	261	159
16	.10	4.9	3.2	.80	3.6	1.9	145	234	148	231	238	151
17	4.4	4.9	3.2	.40	2.5	1.3	162	240	174	229	216	152
18	5.6	5.2	3.2	.50	3.0	.60	192	229	216	251	203	197
19	6.7	5.5	3.2	2.2	2.6	.40	203	213	246	266	168	211
20	5.4	5.5	3.1	3.2	2.7	.40	198	206	257	250	167	211
21	5.4	5.5	2.8	3.2	2.8	.10	172	190	260	256	205	184
22	5.5	5.0	2.8	3.2	2.5	.10	139	199	264	266	232	176
23	5.5	4.9	3.1	3.2	2.5	.10	147	243	254	274	214	165
24	5.5	12	2.7	3.2	2.5	29	187	245	257	284	216	149
25	5.5	19	2.5	3.2	2.5	54	222	244	278	234	215	163
26	5.5	17	2.4	3.2	2.5	65	223	255	286	199	219	182
27	23	6.8	2.3	3.2	2.5	108	233	229	274	187	203	162
28	56	6.6	2.3	3.0	2.5	143	215	236	196	203	206	151
29	39	6.1	2.3	2.9	-----	164	197	260	169	208	227	169
30	42	6.1	2.3	2.6	-----	174	198	274	169	218	212	183
31	45	-----	2.3	2.5	-----	203	-----	269	-----	245	176	-----
TOTAL	2,274.10	506.70	236.1	68.20	88.9	973.00	5,848	6,573	6,770	7,304	6,865	5,531
MEAN	73.4	16.9	7.62	2.20	3.18	31.4	195	212	226	236	221	184
MAX	177	123	34	3.2	5.8	203	245	274	286	290	284	242
MIN	.10	.10	2.3	.40	2.5	.10	129	139	139	146	167	149
AC-FT	4,510	1,010	468	135	176	1,930	11,600	13,040	13,430	14,490	13,620	10,970
CAL YR 1969	TOTAL 40,590.60		MEAN 111	MAX 320	MIN .10	ACFT 80,510						
WAT YR												

## SACRAMENTO RIVER BASIN

## 11387995 BLACK BUTTE RESERVOIR NEAR ORLAND, CALIF.

LOCATION.--Lat 39°48'50", long 122°20'12", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.29, T.23 N., R.4 W., Tehama County, in control tower in right abutment of main dam on Stony Creek, 8 miles northwest of Orland.

DRAINAGE AREA.--736 sq mi (revised).

PERIOD OF RECORD.--October 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers).

EXTREMES.--Current year: Maximum contents, 131,834 acre-ft Jan. 27 (elevation, 466.89 ft); minimum, 16,127 acre-ft Feb. 10 (elevation, 421.06 ft).

Period of record: Maximum contents, 149,700 acre-ft June 8, 9, 1967 (elevation, 471.19 ft); minimum since initial season of operation, 9,420 acre-ft Oct. 27, 1964 (elevation, 413.83 ft).

REMARKS.--Reservoir is formed by seven earthfill dams; storage began Oct. 28, 1963. Usable capacity, 150,000 acre-ft between elevations 414.6 ft (minimum operating level) and 473.5 ft (spillway crest) above mean sea level. Additional storage of 10,000 acre-ft is not available for release. South Diversion Canal (see sta 11397990) diverts at right end of dam. Water is released down Stony Creek for irrigation. Records, including extremes, represent total contents at 2400 hours.

COOPERATION.--Record of contents furnished by Corps of Engineers, not rounded to Geological Survey standards.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

413.0	8,811	450.0	73,660
415.0	10,300	460.0	105,925
420.0	14,950	470.0	144,621
430.0	28,788	480.0	191,348
440.0	48,072		

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24,765	21,855	18,758	60,638	73,014	36,754	77,137	76,149	68,860	55,428	45,810	41,777
2	24,506	22,012	18,592	60,947	57,932	37,918	76,837	76,238	68,216	55,282	45,446	41,899
3	24,445	21,898	18,389	61,128	46,499	38,966	76,657	76,298	67,493	55,138	45,147	41,899
4	24,628	21,671	18,138	61,231	37,841	43,214	76,627	76,328	66,831	54,873	44,956	41,614
5	24,811	21,403	17,951	61,412	30,176	46,111	76,627	76,358	66,037	54,561	44,766	41,189
6	24,674	21,277	17,815	61,542	25,352	48,515	76,597	76,447	65,277	54,226	44,533	40,567
7	24,430	21,194	17,729	61,698	22,457	51,157	76,657	76,567	64,576	53,845	44,428	40,128
8	24,097	21,124	17,754	62,036	19,276	54,681	76,867	76,717	63,908	53,537	44,322	39,633
9	23,811	21,055	17,790	72,141	16,542	57,534	77,017	76,927	63,323	53,065	44,238	39,181
10	23,483	20,944	17,840	79,740	16,127	58,808	77,017	76,717	62,980	52,736	44,091	38,790
11	23,394	20,958	18,001	82,506	18,289	59,540	76,807	76,687	62,350	52,502	43,923	38,324
12	23,246	21,013	19,618	82,475	21,124	60,049	76,687	76,687	61,672	52,222	43,630	37,764
13	23,099	21,013	21,572	82,042	27,925	61,334	76,507	76,687	61,128	52,105	43,422	37,228
14	22,967	20,903	22,126	92,544	33,429	63,509	76,328	76,627	60,715	51,873	43,173	36,754
15	23,305	20,806	22,515	94,293	36,791	65,547	76,388	76,567	60,484	51,572	43,090	36,282
16	23,409	20,682	22,718	104,547	38,421	67,438	76,507	76,268	60,254	51,180	43,028	35,907
17	23,439	20,546	22,850	108,781	40,387	69,141	76,627	75,970	59,998	50,836	42,987	35,479
18	23,424	20,437	23,040	104,970	43,194	70,759	76,867	75,612	59,617	50,425	42,945	34,887
19	23,394	20,301	26,246	96,161	41,270	72,257	76,807	75,285	59,186	50,017	42,925	34,136
20	23,290	20,193	29,056	86,009	39,240	73,190	76,927	74,899	58,682	49,610	42,904	33,375
21	23,202	20,085	32,551	85,914	37,957	73,865	77,197	74,574	58,181	49,184	42,780	32,640
22	23,084	19,951	34,464	86,673	36,583	74,574	77,317	74,160	57,608	48,826	42,636	31,895
23	22,908	19,844	38,130	101,753	35,090	75,344	77,377	73,718	57,040	48,448	42,492	31,195
24	22,791	19,698	45,574	128,388	33,033	76,029	77,167	73,102	56,646	48,072	42,369	30,468
25	22,660	19,539	50,425	128,388	32,231	76,567	76,867	72,664	56,181	47,764	42,246	29,834
26	22,530	19,407	53,750	126,550	33,375	76,987	76,567	72,199	55,743	47,523	42,082	29,123
27	22,298	19,276	55,986	131,834	34,446	77,257	76,298	71,852	55,476	47,413	42,001	28,437
28	21,969	19,146	57,683	126,550	35,590	77,407	76,029	71,390	55,476	47,151	41,960	27,794
29	21,756	19,029	59,009	117,135	-----	77,558	75,999	70,816	55,428	46,977	41,858	27,143
30	21,713	18,913	60,049	104,899	-----	77,528	76,089	70,046	55,452	46,694	41,777	26,469
31	21,699	-----	60,459	89,906	-----	77,347	-----	69,451	-----	46,283	41,756	-----
MAX	24,811	22,012	60,459	131,834	73,014	77,558	77,377	76,927	68,860	55,428	45,810	41,899
MIN	21,699	18,913	17,729	60,638	16,127	36,754	75,999	69,451	55,428	46,283	41,756	26,469
(a)	425.41	423.35	445.20	455.27	433.85	451.24	450.82	448.54	443.19	439.18	437.02	428.58
(b)	-3,220	-2,786	+41,546	+29,447	-54,316	+41,757	-1,258	-6,638	-13,999	-9,169	-4,527	-15,287
(c)	792	439	266	333	314	1,073	1,358	1,933	1,790	2,129	1,817	1,579
CAL YR 1969	MAX 137,376	MIN 17,729	b +19,290									
HAT YR 1970	MAX 131,834	MIN 16,127	b +1,550									

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

c Evaporation, in acre-feet.

## 11388000 STONY CREEK BELOW BLACK BUTTE DAM, NEAR ORLAND, CALIF.

LOCATION.--Lat 39°49'07", long 122°19'26", in SW $\frac{1}{4}$  sec. 28, T. 23 N., R. 4 W., Tehama County, on left bank 200 ft downstream from road bridge, 0.6 mile downstream from Black Butte Dam, and 8.1 miles northwest of Orland.

DRAINAGE AREA.--737 sq mi (revised).

PERIOD OF RECORD.--July 1955 to current year. Prior to October 1962, published as Stony Creek at Black Butte damsite, near Orland.

GAGE.--Water-stage recorder and grouted rock control. Datum of gage is 366.02 ft above mean sea level (levels by Corps of Engineers). Prior to Dec. 12, 1960, water-stage recorder at site 0.6 mile upstream at different datum. Dec. 12, 1960, to Nov. 30, 1963, nonrecording gage at bridge 200 ft upstream at datum 4.04 ft higher.

AVERAGE DISCHARGE (adjusted for diversion to South Diversion Canal since 1956 and for change in contents and evaporation from Black Butte Reservoir since 1964).--15 years, 641 cfs (464,400 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 13,000 cfs Jan. 24 (gage height, 9.47 ft); no flow Nov. 12, 13. Period of record: Maximum discharge, 36,300 cfs Feb. 24, 1958 (gage height, 11.82 ft, site and datum then in use), from rating curve extended above 7,500 cfs on basis of slope-area measurement of maximum flow; no flow Dec. 8-10, 31, 1956, Jan. 1-10, 1957, Oct. 19 to Nov. 7, Nov. 13-15, 1962. Maximum discharge since regulation by Black Butte Reservoir in 1964, 19,400 cfs Dec. 25, 1964 (corrected) (gage height, 10.41 ft); no flow at times in each year.

CORRECTIONS.--Date of maximum discharge since regulation by Black Butte Reservoir is Dec. 25, 1964, superseding date published in WSP 1931, WRD Calif. 1965-69.

REMARKS.--Records excellent. Many diversions above station for irrigation. Flow regulated by Black Butte Reservoir (see sta 11387995), East Park Reservoir (usable capacity, 50,600 acre-ft), and Stony Gorge Reservoir (usable capacity, 50,100 acre-ft). Prior to October 1956, figures of daily discharge included water diverted to South Diversion Canal, which diverts 0.6 mile above station. Records of combined monthly discharge include a small diversion that bypasses the station at times for irrigation. Records of chemical analyses and water temperatures for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	120	50	50	70	9,830	21	174	278	191	204	212	122
2	116	40	52	70	9,000	2.3	176	263	208	217	207	109
3	116	73	57	69	7,060	0	184	270	244	232	193	128
4	111	92	66	70	5,510	26	174	282	231	233	177	166
5	109	81	60	60	4,530	48	153	306	240	242	168	215
6	107	59	51	55	3,430	49	151	304	238	250	156	246
7	98	54	51	55	2,470	49	138	300	230	253	141	283
8	110	51	51	55	2,460	50	130	293	232	221	138	297
9	110	51	51	396	2,250	262	129	234	246	211	145	233
10	102	49	54	1,070	1,320	1,040	130	174	238	222	149	225
11	112	15	54	1,050	229	1,000	142	130	240	232	162	211
12	132	0	55	1,860	60	1,000	162	124	266	235	172	210
13	129	0	56	3,140	246	555	176	136	280	234	168	215
14	113	53	56	4,430	514	69	178	130	270	232	153	224
15	78	52	56	5,840	528	56	169	126	237	245	123	235
16	52	53	56	7,460	1,330	53	150	141	203	244	109	214
17	49	53	56	8,100	2,100	52	134	150	213	240	113	208
18	49	52	56	8,700	981	51	139	158	232	236	120	219
19	49	52	57	9,850	2,830	51	144	175	224	225	134	229
20	46	52	57	9,930	2,670	51	174	188	228	231	147	220
21	46	52	61	9,970	2,150	51	215	191	249	235	147	198
22	65	52	61	9,760	2,020	52	265	178	260	218	144	217
23	74	52	63	9,700	1,990	52	280	154	261	191	149	211
24	68	51	64	12,700	1,980	74	302	142	265	194	156	200
25	58	53	66	11,900	1,020	84	316	143	269	191	155	200
26	58	53	67	8,700	74	98	350	152	254	183	148	203
27	70	51	68	10,000	55	118	321	156	232	169	134	215
28	76	51	69	10,000	51	130	309	157	216	169	120	218
29	74	51	69	9,900	-----	139	300	162	220	188	117	292
30	68	51	69	9,720	-----	148	295	180	215	196	123	205
31	66	-----	69	9,870	-----	164	-----	185	-----	204	130	-----
TOTAL	2,631	1,499	1,828	174,560	68,688	5,635.3	6,060	5,962	7,132	6,777	4,610	6,368
MEAN	84.9	50.0	59.0	5,631	2,453	182	202	192	238	219	149	212
MAX	132	92	69	12,700	9,830	1,040	350	306	280	253	212	297
MIN	46	0	50	55	51	0	129	124	191	169	109	109
AC-FT	5,220	2,970	3,630	346,200	136,200	11,180	12,020	11,830	14,150	13,440	9,140	12,630
MEAN a	119	27.4	747	6,117	1,483	910	399	328	258	340	326	166
AC-FT a	7,300	1,630	45,910	376,100	82,370	55,940	23,720	20,160	15,370	20,890	20,050	9,890

CAL YR 1969 TOTAL 348,324.0 MEAN 954 MAX 10,000 MIN 0 AC-FT 690,900 MEAN a 1,113 AC-FT a 806,200  
WTR YR 1970 TOTAL 291,750.3 MEAN 799 MAX 12,700 MIN 0 AC-FT 578,700 MEAN a 938 AC-FT a 679,300

a Adjusted for diversion to South Diversion Canal and change in contents and evaporation from Black Butte Reservoir.

## SACRAMENTO RIVER BASIN

11388500 STONY CREEK NEAR HAMILTON CITY, CALIF.

LOCATION.--Lat 39°43'25", long 122°02'47", in Capay Grant, Glenn County, on right bank 2.3 miles southwest of Hamilton City, 6 miles upstream from mouth, and 8 miles east of Orland.

DRAINAGE AREA.--772 sq mi (revised).

PERIOD OF RECORD.--October 1940 to current year. Records for water year 1941 incomplete, yearly estimate published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is 151.18 ft above mean sea level (levels by Bureau of Reclamation). Prior to February 1946, at site 3 miles upstream at different datum.

AVERAGE DISCHARGE (unadjusted).--30 years, 442 cfs (320,200 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 12,500 cfs Jan. 25 (gage height, 12.83 ft); no flow Nov. 14, 30. Period of record: Maximum discharge, 39,900 cfs Feb. 25, 1958 (gage height, 18.31 ft); no flow at times in most years.

REMARKS.--Records fair. Flow regulated by East Park Reservoir since 1910 (usable capacity, 50,600 acre-ft), by Stony Gorge Reservoir since 1928 (usable capacity, 50,100 acre-ft), and by Black Butte Reservoir, 18.6 miles upstream, since October 1963 (see sta 11387995). Diversions for irrigation of about 20,000 acres, maximum potential, above station in the Bureau of Reclamation Orland project.

COOPERATION.--Seven discharge measurements and several gage readings furnished by Bureau of Reclamation.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	26	1.4	49	10,700	170	37	208	50	105	51	21
2	42	21	5.3	48	10,200	111	43	194	40	109	54	11
3	41	16	8.2	45	8,330	76	46	186	57	104	55	5.8
4	51	16	12	44	6,270	69	60	182	98	96	43	6.4
5	46	35	11	44	5,070	111	74	190	96	87	31	7.0
6	50	38	15	40	3,960	102	74	204	96	96	24	48
7	32	35	12	35	2,960	97	60	190	96	70	12	127
8	27	31	16	37	2,800	178	71	178	110	86	7.9	162
9	22	24	16	227	2,620	150	55	170	121	80	8.2	137
10	26	22	17	1,430	2,280	1,020	49	123	145	90	8.2	127
11	27	19	17	1,190	1,270	1,120	47	80	102	95	3.8	119
12	26	15	25	1,440	788	1,110	37	52	109	100	3.2	109
13	28	2.2	35	2,410	781	1,010	39	47	104	105	8.3	110
14	34	0	28	4,030	1,210	320	47	53	129	94	43	115
15	56	3.8	24	5,070	1,160	158	69	43	135	75	55	93
16	56	3.5	23	7,110	1,300	116	89	34	121	90	55	107
17	42	8.2	21	7,810	2,250	97	64	42	113	90	62	92
18	34	11	21	7,760	1,250	85	58	36	90	94	41	93
19	30	11	52	9,300	2,280	78	50	27	98	94	32	99
20	27	11	70	9,490	2,520	74	65	27	98	90	15	119
21	26	11	62	9,460	2,170	64	113	27	102	78	24	119
22	24	11	55	9,380	2,030	62	150	28	101	90	8.2	110
23	25	9.7	62	8,490	1,980	58	154	40	90	80	14	109
24	28	11	81	12,400	1,960	52	166	49	81	76	10	93
25	29	11	69	12,300	1,690	76	182	39	87	55	16	84
26	27	12	62	9,690	529	64	194	29	88	57	21	76
27	26	11	61	10,200	274	50	204	28	113	72	41	75
28	31	8.2	57	10,400	204	57	186	34	123	75	44	87
29	31	6.6	56	10,300	-----	49	170	36	121	50	36	81
30	27	0	52	10,400	-----	57	186	29	117	43	59	70
31	25	-----	51	10,900	-----	44	-----	36	-----	48	31	-----
TOTAL	1,032	440.2	1,097.9	171,529	80,836	6,885	2,839	2,641	3,031	2,574	916.8	2,612.2
MEAN	33.3	14.7	35.4	5,533	2,887	222	94.6	85.2	101	83.0	29.6	87.1
MAX	56	38	81	12,400	10,700	1,120	204	208	145	109	62	162
MIN	22	0	1.4	35	204	44	37	27	40	43	3.2	5.8
AC-FT	2,050	873	2,180	340,200	160,300	13,660	5,630	5,240	6,010	5,110	1,820	5,180
CAL YR 1969	TOTAL	320,875.1	MEAN	879	MAX	9,930	MIN	0	ACFT	636,500		
WAT YR 1970	TOTAL	276,434.1	MEAN	757	MAX	12,400	MIN	0	ACFT	548,300		

## 11389000 SACRAMENTO RIVER AT BUTTE CITY, CALIF.

LOCATION.--Lat 39°27'28", long 121°59'35", in SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.32, T.19 N., R.1 W., Glenn County, on left bank 100 ft upstream from highway bridge, 0.5 mile south of Butte City, and at mile 115.8 upstream from Sacramento.

DRAINAGE AREA.--12,081 sq mi (revised).

PERIOD OF RECORD.--April 1921 to September 1938 (low-water periods only), October 1938 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is set to datum of Corps of Engineers which is 2.92 ft below mean sea level. Prior to December 1930, at site 0.5 mile upstream at same datum.

AVERAGE DISCHARGE.--32 years (1938-70), 12,890 cfs (9,339,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 152,000 cfs Jan. 25 (gage height, 95.92 ft); minimum daily, 6,230 cfs Nov. 13.

Period of record: Maximum discharge (1940-70), 170,000 cfs Feb. 7, 1942 (gage height, 96.87 ft); minimum discharge recorded, 1,050 cfs July 15, 25, 26, 1931 (gage height, 67.49 ft).

REMARKS.--Records good. Natural flow of stream affected by storage reservoirs, power developments, unmeasured over-bank flow during extreme floods, diversions for irrigation, and return flow from irrigated areas.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9,080	8,430	8,860	26,600	95,500	24,300	11,400	10,300	7,070	8,830	7,630	7,570
2	8,730	8,390	8,840	25,400	92,400	30,400	10,900	10,300	7,230	8,690	7,530	7,560
3	8,130	8,360	8,850	23,100	86,900	21,400	10,300	10,300	7,320	8,650	7,490	7,250
4	8,000	8,340	8,870	20,200	78,600	19,600	10,000	10,300	7,360	8,600	7,400	7,130
5	7,950	8,600	8,810	19,200	73,300	26,700	9,630	9,210	7,600	8,550	7,370	7,120
6	7,940	10,200	8,810	18,600	68,000	24,200	9,270	8,610	7,600	8,520	7,380	6,970
7	7,880	10,100	8,800	18,300	62,100	20,200	9,100	8,670	7,910	8,400	7,370	6,940
8	7,850	9,850	8,930	18,100	59,800	23,200	8,810	8,730	8,110	8,260	7,420	6,960
9	7,610	9,490	8,940	21,700	58,400	26,100	8,460	8,750	8,230	8,130	7,370	7,010
10	7,930	9,260	8,570	51,300	53,600	24,000	8,040	8,980	8,420	8,180	7,390	7,100
11	7,900	8,400	8,210	52,100	47,400	23,900	7,800	9,070	8,650	8,360	7,320	7,270
12	7,940	6,990	9,450	34,200	42,900	21,200	8,060	9,050	8,570	8,930	7,160	7,220
13	7,990	6,230	31,200	35,900	40,900	20,200	8,750	8,770	8,280	9,080	7,150	7,110
14	7,970	8,200	30,000	51,100	47,100	19,300	8,990	8,280	8,340	9,110	6,940	7,140
15	8,240	8,820	20,200	85,600	39,800	18,700	9,160	7,540	8,490	9,020	6,960	7,210
16	8,990	8,890	17,900	82,200	32,400	17,900	8,720	7,160	8,610	8,850	6,830	7,360
17	9,980	8,890	16,100	105,000	34,800	17,000	8,460	7,050	8,460	8,890	6,960	7,450
18	9,530	8,900	15,500	106,000	36,800	16,400	8,250	6,980	8,350	8,910	6,980	7,440
19	9,060	9,100	18,500	82,500	31,500	16,300	8,130	6,940	8,240	8,910	7,030	7,530
20	8,890	8,960	47,400	74,200	30,100	15,600	8,010	6,870	8,230	8,930	7,070	7,520
21	8,790	8,930	59,500	87,100	28,000	15,000	8,090	6,890	8,400	8,770	7,020	7,600
22	8,720	8,980	63,700	106,000	26,700	14,500	7,970	6,790	8,590	8,690	6,900	7,520
23	8,660	8,830	50,600	121,000	25,500	14,300	8,440	6,770	8,520	8,610	7,070	7,500
24	8,670	8,930	54,700	134,000	24,400	14,000	8,890	6,760	8,370	8,890	7,200	7,500
25	8,590	8,880	58,500	146,000	23,800	13,600	9,730	6,870	8,320	8,990	7,190	7,430
26	8,640	8,880	52,000	122,000	22,700	13,500	10,100	6,970	8,340	8,790	7,190	7,540
27	8,620	8,870	47,800	114,000	22,000	13,100	10,200	6,950	8,360	8,480	7,210	7,640
28	8,600	8,860	43,600	123,000	21,700	12,700	10,300	7,030	8,500	8,460	7,260	7,610
29	8,580	8,860	41,500	119,000	-----	12,600	10,300	6,970	8,860	8,370	7,310	7,440
30	8,490	8,860	39,400	106,000	-----	12,300	10,300	6,920	9,010	7,930	7,450	7,500
31	8,480	-----	31,800	99,100	-----	11,800	-----	6,870	-----	7,830	7,500	-----
TOTAL	262,430	263,280	845,840	2,228.5M	1,307.1M	574,000	274,560	247,660	246,340	267,610	224,050	220,140
MEAN	8,465	8,776	27,290	71,890	46,680	18,520	9,152	7,989	8,211	8,633	7,227	7,338
MAX	9,980	10,200	63,700	146,000	95,500	30,400	11,400	10,300	9,010	9,110	7,630	7,640
MIN	7,610	6,230	8,210	18,100	21,700	11,800	7,800	6,760	7,070	7,830	6,830	6,940
AC-FT	520,500	522,200	1,678M	4,420M	2,593M	1,139M	544,600	491,200	488,600	530,800	444,400	436,600
CAL YR 1969	TOTAL 7,528,770		MEAN 20,630		MAX 114,000		MIN 6,230		AC-FT 14,930,000			
WTR YR 1970	TOTAL 6,961,510		MEAN 19,070		MAX 146,000		MIN 6,230		AC-FT 13,810,000			

## SACRAMENTO RIVER BASIN

11389500 SACRAMENTO RIVER AT COLUSA, CALIF.

LOCATION.--Lat 39°12'51", long 121°59'57", at north end of Jimeno Grant, Colusa County, on right bank just downstream from highway bridge at Colusa and at mile 89.4 upstream from Sacramento.

DRAINAGE AREA.--12,096 sq mi (revised).

PERIOD OF RECORD.--April 1921 to October 1939 (low-water periods only), June 1940 to current year.

GAGE.--Water-stage recorder. Gage is set to datum of Corps of Engineers which is 2.95 ft below mean sea level. Prior to December 1930, water-stage recorder in center fender pier 50 ft upstream from bridge at same datum.

AVERAGE DISCHARGE.--30 years (1940-70), 11,111 cfs (8,050,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 48,400 cfs Jan. 25 (gage height, 67.61 ft); minimum daily, 6,550 cfs Aug. 17.

Period of record: Maximum discharge (1940-70), 49,000 cfs Feb. 8, 1942 (gage height, 69.20 ft); minimum discharge recorded, 820 cfs July 25, 26, 1931 (gage height, 34.79 ft).

REMARKS.--Records excellent. Natural flow of stream affected by storage reservoirs, power development, bypassing for flood control, diversions for irrigation, and return flow from irrigated areas.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8,810	8,140	8,570	28,300	42,700	21,300	11,100	9,230	6,700	8,490	7,170	7,160
2	8,730	8,110	8,560	26,000	42,400	29,700	10,700	9,270	6,760	8,440	7,000	7,250
3	8,180	8,070	8,560	24,300	41,900	25,300	10,100	9,220	6,850	8,390	6,930	7,090
4	7,870	8,040	8,560	21,400	41,000	20,300	9,600	9,220	6,870	8,330	6,890	6,860
5	7,850	8,130	8,550	19,300	40,100	22,500	9,280	8,820	7,010	8,240	6,850	6,880
6	7,750	9,200	8,550	18,400	39,300	27,700	8,940	8,040	7,140	8,220	6,850	6,830
7	7,690	9,550	8,540	17,900	38,200	22,200	8,730	8,040	7,340	8,070	6,830	6,740
8	7,640	9,600	8,540	17,600	37,500	21,000	8,490	8,150	7,490	7,930	6,840	6,760
9	7,570	9,280	8,540	18,300	37,300	27,100	8,180	8,270	7,620	7,770	6,830	6,780
10	7,530	9,030	8,540	30,400	36,800	25,200	7,860	8,470	7,720	7,770	6,830	6,820
11	7,710	8,740	8,370	36,600	35,500	25,700	7,530	8,540	7,990	7,870	6,810	6,970
12	7,670	7,230	8,210	33,000	34,400	23,100	7,490	8,590	8,200	8,280	6,800	7,020
13	7,720	6,930	17,900	32,200	33,800	21,300	7,830	8,440	8,190	8,420	6,620	6,960
14	7,660	7,260	30,000	34,200	34,700	19,900	7,960	8,330	8,140	8,550	6,680	6,980
15	7,830	8,120	23,600	38,800	34,400	18,700	8,030	7,590	8,170	8,500	6,560	7,010
16	8,280	8,340	19,400	40,400	31,600	18,000	7,900	7,170	8,200	8,390	6,590	7,140
17	9,180	8,370	16,700	40,900	30,900	17,000	7,730	6,970	8,210	8,380	6,550	7,280
18	9,390	8,380	15,400	42,400	33,100	16,200	7,580	6,910	8,210	8,400	6,620	7,350
19	8,840	8,500	15,500	40,800	31,200	15,900	7,470	6,880	8,200	8,400	6,590	7,420
20	8,660	8,610	28,000	39,300	30,300	15,300	7,360	6,780	8,160	8,410	6,640	7,480
21	8,530	8,610	36,200	39,800	28,900	14,700	7,370	6,750	8,150	8,370	6,680	7,550
22	8,430	8,600	37,200	41,700	27,200	14,200	7,340	6,680	8,170	8,290	6,590	7,460
23	8,370	8,600	36,700	43,500	25,800	13,800	7,610	6,630	8,190	8,270	6,640	7,420
24	8,350	8,600	35,300	44,500	24,500	13,600	7,950	6,610	8,170	8,300	6,760	7,380
25	8,340	8,590	37,200	47,800	23,700	13,200	8,400	6,650	8,170	8,290	6,780	7,340
26	8,310	8,580	36,100	47,100	22,800	13,000	9,000	6,800	8,150	8,330	6,790	7,360
27	8,320	8,580	35,400	45,600	21,700	12,700	9,160	6,730	8,160	7,940	6,780	7,470
28	8,310	8,580	34,500	45,400	21,100	12,300	9,280	6,790	8,170	7,900	6,840	7,490
29	8,240	8,570	33,800	45,900	-----	12,000	9,240	6,790	8,380	7,800	6,890	7,390
30	8,190	8,570	33,400	44,700	-----	11,800	9,250	6,740	8,500	7,520	7,010	7,380
31	8,170	-----	32,000	43,400	-----	11,500	-----	6,690	-----	7,220	7,100	-----
TOTAL	254,120	253,510	656,390	1,089,9M	922,800	576,200	254,460	236,790	235,380	253,480	210,340	215,020
MEAN	8,197	8,450	21,170	35,160	32,960	18,590	8,482	7,638	7,846	8,177	6,785	7,167
MAX	9,390	9,600	37,200	47,800	42,700	29,700	11,100	9,270	8,500	8,550	7,170	7,550
MIN	7,530	6,930	8,210	17,600	21,100	11,500	7,340	6,610	6,700	7,220	6,550	6,740
AC-FT	504,000	502,800	1,302M	2,162M	1,830M	1,143M	504,700	469,700	466,900	502,800	417,200	426,500
CAL YR 1969	TOTAL 5,852,170		MEAN 16,030		MAX 42,500		MIN 6,930		AC-FT 11,610,000			
WTR YR 1970	TOTAL 5,158,390		MEAN 14,130		MAX 47,800		MIN 6,550		AC-FT 10,230,000			



## 11389700 BUTTE CREEK AT BUTTE MEADOWS, CALIF.

LOCATION.--Lat 40°04'06", long 121°34'25", in NW¼ sec.31, T.26 N., R.4 E., Tehama County, on right bank 1.0 mile downstream from small tributary, 1.5 miles southwest of Butte Meadows, and 15 miles northeast of Forest Ranch.

DRAINAGE AREA.--44.4 sq mi.

PERIOD OF RECORD.--August 1960 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,260 ft (from topographic map).

AVERAGE DISCHARGE.--10 years, 134 cfs (97,080 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 4,270 cfs Jan. 23 (gage height, 7.62 ft); minimum daily, 58 cfs several days in July, August, and September.

Period of record: Maximum discharge, 4,290 cfs Dec. 22, 1964 (gage height, 7.64 ft); minimum, 46 cfs Sept. 4, 1961.

REMARKS.--Records good except those above 1,500 cfs, which are fair. No storage or diversion above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	60	61	169	382	316	153	119	119	75	62	60
2	62	61	61	159	343	233	153	125	116	73	61	61
3	62	61	61	150	316	210	150	134	113	73	61	60
4	63	61	61	146	295	203	147	144	110	71	61	62
5	62	118	61	139	273	194	147	150	108	70	61	62
6	63	74	61	136	252	189	150	151	104	69	61	61
7	61	81	61	136	236	216	150	147	98	69	61	61
8	68	78	64	150	223	267	150	158	101	68	61	60
9	63	71	62	304	215	228	150	173	103	68	61	60
10	62	68	65	362	204	219	158	203	120	67	60	60
11	61	67	99	264	198	205	158	172	101	67	60	60
12	62	67	300	308	263	203	150	162	95	66	60	60
13	62	66	164	675	231	201	155	155	94	65	60	60
14	63	65	107	1,290	209	210	150	155	105	65	60	60
15	85	64	92	805	200	205	144	165	94	64	60	60
16	97	67	83	1,140	231	202	144	176	91	64	58	60
17	75	63	78	1,320	227	203	140	187	86	64	58	60
18	67	63	83	922	199	194	137	189	83	64	60	60
19	65	62	352	757	190	188	144	182	83	64	59	60
20	63	62	431	685	185	185	132	173	81	64	61	61
21	63	62	1,080	1,250	179	182	130	167	79	64	61	60
22	63	62	409	1,300	172	180	123	163	78	64	61	59
23	61	61	384	2,040	167	178	121	161	76	64	61	59
24	61	61	493	1,940	163	177	120	156	75	61	61	59
25	61	61	437	1,160	159	176	121	156	74	60	60	58
26	61	61	319	944	157	172	128	153	75	58	60	58
27	61	61	265	985	154	167	121	150	76	58	61	59
28	61	60	226	714	229	165	118	142	85	58	61	59
29	61	60	204	594	-----	164	117	134	86	61	61	59
30	61	60	188	504	-----	161	117	126	77	62	61	58
31	60	-----	174	433	-----	155	-----	122	-----	62	61	-----
TOTAL	2,003	1,988	6,586	21,881	6,252	6,148	4,178	4,850	2,786	2,022	1,875	1,796
MEAN	64.6	66.3	212	706	223	198	139	156	92.9	65.2	60.5	59.9
MAX	97	118	1,080	2,040	382	316	158	203	120	75	62	62
MIN	60	60	61	136	154	155	117	119	74	58	58	58
AC-FT	3,970	3,940	13,060	43,400	12,400	12,190	8,290	9,620	5,530	4,010	3,720	3,560
CAL YR 1969	TOTAL 71,364		MEAN 196		MAX 1,970		MIN 60		AC-FT 141,600			
WTR YR 1970	TOTAL 62,365		MEAN 171		MAX 2,040		MIN 58		AC-FT 123,700			

## PEAK DISCHARGE (BASE, 350 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-12	1530	3.18	378	1-23	2330	7.62	4,270
12-21	1000	5.45	1,890	1-27	0130	4.76	1,340
12-24	0130	3.46	589	2-12	1100	3.21	364
1- 9	1830	3.35	527	3- 1	0400	3.32	420
1-14	1000	5.01	1,620	3- 7	2300	3.26	392
1-17	0400	4.93	1,570				

## SACRAMENTO RIVER BASIN

## 11389950 LITTLE BUTTE CREEK AT MAGALIA, CALIF.

LOCATION.--Lat 39°48'38", long 121°35'00", in NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.36, T.23 N., R.3 E., Butte County, on left bank 1,000 ft downstream from Magalia Dam and 0.4 mile northwest of Magalia.

DRAINAGE AREA.--11.4 sq mi.

PERIOD OF RECORD.--October 1968 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,160 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 1,180 cfs Jan. 24 (gage height, 6.47 ft); minimum daily, 0.26 cfs June 3, 6, 7.

Period of record: Maximum discharge, 1,180 cfs Jan. 24, 1970 (gage height, 6.47 ft); minimum daily, 0.26 cfs Sept. 2, 1969, June 3, 6, 7, 1970.

REMARKS.--Records fair. Flow regulated by Paradise Reservoir (capacity, 6,430 acre-ft) and Magalia Reservoir (capacity, 3,540 acre-ft). No diversions above reservoirs. Diversion above station from Magalia Reservoir for municipal supply of Paradise.

Diversion, in acre-feet, from Magalia Reservoir, 1969  
(not previously published)

October	298	February	110	June	817
November	111	March	150	July	1,260
December	120	April	229	August	1,240
January	114	May	634	September	934

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.43	.43	.34	1.4	83	233	8.5	1.1	.38	.79	.34	.52
2	.43	.43	.38	1.0	72	125	7.3	.53	.34	.80	.37	.48
3	.43	.43	.38	.90	64	73	6.3	.53	.26	.78	.38	.48
4	.43	.43	.33	.78	60	70	4.9	.43	.30	.68	.40	.48
5	.43	2.2	.38	.63	55	70	2.1	.43	.30	.63	.38	.48
6	.43	.53	.34	.58	50	57	5.1	.43	.26	.73	.43	.48
7	.50	.74	.37	.53	44	53	6.1	.43	.26	.73	.44	.48
8	.59	.60	.51	2.0	41	71	6.1	.43	.30	.68	.49	.43
9	.60	.51	.53	60	38	59	5.2	.43	.38	.58	.44	.38
10	.50	.48	1.1	155	35	58	5.7	.90	.43	.63	.46	.38
11	.52	.43	3.9	76	33	51	6.3	3.9	.34	.63	.43	.43
12	.53	.43	11	82	58	47	3.5	7.0	.34	.68	.43	.43
13	.56	.43	1.6	241	92	42	6.3	5.8	.34	.68	.43	.43
14	.55	.43	.96	704	85	39	19	2.3	.38	.58	.48	.43
15	.95	.43	.81	305	52	37	20	.38	.30	.60	.48	.48
16	.76	.43	.74	359	54	35	17	.34	.34	.58	.51	.48
17	.68	.43	.73	244	100	32	14	.34	.38	.58	.55	.50
18	.66	.48	.86	166	64	29	9.5	.34	.38	.58	.53	.54
19	.62	.48	9.4	139	47	27	9.8	.30	.43	.58	.53	.53
20	.53	.52	4.3	152	40	25	8.6	.30	.38	.63	.53	.53
21	.54	.30	34	466	37	24	6.7	.30	.43	.63	.53	.51
22	.54	.30	24	366	35	22	6.3	.38	.65	.63	.53	.43
23	.62	.34	25	501	33	20	4.9	.34	.48	.63	.53	.43
24	.58	.42	51	720	31	18	3.6	.30	.50	.63	.53	.41
25	.60	.46	26	330	29	17	2.8	.43	.53	.65	.53	.38
26	.58	.34	14	223	27	15	5.3	.43	.60	.60	.48	.38
27	.54	.34	8.2	342	26	13	8.6	.43	.67	.53	.48	.34
28	.50	.34	5.5	191	44	12	8.0	.38	.82	.58	.48	.38
29	.48	.34	3.8	137	-----	12	7.7	.38	.78	.58	.48	.41
30	.48	.34	2.6	114	-----	12	4.2	.43	.74	.55	.48	.43
31	.48	-----	1.9	96	-----	10	-----	.43	-----	.47	.48	-----
TOTAL	17.07	14.79	235.01	6,176.82	1,429	1,408	229.4	30.87	13.02	19.63	14.56	13.47
MEAN	.55	.49	7.58	199	51.0	45.4	7.65	1.00	.43	.63	.47	.45
MAX	.95	2.2	51	720	100	233	20	7.0	.82	.80	.55	.54
MIN	.43	.30	.34	.53	26	10	2.1	.30	.26	.47	.34	.34
AC-FT	34	29	466	12,250	2,830	2,790	455	61	26	39	29	27
(a)	316	165	149	113	116	228	396	769	941	1,250	1,220	863

CAL YR 1969 TOTAL 12,476.45 MEAN 34.2 MAX 859 MIN .26 AC-FT 24,750  
WTR YR 1970 TOTAL 9,601.64 MEAN 26.3 MAX 720 MIN .26 AC-FT 19,040

a Diversion, in acre-feet, from Magalia Reservoir, furnished by Paradise Irrigation District.

## 11390000 BUTTE CREEK NEAR CHICO, CALIF.

LOCATION.--Lat 39°43'34", long 121°42'28", in NW¼NW¼ sec.36, T.22 N., R.2 E., Butte County, on right bank 0.7 mile downstream from Little Butte Creek and 7.5 miles east of Chico.

DRAINAGE AREA.--147 sq mi.

PERIOD OF RECORD.--October 1930 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Altitude of gage is 320 ft (from topographic map). Prior to Aug. 13, 1944, water-stage recorder at site 0.4 mile upstream at different datum.

AVERAGE DISCHARGE (unadjusted).--40 years, 404 cfs (292,700 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 16,500 cfs Jan. 24 (gage height, 13.40 ft); minimum daily, 93 cfs Nov. 4.

Period of record: Maximum discharge, 21,200 cfs Dec. 22, 1964 (gage height, 14.12 ft), from rating curve extended above 8,900 cfs on basis of slope-area measurement at gage height 13.35 ft; minimum, 10 cfs Nov. 29, 1952.

REMARKS.--Records good. Flow slightly regulated by storage in Magalia Reservoir (capacity, 3,540 acre-ft) and since 1957 by Paradise Reservoir (capacity, 6,430 acre-ft). Diversions above station for irrigation and domestic use of about 4,200 acre-ft annually. Butte Creek receives water above station from West Branch Feather River by way of Toadtown Canal. Records of chemical analyses and water temperatures for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	127	139	133	426	1,260	2,570	444	310	269	191	138	125
2	125	139	133	391	1,120	1,550	438	310	269	177	137	124
3	131	122	132	365	1,020	1,150	424	310	261	174	136	126
4	137	93	132	351	932	1,100	414	320	257	167	135	133
5	140	259	132	330	878	1,010	400	325	253	161	135	139
6	136	180	132	315	824	911	397	322	261	155	134	137
7	140	166	132	310	777	865	406	318	253	155	134	136
8	150	261	141	338	739	1,190	408	318	249	155	134	135
9	158	203	146	1,290	699	1,020	402	327	269	152	132	133
10	144	178	168	1,980	668	957	401	362	281	155	131	132
11	141	165	403	1,190	646	880	412	348	231	149	130	129
12	140	158	1,710	1,250	846	816	393	334	257	152	128	129
13	138	154	1,130	3,280	1,150	772	405	329	253	150	130	130
14	143	157	473	7,860	1,020	753	420	316	265	150	132	132
15	178	157	365	3,950	851	730	406	314	265	149	130	128
16	324	158	299	4,430	943	701	393	316	253	147	130	132
17	226	155	269	4,020	1,400	679	389	324	245	147	131	130
18	180	156	249	2,700	1,040	640	379	328	229	146	132	131
19	160	155	1,510	2,170	886	617	383	330	221	143	131	133
20	153	141	1,640	2,080	809	596	372	311	205	141	130	135
21	150	131	3,520	5,010	756	579	354	309	205	143	129	135
22	148	139	1,580	4,650	711	564	353	317	198	142	124	134
23	147	137	1,570	6,950	676	551	346	318	191	141	122	136
24	144	136	2,320	9,140	648	538	340	306	191	139	122	136
25	144	136	1,460	4,310	621	530	335	302	188	138	122	133
26	143	135	1,040	3,020	603	518	341	303	180	137	125	134
27	143	135	795	4,180	590	504	348	294	184	143	125	134
28	143	134	656	2,620	705	496	338	290	202	148	126	134
29	142	133	558	2,030	-----	489	330	285	207	136	126	133
30	141	133	496	1,680	-----	480	318	277	205	140	126	133
31	140	-----	455	1,430	-----	465	-----	270	-----	138	126	-----
TOTAL	4,756	4,645	23,879	84,046	23,818	25,221	11,489	9,743	7,097	4,663	4,023	3,971
MEAN	153	155	770	2,711	851	814	383	314	237	150	130	132
MAX	324	261	3,520	9,140	1,400	2,570	444	362	281	191	138	139
MIN	125	93	132	310	590	465	318	270	180	137	122	124
AC-FT	9,430	9,210	47,360	166,700	47,240	50,030	22,790	19,330	14,080	9,250	7,980	7,890
(a)	3,510	2,690	5,400	6,830	6,640	7,510	6,810	6,810	3,850	5,980	3,480	3,610

CAL YR 1969 TOTAL 245,611 MEAN 673 MAX 10,400 MIN 93 AC-FT 487,200  
 WTR YR 1970 TOTAL 207,351 MEAN 565 MAX 9,140 MIN 93 AC-FT 411,306

PEAK DISCHARGE (BASE, 2,700 CFS)							
DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-19	1600	5.12	2,840	1-16	1030	7.33	5,270
12-21	1430	7.69	5,750	1-21	1830	7.69	5,750
12-24	0400	5.24	2,990	1-24	0030	13.40	16,500
1- 9	2130	5.17	2,900	1-27	0430	6.72	5,460
1-14	1030	11.01	10,200	3- 1	0900	5.23	3,660

a Toadtown Canal diversion from West Branch Feather River, furnished by Pacific Gas and Electric Co.

## 11390500 SACRAMENTO RIVER BELOW WILKINS SLOUGH, NEAR GRIMES, CALIF.

LOCATION.--Lat 39°00'36", long 121°49'25", in NW¼NE¼ sec.2, T.13 N., R.1 E., Colusa County, on right bank 1,200 ft downstream from Wilkins Slough, 5.8 miles southeast of Grimes, and at mile 62.9 upstream from Sacramento.

DRAINAGE AREA.--12,926 sq mi (revised).

PERIOD OF RECORD.--August 1931 to September 1938 (low-water periods only), October 1938 to current year. Monthly discharge only for some periods, published in WSP 1315-A. Prior to October 1965, published as "below Wilkins Slough."

GAGE.--Water-stage recorder. Gage is set to datum of Corps of Engineers which is 3.00 ft below mean sea level.

AVERAGE DISCHARGE.--32 years (1938-70), 9,781 cfs (7,086,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 29,300 cfs Jan. 26 (gage height, 50.72 ft); minimum daily, 5,460 cfs Aug. 17.

Period of record: Maximum discharge (1938-70), 29,300 cfs Jan. 26, 1970 (gage height, 50.72 ft); maximum gage height, 52.75 ft Mar. 1, 1940; minimum discharge, 100 cfs Aug. 1, 1931 (gage height, 14.20 ft).

REMARKS.--Records good. Natural flow of stream affected by storage reservoirs, power developments, bypassing for flood control, diversions for irrigation, and return flow from irrigated areas. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9,000	8,530	8,750	24,900	26,600	20,600	11,600	8,050	5,880	7,750	6,150	6,380
2	9,000	8,490	8,750	24,100	26,600	23,600	11,300	8,030	5,880	7,700	6,020	6,510
3	8,660	8,460	8,750	23,700	26,500	23,700	10,600	8,040	5,980	7,600	5,930	6,570
4	8,260	8,440	8,740	22,400	26,300	21,500	9,990	8,060	5,790	7,550	5,860	6,370
5	8,130	8,430	8,730	20,300	26,300	21,000	9,730	7,960	5,850	7,500	5,820	6,340
6	8,050	8,900	8,720	19,400	26,100	24,000	9,270	7,290	5,980	7,400	5,810	6,360
7	8,000	9,700	8,710	18,900	25,900	22,700	8,950	7,160	6,260	7,300	5,870	6,270
8	7,950	9,870	8,700	18,700	25,800	21,000	8,710	7,270	6,660	7,000	5,890	6,360
9	7,930	9,750	8,680	19,000	25,700	23,500	8,310	7,470	6,770	6,670	5,950	6,430
10	7,730	9,510	8,650	24,200	25,600	23,700	8,020	7,760	6,860	6,600	5,910	6,620
11	7,890	9,300	8,340	27,200	25,400	23,800	7,680	8,010	7,060	6,570	5,920	6,890
12	7,910	8,360	8,040	26,900	25,200	23,200	7,500	8,090	7,320	6,910	5,960	7,140
13	7,950	7,300	12,900	26,000	25,100	22,100	7,650	8,120	7,290	7,170	5,730	7,180
14	7,930	6,980	24,900	25,700	25,100	21,000	7,800	8,180	7,130	7,330	5,710	7,260
15	8,000	8,210	24,500	26,000	25,200	19,800	7,730	7,690	7,090	7,350	5,540	7,300
16	8,300	8,660	21,300	26,300	24,700	19,000	7,610	7,140	7,090	7,280	5,580	7,430
17	8,980	8,720	18,300	25,800	24,400	18,000	7,380	6,780	7,050	7,230	5,460	7,630
18	9,640	8,740	16,400	26,100	24,700	17,100	7,140	6,520	6,940	7,270	5,490	7,710
19	9,350	8,790	16,000	26,100	24,500	16,600	6,930	6,440	6,980	7,280	5,540	7,730
20	9,020	8,880	22,000	25,800	24,300	16,200	6,700	6,370	6,880	7,290	5,600	7,850
21	8,910	8,810	27,000	25,900	24,000	15,500	6,510	6,210	6,850	7,260	5,750	7,870
22	8,790	8,790	27,300	25,900	23,600	15,000	6,300	6,190	6,930	7,180	5,700	7,800
23	8,750	8,800	27,500	26,500	23,300	14,600	6,280	6,180	6,900	7,180	5,640	7,670
24	8,730	8,760	26,500	26,700	23,000	14,300	6,400	6,090	6,720	7,170	5,790	7,570
25	8,700	8,750	26,200	28,000	22,700	14,000	6,650	6,040	6,600	7,200	5,820	7,480
26	8,670	8,750	26,000	28,900	22,500	13,800	7,000	6,310	6,540	7,270	5,830	7,440
27	8,640	8,750	25,900	28,300	21,700	13,500	7,500	6,180	6,590	7,000	5,840	7,540
28	8,640	8,750	25,900	27,600	21,000	13,100	7,900	6,180	6,630	6,830	6,000	7,630
29	8,590	8,750	25,900	27,700	-----	12,700	8,040	6,210	6,960	6,750	6,100	7,650
30	8,580	8,750	25,800	27,500	-----	12,400	8,060	6,140	7,180	6,610	6,240	7,590
31	8,540	-----	25,600	27,000	-----	12,000	-----	5,970	-----	6,260	6,350	-----
TOTAL	263,220	261,680	549,460	777,500	691,800	573,000	241,240	218,130	200,640	221,460	180,800	214,570
MEAN	8,491	8,723	17,720	25,080	24,710	18,480	8,041	7,036	6,688	7,144	5,832	7,152
MAX	9,640	9,870	27,500	28,900	26,600	24,000	11,600	8,180	7,320	7,750	6,350	7,870
MIN	7,730	6,980	8,040	18,700	21,000	12,000	6,280	5,970	5,790	6,260	5,460	6,270
AC-FT	522,100	519,000	1,090M	1,542M	1,372M	1,137M	478,500	432,700	398,000	439,300	358,600	425,600
CAL YR 1969	TOTAL 5,207,300		MEAN 14,270		MAX 28,500		MIN 6,980		AC-FT 10,330,000			
WTR YR 1970	TOTAL 4,393,500		MEAN 12,040		MAX 28,900		MIN 5,460		AC-FT 8,715,000			

## SACRAMENTO RIVER BASIN

821

11390655 SOUTH FORK WILLOW CREEK NEAR FRUTO, CALIF.

LOCATION.--Lat 39°32'28", long 122°23'19", in SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.35, T.20 N., R.5 W., Glenn County, on right bank 150 ft downstream from county road bridge and 4.5 miles southeast of Fruto.

DRAINAGE AREA.--38.9 sq mi.

PERIOD OF RECORD.--July 1963 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 375 ft (from topographic map).

AVERAGE DISCHARGE.--7 years, 4.88 cfs (3,540 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,980 cfs Jan. 23 (gage height, 10.06 ft), from rating curve extended as explained below; no flow for several months.

Period of record: Maximum discharge, 1,980 cfs Jan. 23, 1970 (gage height, 10.06 ft), from rating curve extended above 230 cfs on basis of slope-area measurement at gage height 9.94 ft; no flow for several months in each year.

REMARKS.--Records good except those for periods of no gage-height record, which are poor. No known regulation or diversion above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			0	0	22	11	4.6	1.3	.23			
2			0	0	20	11	4.6	1.2	.28			
3			0	0	18	10	4.4	1.1	.18			
4			0	0	17	132	4.2	1.1	.14			
5			0	0	15	70	4.2	1.1	.10			
6			0	0	14	35	4.2	1.0	.08			
7			0	0	12	19	3.7	1.0	.14			
8			0	0	12	21	3.5	1.0	.28			
9			0	416	11	29	3.5	1.0	.41			
10			0	48	10	31	3.3	1.0	.18			
11			0	12	11	25	2.8	.91	.18			
12			0	7.2	15	22	2.8	.91	.08			
13			0	11	243	14	3.2	.91	.08			
14			0	235	53	12	3.3	1.0	.23			
15			0	72	33	11	3.2	1.0	.14			
16			0	220	32	10	3.2	1.0	.08			
17			0	44	29	9.0	3.2	1.0	.04			
18			0	24	24	8.5	2.8	.91	.02			
19			25	20	21	8.0	2.7	1.0	.02			
20			15	46	20	7.8	2.4	1.0	.01			
21			10	113	18	7.6	2.4	1.1	0			
22			6.2	49	17	7.4	2.2	1.0	0			
23			9.5	432	16	7.2	2.0	1.0	0			
24			12	223	16	7.0	2.0	.91	0			
25			5.6	70	15	6.6	2.0	.82	0			
26			2.0	55	14	6.3	2.0	.82	0			
27			1.1	117	13	5.9	1.6	.82	0			
28			.50	44	12	5.4	1.5	.73	1.1			
29			.10	37	-----	5.0	1.4	.56	.48			
30			0	31	-----	4.7	1.4	.41	.04			
31		-----	0	26	-----	4.6	-----	.28	-----			-----
TOTAL	0	0	87.00	2,352.2	753	564.0	88.3	28.89	4.52	0	0	0
MEAN	0	0	2.81	75.9	26.9	18.2	2.94	.93	.15	0	0	0
MAX	0	0	25	432	243	132	4.6	1.3	1.1	0	0	0
MIN	0	0	0	0	10	4.6	1.4	.28	0	0	0	0
AC-FT	0	0	173	4,670	1,490	1,120	175	57	9.0	0	0	0

CAL YR 1969 TOTAL 4,796.50 MEAN 13.1 MAX 379 MIN 0 ACFT 9,510  
WAT YR 1970 TOTAL 3,877.91 MEAN 10.6 MAX 432 MIN 0 ACFT 7,690

PEAK DISCHARGE (BASE, 100 CFS)							
DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-9	1530	8.96	1,430	1-23	2100	10.06	1,980
1-14	0800	6.50	505	1-27	0130	5.41	288
1-16	0700	6.41	482	2-13	1000	7.48	818
1-20	2130	5.13	234				

NOTE.--No gage-height record Dec. 1 to Jan. 7, Feb. 23 to Apr. 1.

## SACRAMENTO RIVER BASIN

11390660 WALKER CREEK AT ARTOIS, CALIF.

LOCATION.--Lat 39°37'32", long 122°11'45", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.34, T.21 N., R.3 W., Glenn County, on left bank 500 ft upstream from county road bridge, and 0.3 mile north of Artois.

DRAINAGE AREA.--60.4 sq mi.

PERIOD OF RECORD.--July 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is 156.4 ft above mean sea level (levels by Corps of Engineers).

AVERAGE DISCHARGE.--5 years, 23.0 cfs (16,660 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 3,520 cfs Jan. 9 (gage height, 10.18 ft), from rating curve extended above 1,500 cfs; no flow for several days.

Period of record: Maximum discharge, 3,520 cfs Jan. 9, 1970 (gage height, 10.18 ft), from rating curve extended above 1,500 cfs; no flow at times in each year.

REMARKS.--Records good. Several small storage ponds above station for diversions for irrigation above station.

REVISIONS (WATER YEARS).--WRD Calif. 1969: 1966-68(P).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	3.5	0	5.6	22	5.2	5.9	9.0	5.2	11	4.0	14
2	8.1	2.1	0	4.2	17	4.8	6.4	6.8	9.2	5.0	5.3	6.0
3	6.0	1.8	0	3.4	14	4.3	6.8	7.5	5.6	3.1	6.5	4.4
4	4.4	1.5	0	3.0	13	5.7	11	7.7	7.5	3.2	12	5.7
5	2.6	1.7	0	2.5	11	6.7	15	12	4.4	4.2	8.9	7.8
6	1.6	5.8	0	2.2	9.9	24	21	17	1.7	6.4	6.0	7.1
7	3.4	4.2	0	2.0	8.8	13	18	19	2.3	4.4	6.1	8.4
8	2.9	2.6	0	2.3	8.0	362	16	12	2.2	6.3	4.1	5.5
9	4.2	1.6	0	1,240	7.3	6.9	12	9.1	7.5	11	6.1	3.4
10	5.0	.97	0	527	6.8	86	13	7.9	11	7.5	2.5	3.0
11	6.8	.49	0	97	6.4	41	13	7.1	9.8	8.9	9.3	2.3
12	5.8	.24	0	121	6.4	24	11	4.7	9.0	5.4	6.3	4.6
13	8.1	.61	6.0	91	270	17	11	4.9	6.5	2.2	5.8	5.1
14	8.0	.33	5.3	887	276	14	13	4.8	13	2.5	12	6.8
15	8.9	.19	2.4	228	56	11	16	3.1	16	1.6	13	11
16	21	.12	1.5	734	33	8.6	19	7.4	15	1.2	4.7	14
17	7.6	.05	1.1	174	38	7.0	12	4.4	7.6	3.7	4.2	13
18	3.5	0	.85	79	27	6.0	11	5.0	3.8	5.9	3.7	9.0
19	1.9	0	36	61	17	5.4	12	12	3.3	8.0	3.0	7.6
20	1.4	0	194	77	13	4.9	12	13	2.0	5.7	3.8	6.9
21	1.7	0	154	461	9.9	4.7	13	9.8	2.6	5.8	4.8	7.5
22	1.7	0	70	220	8.3	4.5	15	11	3.9	5.0	4.4	11
23	1.6	0	99	373	7.3	4.3	14	7.4	6.8	7.0	7.6	7.3
24	1.6	0	446	1,100	6.6	4.0	9.8	10	7.7	6.2	6.7	7.7
25	2.1	0	105	141	6.2	4.9	9.4	7.3	9.5	3.4	4.2	4.7
26	1.6	0	50	64	5.7	7.9	8.2	4.1	7.8	9.4	2.8	2.7
27	1.0	0	32	317	5.2	8.2	12	3.2	8.4	9.5	5.3	3.4
28	.59	0	21	85	5.1	5.2	8.5	5.7	9.3	4.8	3.1	4.6
29	.28	0	14	45	-----	5.4	7.5	2.6	17	3.2	3.2	12
30	.20	0	9.8	34	-----	6.9	9.9	4.0	12	4.9	6.1	15
31	2.0	-----	7.3	26	-----	6.3	-----	2.8	-----	6.8	7.4	-----
TOTAL	139.57	27.80	1,255.25	7,207.2	914.9	842.2	368.4	242.3	227.6	173.2	182.9	221.5
MEAN	4.50	.93	40.5	232	32.7	27.2	12.3	7.82	7.59	5.59	5.90	7.38
MAX	21	5.8	446	1,240	276	362	21	19	17	11	13	15
MIN	.20	0	0	2.0	5.1	4.0	5.9	2.6	1.7	1.2	2.5	2.3
AC-FT	277	55	2,490	14,300	1,810	1,670	731	481	451	344	363	439
CAL YR 1969	TOTAL	15,261.94	MEAN	41.8	MAX	1,190	MIN	0	AC-FT	30,270		
WTR YR 1970	TOTAL	11,892.82	MEAN	32.3	MAX	1,240	MIN	0	AC-FT	23,410		

## PEAK DISCHARGE (BASE, 600 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-24	0330	6.56	700	1-24	0315	9.65	2,920
1-9	2030	10.18	3,520	1-27	0800	6.64	740
1-14	1200	8.46	1,830	2-13	1645	7.04	940
1-16	0500	7.24	1,040	2-14	0030	6.77	805
1-21	0430	6.87	855	3-8	0645	6.90	870

## 11390672 STONE CORRAL CREEK NEAR SITES, CALIF.

LOCATION.--Lat 39°17'18", long 122°18'00", in NW¼NW¼ sec.34, T.17 N., R.4 W., Colusa County, on left bank at road bridge 2.4 miles southeast of Sites.

DRAINAGE AREA.--38.2 sq mi.

PERIOD OF RECORD.--March 1958 to September 1964, October 1965 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 180 ft (from topographic map).

AVERAGE DISCHARGE.--11 years, 5.98 cfs (4,330 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 2,500 cfs Jan. 23 (gage height, 14.10 ft), from rating curve extended as explained below; no flow for several months.

Period of record: Maximum discharge, 2,640 cfs Jan. 29, 1968 (gage height, 14.52 ft), from rating curve extended above 1,200 cfs on basis of slope-conveyance study at gage height 13.0 ft; no flow for several months in each year.

Flood of Apr. 2, 1958, reached a stage of 14.93 ft (discharge, 2,500 cfs); flood of Dec. 22, 1964, reached a stage of 13.0 ft from floodmarks (discharge, 1,940 cfs from slope-conveyance study).

REMARKS.--No known diversion or regulation above station.

COOPERATION.--Records furnished by U.S. Bureau of Reclamation and reviewed by Geological Survey.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			0	.30	26	24	4.0	1.3	.10			
2			0	.15	21	11	4.1	1.3	0			
3			0	.10	19	9.5	3.6	1.2	0			
4			0	.05	17	50	3.3	1.1	0			
5			0	0	15	27	3.3	.90	0			
6			0	0	13	15	3.4	.80	.10			
7			0	0	12	13	3.1	.80	.10			
8			0	0	11	24	2.7	.80	.10			
9			0	758	10	15	2.8	.80	.20			
10			0	159	9.1	16	2.7	.80	.10			
11			0	54	9.4	12	2.4	.70	.10			
12			0	17	15	11	2.0	.60	.10			
13			0	17	233	11	2.0	.60	.10			
14			0	540	58	10	2.1	.50	.10			
15			0	114	28	9.1	2.4	.40	.10			
16			0	503	32	8.8	2.8	.30	.10			
17			0	71	41	7.8	2.7	.30	.10			
18			0	36	24	7.2	2.2	.30	.10			
19			47	34	19	7.2	2.1	.30	0			
20			30	131	17	7.2	2.0	.30	0			
21			20	257	16	7.2	2.0	.20	0			
22			12	84	15	7.2	2.0	.20	0			
23			22	433	14	6.8	1.9	.20	0			
24			9.0	364	14	6.5	1.9	.10	0			
25			5.0	84	13	5.6	1.9	.10	0			
26			4.0	60	12	5.2	1.9	.10	0			
27			3.0	139	11	4.6	1.8	.10	0			
28			2.5	52	13	4.5	1.7	.10	0			
29			1.8	44	-----	4.5	1.6	.10	0			
30			1.0	37	-----	4.3	1.5	.10	0			
31		-----	.50	30	-----	4.0	-----	0	-----			-----
TOTAL	0	0	157.80	4,018.60	737.5	356.2	73.9	15.40	1.50	0	0	0
MEAN	0	0	5.09	130	26.3	11.5	2.46	.50	.050	0	0	0
MAX	0	0	47	758	233	50	4.1	1.3	.20	0	0	0
MIN	0	0	0	0	9.1	4.0	1.5	0	0	0	0	0
AC-FT	0	0	313	7,970	1,460	707	147	31	3.0	0	0	0

CAL YR 1969 TOTAL 7,596.30 MEAN 20.8 MAX 602 MIN 0 ACFT 15,070  
WAT YR 1970 TOTAL 5,360.90 MEAN 14.7 MAX 758 MIN 0 ACFT 10,630

NOTE.--No gage-height record Dec. 6 to Jan. 12.

## SACRAMENTO RIVER BASIN

## 11391000 SACRAMENTO RIVER AT KNIGHTS LANDING, CALIF.

LOCATION.--Lat 38°48'11", long 121°42'55", in NE¼ sec.14, T.11 N , R.2 E., Sutter County, on left bank just upstream from Southern Pacific Railroad bridge at Knights Landing, 13.1 miles upstream from Feather River, and at mile 34.0 upstream from Sacramento.

DRAINAGE AREA.--14,541 sq mi (revised).

PERIOD OF RECORD.--April 1921 to October 1939 (low-water periods only), June 1940 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Gage is set to datum of Corps of Engineers which is 2.93 ft below mean sea level. April 1921 to Dec. 9, 1930, in fender pier of railroad bridge at same datum. Water-stage recorder for station at Verona was used as auxiliary gage for this station January 1941 to June 1945. Since Aug. 16, 1945, auxiliary water-stage recorder 6.0 miles downstream from base gage.

AVERAGE DISCHARGE.--30 years (1940-70), 10,520 cfs (7,622,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 30,800 cfs Jan. 26 (gage height, 40.86 ft); minimum daily, 5,820 cfs June 5.

Period of record: Maximum discharge (1940-70), 30,800 cfs Jan. 26, 1970 (gage height, 40.86 ft); maximum gage height, 41.83 ft Feb. 8, 1942 (backwater from Feather River and Sutter Bypass); minimum discharge recorded, 250 cfs July 23, 1931 (gage height, 7.80 ft).

REMARKS.--Records good. Natural flow of stream affected by storage reservoirs, power developments, bypassing for flood control, diversions for irrigation, and considerable return flow from irrigated areas. Records of chemical analyses for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9,510	9,620	9,440	25,500	27,700	21,500	12,600	9,220	6,240	8,330	6,620	7,650
2	9,490	9,010	9,360	25,600	27,400	23,700	12,000	8,980	6,330	8,290	6,630	7,720
3	9,260	8,960	9,230	25,400	27,200	24,800	11,400	8,890	6,200	8,120	6,520	7,830
4	8,830	9,010	9,250	23,300	27,200	22,700	11,000	8,970	5,940	7,920	6,470	7,770
5	8,590	8,980	9,250	21,200	26,900	21,100	10,800	9,140	5,820	7,940	6,350	7,760
6	8,440	9,140	9,220	20,000	26,600	24,400	10,500	8,800	6,090	7,840	6,280	7,750
7	8,360	10,300	9,210	18,900	26,600	24,100	10,000	8,620	6,150	7,530	6,390	7,750
8	8,400	10,800	9,020	18,400	26,500	21,600	9,780	9,000	6,520	7,190	6,510	7,870
9	8,270	10,800	9,090	18,400	26,500	23,200	9,190	9,440	6,920	6,970	6,610	7,980
10	8,160	10,500	9,220	22,200	26,300	23,900	9,020	9,910	7,320	6,920	6,630	8,340
11	8,200	10,200	9,180	25,700	26,200	23,700	8,500	10,200	7,570	6,900	6,610	8,740
12	8,260	9,830	9,130	25,800	26,200	23,600	8,320	10,200	8,070	7,140	6,570	8,950
13	8,340	8,680	10,500	25,100	26,200	23,200	8,380	10,200	7,990	7,640	6,500	8,980
14	8,360	7,740	22,400	25,000	25,700	21,800	8,520	10,200	7,750	7,780	6,500	8,930
15	8,530	8,220	24,400	25,500	25,800	20,300	8,510	9,820	7,780	7,860	6,460	8,820
16	8,790	9,120	21,400	25,900	26,000	19,400	8,270	8,990	7,680	7,740	6,400	8,730
17	9,580	9,290	18,600	26,000	25,400	18,400	8,080	8,160	7,630	7,600	6,440	8,850
18	10,300	9,280	16,600	27,000	25,400	18,000	7,690	7,650	7,450	7,670	6,420	8,800
19	10,100	9,350	15,900	26,900	25,800	17,300	7,570	7,490	7,270	7,820	6,500	8,780
20	9,730	9,370	19,500	26,500	26,100	16,600	7,180	7,500	7,190	7,800	6,520	8,780
21	9,520	9,520	26,300	26,500	25,800	16,000	6,940	7,390	7,180	7,780	6,660	8,800
22	9,340	9,460	26,600	26,500	25,200	15,600	6,830	7,260	7,220	7,650	6,700	8,770
23	9,270	9,400	26,800	27,700	24,800	15,100	6,590	7,350	7,100	7,600	6,690	8,520
24	9,150	9,390	25,900	27,600	24,500	14,800	6,720	7,300	6,920	7,570	6,860	8,290
25	9,250	9,500	26,600	29,000	24,000	14,600	7,160	6,930	6,700	7,640	6,990	8,070
26	9,170	9,380	26,900	30,400	23,700	14,500	7,890	6,810	6,610	7,640	7,020	8,040
27	9,130	9,430	26,800	29,800	23,000	14,200	8,600	6,570	6,660	7,560	7,090	8,100
28	9,270	9,430	26,500	29,200	22,200	13,700	8,970	6,440	6,790	7,320	7,180	8,210
29	9,160	9,400	26,100	29,000	-----	13,400	9,180	6,540	7,200	7,150	7,340	8,180
30	9,060	9,400	26,000	28,800	-----	13,100	9,400	6,540	7,930	7,060	7,490	8,220
31	9,000	-----	25,400	28,300	-----	12,800	-----	6,390	-----	6,810	7,580	-----
TOTAL	278,820	281,910	549,800	791,100	720,900	591,100	265,590	256,900	210,220	234,780	207,530	249,980
MEAN	8,994	9,397	17,740	25,520	25,750	19,070	8,853	8,287	7,007	7,574	6,695	8,333
MAX	10,300	10,800	26,900	30,400	27,700	24,800	12,600	10,200	8,070	8,330	7,580	8,980
MIN	8,160	7,740	9,020	18,400	22,200	12,800	6,590	6,390	5,820	6,810	6,280	7,650
AC-FT	553,000	559,200	1,091M	1,569M	1,430M	1,172M	526,800	509,600	417,000	465,700	411,600	495,800
CAL YR 1969	TOTAL 5,380,260		MEAN 14,740		MAX 30,000		MIN 7,740		AC-FT 10,670,000			
WTR YR 1970	TOTAL 4,638,630		MEAN 12,710		MAX 30,400		MIN 5,820		AC-FT 9,201,000			



## RESERVOIRS IN FEATHER RIVER BASIN, CALIF.

11391370 FRENCHMAN LAKE.--Lat 39°53'37", long 120°11'18", in NW¼NE¼ sec.33, T.24 N., R.16 E., Plumas County, in valve chamber at center of toe of Frenchman Dam on Little Last Chance Creek, 5.4 miles upstream from the confluence with Middle Fork Feather River, and 7.1 miles north of Chilcoot. Drainage area, 81.1 sq mi. Period of record, October 1966 to current year in reports of Geological Survey. November 1961 to September 1966 published in reports of California Department of Water Resources. Gage, water-stage recorder in valve house at center of toe of Frenchman Dam. Datum of gage is at mean sea level (levels by California Department of Water Resources). Extremes for current year: Maximum contents, 57,039 acre-ft Jan. 28, 29 (elevation, 5,588.98 ft); minimum, 41,051 acre-ft Sept. 30 (elevation 5,578.01 ft). Extremes for period 1966 to current year: Maximum contents, 59,093 acre-ft May 22, 1967 (elevation, 5,590.28 ft); minimum, 36,715 acre-ft Nov. 12, 1966 (elevation, 5,574.64 ft).

Reservoir is formed by rockfill dam completed in 1961. Capacity, 53,582 acre-ft between elevations 5,517 (invert of intake) and 5,588 ft (crest of spillway). Dead storage, 1,840 acre-ft. Record of contents furnished by California Department of Water Resources.

11391490 LAKE DAVIS.--Lat 39°53'02", long 120°28'32", in SW¼ sec.1, T.23 N., R.13 E., Plumas County, in control house on left abutment of Grizzly Valley Dam on Big Grizzly Creek, 5.3 miles north of Portola. Drainage area, 44.0 sq mi. Period of record, November 1966 to current year. Gage, water-stage recorder in control house on Grizzly Valley Dam. Datum of gage is at mean sea level (levels by California Department of Water Resources). Extremes for current year: Maximum contents, 92,145 acre-ft Jan. 27 (elevation, 5,776.89 ft); minimum, 72,829 acre-ft Sept. 30 (elevation, 5,772.02 ft). Extremes for period of record: Maximum contents, 92,818 acre-ft May 13, 14, 1969 (elevation, 5,777.05 ft); minimum since initial storage began, 48,276 acre-ft Nov. 13, 1967 (elevation, 5,764.66 ft).

Reservoir is formed by earth- and rockfill dam completed in 1967. Capacity, is 84,040 acre-ft between elevations 5,700 (top of low level intake) and 5,775 ft (crest of spillway). Dead storage, 108 acre-ft. Record of contents furnished by California Department of Water Resources.

11401120 ANTELOPE LAKE.--Lat 40°10'43", long 120°36'35", in SE¼ sec.22, T.27 N., R.12 E., Plumas County, in control house at toe of Antelope Dam on Indian Creek, 1.3 miles south of Boulder Creek Guard station, 12 miles northeast of Genesee, and 13.9 miles northeast of Taylorsville. Drainage area, 68.6 sq mi. Period of record, October 1966 to current year in reports of Geological Survey. November 1963 to September 1966 published in reports of California Department of Water Resources. Gage, water-stage recorder in control house at toe of Antelope Dam. Datum of gage is at mean sea level (levels by California Department of Water Resources). Extremes for current year: Maximum contents, 25,010 acre-ft Jan. 23 (elevation, 5,004.55 ft); minimum, 20,657 acre-ft Sept. 30 (elevation, 4,999.90 ft). Extremes for period 1966 to current year: Maximum contents, 25,010 acre-ft Jan. 23, 1970 (elevation, 5,004.55 ft); minimum, 15,246 acre-ft Nov. 8, 1965 (elevation, 4,993.30 ft).

Reservoir is formed by a rockfill dam. Storage began November 1963. Capacity, 22,239 acre-ft between elevations 4,950 (lip of intake tower) and 5,002 ft (crest of spillway). Record of contents furnished by California Department of Water Resources.

## MONTH-END ELEVATIONS AND CONTENTS, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

Date	Elevation (feet)a	Contents (acre- feet)	Change in contents (acre- feet)	Elevation (feet)a	Contents (acre- feet)	Change in contents (acre- feet)	Elevation (feet)a	Contents (acre- feet)	Change in contents (acre- feet)
Lake Davis			Frenchman Lake			Antelope Lake			
Sept. 30.....	5,773.06	76,754	-1,616	5,581.40	45,652	-1,414	5,000.47	21,166	-689
Oct. 31.....	5,772.67	75,269	-1,485	5,581.30	45,512	-140	5,000.35	21,058	-108
Nov. 30.....	5,772.52	74,702	-567	5,581.31	45,526	+14	5,000.32	21,031	-27
Dec. 31.....	5,773.29	77,637	+2,935	5,582.10	46,639	+1,113	5,001.95	22,519	+1,488
CAL YR 1969,....	-	-	+19,684	-	-	+5,619	-	-	+2,867
Jan. 31.....	5,776.66	91,181	+13,544	5,588.95	56,991	+10,352	5,002.94	23,451	+932
Feb. 28.....	5,775.87	87,909	-3,272	5,588.60	56,430	-561	5,002.64	23,166	-285
Mar. 31.....	5,774.45	82,172	-5,737	5,588.56	56,366	-64	5,002.80	23,318	+152
Apr. 30.....	5,774.21	81,223	-949	5,588.42	56,143	-223	5,002.72	23,242	-76
May 31.....	5,774.34	81,736	+513	5,588.25	55,873	-270	5,002.68	23,204	-38
June 30.....	5,774.00	80,397	-1,339	5,585.32	51,344	-4,529	5,002.32	22,865	-339
July 31.....	5,773.29	77,637	-2,760	5,583.49	48,637	-2,707	5,001.65	22,241	-624
Aug. 31.....	5,772.51	74,665	-2,972	5,579.36	42,848	-5,789	5,000.72	21,391	-850
Sept. 30.....	5,772.02	72,829	-1,836	5,578.01	41,051	-1,797	4,999.90	20,657	-734
WTR YR 1970,....	-	-	-3,925	-	-	-4,601	-	-	-509

a Elevation at 2400.



11391500 BIG GRIZZLY CREEK AT GRIZZLY VALLEY DAM, NEAR PORTOLA, CALIF.  
(Formerly published as Big Grizzly Creek near Portola)

LOCATION.--Lat 39°53'02", long 120°28'32", in SW $\frac{1}{4}$  sec.1, T.23 N., R.13 E., Plumas County, at Grizzly Valley Dam on Big Grizzly Creek, 5.3 miles north of Portola.

DRAINAGE AREA.--44.0 sq mi.

PERIOD OF RECORD.--October 1925 to September 1932, October 1950 to September 1953, June 1954 to September 1967, October 1968 to current year. Prior to October 1952, published as Grizzly Creek near Portola, October 1952 to September 1953, June 1954 to September 1967, published as Big Grizzly Creek near Portola.

GAGE.--Water-stage recorder and Cippoletti weir. Altitude of gage is 5,700 ft (from topographic map). Supplementary water-stage recorder in control house on Grizzly Valley Dam and concrete spillway. Prior to October 1968 at different site and datum.

AVERAGE DISCHARGE (prior to regulation by Lake Davis).--22 years (1926-52, 1951-66), 38.2 cfs (27,680 acre-ft per year).

EXTREMES.--Water year 1969: Maximum discharge, 253 cfs May 13 (includes flow through spillway); no flow for many days in September.

Water year 1970: Maximum discharge, 233 cfs Jan. 27 (includes flow through spillway); no flow for many days in October.

Period of record: Maximum discharge, 4,080 cfs Feb. 1, 1963 (gage height, 8.03 ft, site and datum then in use), from rating curve extended above 600 cfs on basis of slope-area measurement of peak flow; maximum gage height, 9.54 ft, former datum, Mar. 26, 1928; no flow Jan. 22 or 23, 1962. Maximum discharge since construction of Grizzly Valley Dam in 1966, 253 cfs May 13, 1969 (includes flow through spillway); no flow many days in September and October 1969.

REMARKS.--Flow regulated by Lake Davis completed in December 1966 (usable capacity, 84,050 acre-ft). Diversions for irrigation of about 400 acres above station.

COOPERATION.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	3.8	4.0	4.0	4.0	4.0	14	146	140	47	14	8.8
2	4.5	4.0	4.0	4.0	4.0	4.0	14	157	133	51	13	0
3	4.5	4.0	4.0	4.0	4.0	4.0	14	166	126	49	13	0
4	4.5	4.0	4.0	4.0	4.0	4.0	14	173	120	46	15	0
5	4.5	4.0	4.0	4.0	4.0	4.0	14	176	115	43	16	0
6	4.5	4.0	4.0	4.0	4.0	4.0	14	184	108	40	16	0
7	4.5	4.0	4.0	4.0	4.0	4.0	14	192	101	43	16	0
8	4.5	4.0	4.0	4.0	4.0	4.0	14	202	100	45	16	0
9	4.5	4.0	4.0	4.0	4.0	4.0	14	212	102	44	16	0
10	4.5	4.0	4.0	4.0	4.0	4.0	14	223	97	50	16	0
11	4.5	4.0	4.0	4.0	4.0	4.0	14	235	96	56	16	0
12	4.5	4.0	4.0	4.0	4.0	4.0	14	244	94	54	16	0
13	4.5	4.0	4.0	4.0	4.0	8.9	14	248	90	52	16	0
14	4.5	4.0	4.0	4.0	4.0	14	14	251	88	51	16	0
15	3.8	4.0	4.0	4.0	4.0	14	14	249	85	50	13	0
16	3.5	4.0	4.0	4.0	4.0	14	14	246	80	50	14	0
17	3.5	4.0	4.0	4.0	4.0	14	138	241	75	50	16	0
18	3.5	4.0	4.0	4.0	4.0	14	231	235	77	50	16	0
19	3.5	4.0	4.0	4.0	4.0	14	231	232	77	50	16	0
20	3.5	4.0	4.0	4.0	4.0	14	232	225	74	50	16	0
21	3.5	4.0	4.0	4.0	4.0	14	140	218	69	50	16	0
22	3.5	4.0	4.0	4.0	4.0	14	21	212	65	50	16	0
23	3.5	4.0	4.0	4.0	4.0	14	46	205	61	50	16	0
24	3.5	4.0	4.0	4.0	4.0	14	66	198	57	50	16	0
25	3.5	4.0	4.0	4.0	4.0	14	77	189	52	50	16	0
26	3.5	4.0	4.0	4.0	4.0	14	84	180	48	50	16	0
27	3.5	4.0	4.0	4.0	4.0	14	92	176	45	50	16	0
28	3.5	4.0	4.0	4.0	4.0	14	101	168	41	50	16	0
29	3.5	4.0	4.0	4.0	-----	14	117	160	39	22	16	0
30	3.5	4.0	4.0	4.0	-----	14	133	154	36	13	16	0
31	3.5	-----	4.0	4.0	-----	14	-----	146	-----	14	16	-----
TOTAL	127.8	119.8	124.0	124.0	112.0	308.9	1,933	6,243	2,491	1,420	482	8.8
MEAN	3.96	3.99	4.00	4.00	4.00	9.96	64.4	201	83.0	45.8	15.5	.29
MAX	4.5	4.0	4.0	4.0	4.0	14	232	251	140	56	16	8.8
MIN	3.5	3.8	4.0	4.0	4.0	4.0	14	146	36	13	13	0
AC-FT	244	238	246	246	222	613	3,830	12,380	4,940	2,820	956	17

CAL YR 1968 TOTAL - MEAN - MAX - MIN - AC-FT -  
WTR YR 1969 TOTAL 13,489.30 MEAN 37.0 MAX 251 MIN 0 AC-FT 26,760

## SACRAMENTO RIVER BASIN

11391500 BIG GRIZZLY CREEK AT GRIZZLY VALLEY DAM, NEAR PORTOLA, CALIF.--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	8.0	8.0	8.0	188	83	103	23	20	23	14	8.0
2	0	8.0	8.0	8.0	177	83	103	23	18	15	14	8.0
3	87	8.0	8.0	8.0	168	81	103	23	18	8.0	9.4	7.5
4	220	8.0	8.0	8.0	162	80	103	23	19	8.0	8.0	7.5
5	220	8.0	8.0	8.0	154	78	103	23	19	8.0	8.0	8.0
6	99	8.0	8.0	8.0	148	76	99	23	19	8.0	8.0	8.0
7	0	8.1	8.0	8.0	141	74	96	23	20	8.0	8.0	8.0
8	0	8.1	8.0	8.0	135	76	96	23	23	8.0	8.0	8.0
9	0	8.1	8.0	8.0	130	74	96	23	23	8.0	8.0	6.2
10	0	8.1	8.0	8.0	125	73	96	23	23	8.0	8.0	6.1
11	0	8.1	8.0	8.0	121	70	96	23	23	8.0	8.0	5.7
12	0	8.1	8.0	8.0	118	68	96	23	24	8.0	8.0	8.0
13	0	8.1	8.0	8.0	121	208	73	23	24	8.0	8.0	8.0
14	0	2.7	8.0	8.0	121	299	60	23	24	8.0	8.0	8.0
15	0	0	8.0	8.0	117	291	45	23	24	8.0	8.0	8.0
16	0	3.0	8.0	8.0	113	282	23	23	16	8.0	8.0	3.1
17	0	5.0	8.0	8.0	121	263	22	23	13	12	14	1.3
18	0	8.0	8.0	8.0	117	240	23	23	4.2	14	16	2.0
19	0	8.0	8.0	8.0	112	187	23	23	5.3	14	16	2.0
20	0	8.0	8.0	8.0	106	256	23	23	8.0	14	17	2.0
21	0	8.0	8.0	16	101	252	23	23	8.0	14	18	1.5
22	0	8.0	8.0	68	97	250	23	23	4.9	14	15	1.2
23	0	8.0	8.0	102	93	198	22	23	3.0	14	15	1.3
24	0	8.0	8.0	188	91	250	22	23	4.0	14	15	2.9
25	0	8.0	8.0	205	87	250	22	23	18	14	15	3.9
26	0	8.0	8.0	206	85	250	22	23	23	14	15	6.5
27	0	8.0	8.0	230	82	169	22	23	23	14	15	6.5
28	0	8.0	8.0	226	80	103	23	23	23	14	15	6.5
29	4.8	8.1	8.0	216	-----	103	23	23	23	14	13	6.5
30	8.0	8.1	8.0	208	-----	103	23	23	23	14	8.0	6.5
31	8.0	-----	8.0	197	-----	103	-----	23	-----	14	8.0	-----
TOTAL	646.8	219.6	248.0	2,022.0	3,411	4,973	1,707	713	520.4	358.0	356.4	166.7
MEAN	20.9	7.32	8.00	65.2	122	160	56.9	23.0	17.3	11.5	11.5	5.56
MAX	220	8.1	8.0	230	188	299	103	23	24	23	18	8.0
MIN	0	0	8.0	8.0	80	68	22	23	3.0	8.0	8.0	1.2
AC-FT	1,280	436	492	4,010	6,770	9,860	3,390	1,410	1,030	710	707	331

CAL YR 1969 TOTAL 14,237.10 MEAN 39.0 MAX 251 MIN 0 AC-FT 28,240  
WTR YR 1970 TOTAL 15,341.90 MEAN 42.0 MAX 299 MIN 0 AC-FT 30,430

## 11392100 MIDDLE FORK FEATHER RIVER NEAR PORTOLA, CALIF.

LOCATION.--Lat 39°49'13", long 120°26'26", in SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.29, T.23 N., R.14 E., Plumas County, on right bank 0.8 mile downstream from Big Grizzly Creek and 1.6 miles northeast of Portola.

DRAINAGE AREA.--586 sq mi (revised).

PERIOD OF RECORD.--October 1968 to current year. November 1955 to September 1968 in bulletins of California Department of Water Resources.

GAGE.--Water-stage recorder. Altitude of gage is 4,860 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 4,970 cfs Jan. 25 (gage height, 8.81 ft); minimum daily, 5.3 cfs Sept. 18.

Period of record: Maximum discharge, 7,640 cfs Jan. 21, 1969 (gage height, 10.18 ft); minimum daily, 3.1 cfs Sept. 11, 12, 1969.

REMARKS.--Flow partly regulated by Frenchman Lake (see sta 11391370) and Lake Davis (see sta 11391490). Records of chemical analyses for the water year 1970 are published in Part 2 of this report.

COOPERATION.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.8	43	41	130	1,090	404	259	219	90	121	7.0	13
2	9.5	43	42	99	922	431	242	194	82	96	8.8	13
3	39	43	45	103	798	483	237	174	71	78	16	11
4	238	36	46	78	719	458	224	150	68	77	9.1	11
5	236	39	46	65	653	440	208	131	71	66	8.1	11
6	158	68	46	60	595	428	198	115	71	60	7.5	11
7	16	54	44	59	542	424	130	110	65	55	7.2	11
8	16	59	49	63	493	457	163	109	65	51	7.6	10
9	17	60	53	95	457	478	188	116	68	46	7.6	9.9
10	17	59	55	183	436	466	186	128	79	39	7.8	7.9
11	18	54	58	290	418	414	194	135	95	32	7.9	7.8
12	19	50	62	534	419	382	198	148	109	28	7.9	8.4
13	19	49	64	510	457	447	191	134	118	25	7.9	11
14	20	52	61	587	556	548	193	113	123	24	8.0	10
15	24	48	59	1,070	598	533	183	119	124	21	8.3	8.9
16	31	49	54	2,390	559	525	157	140	119	20	8.6	10
17	38	54	50	3,180	597	503	180	132	110	19	9.7	5.6
18	44	54	54	3,460	1,020	456	178	113	103	19	11	5.3
19	50	53	61	2,070	1,060	393	160	105	91	17	11	6.2
20	52	52	74	1,360	759	446	156	100	86	16	11	6.9
21	47	54	127	1,250	589	448	152	98	78	17	15	7.7
22	42	56	202	2,250	541	453	155	102	76	15	15	7.9
23	38	56	310	3,670	529	406	152	105	72	13	21	8.2
24	36	54	602	3,550	484	441	148	93	57	12	25	8.3
25	36	52	785	4,580	446	430	144	82	63	11	21	13
26	36	52	1,030	2,870	413	421	138	75	79	9.7	18	9.3
27	35	52	728	2,300	384	376	148	61	88	8.2	16	11
28	35	49	398	3,020	377	298	164	72	102	7.5	16	12
29	36	45	305	2,080	-----	271	211	97	112	7.3	19	12
30	43	41	205	1,790	-----	256	228	106	116	6.6	19	13
31	43	-----	153	1,260	-----	255	-----	99	-----	7.2	14	-----
TOTAL	1,497.3	1,530	5,909	45,006	16,911	13,171	5,465	3,675	2,651	1,024.5	377.0	291.3
MEAN	48.3	51.0	191	1,452	604	425	182	119	88.4	33.0	12.2	9.71
MAX	238	68	1,030	4,580	1,090	548	259	219	124	121	25	13
MIN	8.8	36	41	59	377	255	130	61	57	6.6	7.0	5.3
AC-FT	2,970	3,030	11,720	89,270	33,540	26,120	10,840	7,290	5,260	2,030	748	578
CAL YR 1969	TOTAL	179,081.2	MEAN	491	MAX	6,920	MIN	3.1	ACFT	355,200		
WAT YR 1970	TOTAL	97,508.1	MEAN	267	MAX	4,580	MIN	5.3	ACFT	193,400		

## SACRAMENTO RIVER BASIN

11392500 MIDDLE FORK FEATHER RIVER NEAR CLIO, CALIF.

LOCATION.--Lat 39°45'14", long 120°35'42", in SE<sub>4</sub> sec.23, T.22 N., R.12 E., Plumas County, on left bank 0.6 mile upstream from Frazier Creek, 1.0 mile northwest of Clio, and 2.2 miles southeast of Blairsden.

DRAINAGE AREA.--686 sq mi.

PERIOD OF RECORD.--October 1925 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,380 ft (from topographic map). Prior to July 29, 1953, at site 0.5 mile downstream at different datum.

AVERAGE DISCHARGE.--45 years, 288 cfs (208,700 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 8,340 cfs Jan. 24 (gage height, 13.56 ft); minimum daily, 27 cfs on many days in August and September.

Period of record: Maximum discharge, 14,500 cfs Feb. 1, 1963 (gage height, 16.19 ft); minimum, 4.3 cfs Sept. 5, 1934.

REMARKS.--Records good. Diversions for irrigation of about 40,000 acres above station, of which 14,500 acres receive supplemental water of about 7,000 acre-ft annually from Little Truckee River. Flow partly regulated by Lake Davis (total usable capacity, 84,000 acre-ft) beginning in November 1966 (see sta 11391490) and by Frenchman Lake (total usable capacity, 53,600 acre-ft) beginning in November 1961 (see sta 11391370). Records of water temperatures for the water year 1970 are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	76	99	193	1,360	754	386	327	174	131	29	30
2	38	76	99	161	1,110	722	381	310	167	120	29	30
3	38	76	100	143	935	734	358	288	162	99	30	29
4	178	74	102	138	875	722	358	266	153	94	33	31
5	264	95	105	118	860	714	337	230	154	87	30	33
6	262	113	102	110	850	686	324	224	157	80	29	30
7	78	132	101	107	798	682	276	214	145	75	29	30
8	59	122	102	127	742	782	260	216	140	71	29	30
9	58	120	108	433	706	762	305	226	141	67	29	29
10	58	117	114	530	670	738	317	244	145	61	29	28
11	58	114	140	446	650	666	324	246	149	57	27	27
12	58	110	159	733	694	622	327	253	157	51	27	27
13	58	107	149	1,010	718	642	320	260	162	49	29	27
14	58	110	128	1,890	806	810	317	218	165	46	28	29
15	82	108	122	1,650	850	786	314	216	162	45	27	30
16	129	107	115	3,880	860	766	271	242	161	42	27	29
17	113	107	111	3,950	900	742	288	260	151	41	27	30
18	84	108	111	3,740	1,140	694	298	249	145	40	27	27
19	84	110	248	2,670	1,310	622	283	236	131	39	27	27
20	86	108	322	1,970	980	626	269	218	124	39	28	28
21	86	108	713	2,800	846	646	264	208	120	37	29	28
22	82	111	384	3,790	786	618	266	208	113	37	30	28
23	77	113	710	5,220	770	586	260	216	110	37	31	29
24	74	113	1,490	5,670	730	572	253	212	100	36	35	29
25	73	110	1,230	5,510	686	582	246	193	91	33	36	29
26	73	108	1,300	3,790	650	568	253	193	101	32	33	31
27	72	107	920	3,600	622	536	269	189	110	31	32	31
28	71	108	575	3,400	630	448	274	174	114	30	32	31
29	71	103	417	2,570	-----	417	298	179	128	30	32	31
30	73	100	293	2,280	-----	395	334	191	122	30	36	32
31	76	-----	222	1,630	-----	389	-----	184	-----	29	32	-----
TOTAL	2,709	3,171	10,891	64,259	23,534	20,029	9,030	7,090	4,154	1,696	928	880
MEAN	87.4	106	351	2,073	841	646	301	229	138	54.7	29.9	29.3
MAX	264	132	1,490	5,670	1,360	810	386	327	174	131	36	33
MIN	38	74	99	107	622	389	246	174	91	29	27	27
AC-FT	5,370	6,290	21,600	127,500	46,680	39,730	17,910	14,060	8,240	3,360	1,840	1,750
CAL YR 1969	TOTAL	239,504	MEAN	656	MAX	9,990	MIN	32	AC-FT	475,100		
WAT YR 1970	TOTAL	148,371	MEAN	406	MAX	5,670	MIN	27	AC-FT	294,300		

## 11394500 MIDDLE FORK FEATHER RIVER NEAR MERRIMAC, CALIF.

LOCATION.--Lat 39°42'30", long 121°16'10", in NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.2, T.21 N., R.6 E., Butte County, Plumas National Forest, on left bank 400 ft downstream from bridge on Milsap Bar Road, 500 ft downstream from Little North Fork, 4.5 miles southeast of Merrimac, and 20 miles northeast of Oroville.

DRAINAGE AREA.--1,062 sq mi.

PERIOD OF RECORD.--October 1951 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,560 ft (from topographic map). Prior to Jan. 21, 1965, on right bank at same site and datum.

AVERAGE DISCHARGE.--19 years, 1,440 cfs (1,043,000 acre-ft per year); median of yearly mean discharges, 1,300 cfs (942,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 29,200 cfs Jan. 24 (gage height, 17.59 ft), from rating curve extended above 8,000 cfs on basis of slope-area measurement at gage height 26.5 ft; minimum daily, 156 cfs Sept. 13, 14, 25-27.

Period of record: Maximum discharge, 86,200 cfs Dec. 22, 1964 (gage height, 26.5 ft, from floodmarks, present site), from rating curve extended above 19,000 cfs on basis of slope-area measurement of maximum flow; minimum, 92 cfs Jan. 2, 1960.

Flood of Dec. 10, 1937, reached a stage of 19.4 ft, from floodmarks (discharge, 46,100 cfs)

REMARKS.--Records good. Diversions above station for irrigation of about 1,000 acres between stations near Clio and near Merrimac. Flow partly regulated by Antelope Lake (see sta 11401120) beginning in 1963, Lake Davis (see sta 11391490) beginning in 1967, and Frenchman Lake (see sta 11391370) beginning in 1961. Records of chemical analyses and water temperatures for the water year 1970 are published in Part 2 of this report.

REVISIONS (WATER YEARS).--WSP 1931: 1960. WRD Calif. 1968: 1956(M), 1963(M).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	194	266	258	1,270	4,900	4,160	1,510	1,270	1,120	523	219	176
2	190	262	254	1,150	4,290	3,350	1,490	1,300	1,100	514	214	173
3	187	262	254	1,040	3,850	2,790	1,450	1,360	1,100	487	211	162
4	187	262	254	993	3,530	2,740	1,430	1,470	1,070	448	201	166
5	302	442	252	918	3,210	2,550	1,410	1,560	1,030	432	202	170
6	430	481	261	859	2,980	2,470	1,420	1,630	1,010	405	197	184
7	415	474	258	869	2,780	2,430	1,420	1,510	946	387	196	180
8	290	503	275	909	2,600	2,900	1,350	1,470	888	376	194	176
9	258	400	289	2,120	2,550	2,770	1,370	1,580	911	369	196	173
10	236	358	366	4,950	2,360	2,620	1,440	1,790	964	361	194	166
11	226	345	590	2,990	2,280	2,420	1,530	1,540	885	352	189	162
12	218	342	1,450	3,400	2,700	2,270	1,460	1,450	832	339	184	159
13	215	338	1,570	7,310	2,920	2,250	1,440	1,420	816	324	182	156
14	222	330	845	14,200	2,770	2,690	1,390	1,400	845	319	180	156
15	322	325	637	9,140	2,750	2,840	1,350	1,450	806	307	180	159
16	756	333	548	16,300	2,910	2,680	1,310	1,590	769	299	176	166
17	804	326	492	15,900	3,460	2,600	1,280	1,800	741	289	176	166
18	470	306	470	11,700	3,150	2,420	1,280	1,880	703	285	176	162
19	362	304	3,110	9,170	3,390	2,260	1,320	1,750	676	277	176	162
20	330	302	5,640	8,520	2,960	2,110	1,240	1,590	647	275	176	159
21	318	298	11,100	16,800	2,580	2,110	1,190	1,480	635	273	176	159
22	310	297	4,920	20,600	2,380	2,080	1,160	1,470	609	262	176	162
23	298	293	3,460	17,100	2,280	2,080	1,130	1,490	581	262	176	162
24	290	289	9,370	20,300	2,200	2,030	1,100	1,470	562	257	180	159
25	278	286	7,400	13,500	2,090	2,070	1,100	1,460	529	248	176	156
26	278	282	5,220	10,900	2,030	2,030	1,190	1,460	518	243	180	156
27	274	278	3,740	11,800	1,980	1,950	1,190	1,440	557	238	180	156
28	270	277	2,650	9,380	2,360	1,820	1,150	1,330	559	234	180	162
29	266	271	2,010	7,830	-----	1,720	1,140	1,240	586	230	173	159
30	262	266	1,660	6,800	-----	1,640	1,210	1,210	558	228	173	162
31	258	-----	1,410	5,640	-----	1,570	-----	1,170	-----	222	173	-----
TOTAL	9,716	9,798	71,013	254,358	80,240	74,420	39,450	46,030	23,553	10,065	5,762	4,926
MEAN	313	327	2,291	8,205	2,866	2,401	1,315	1,485	785	325	186	164
MAX	804	503	11,100	20,600	4,900	4,160	1,530	1,880	1,120	523	219	184
MIN	187	262	252	859	1,980	1,570	1,100	1,170	518	222	173	156
AC-FT	19,270	19,430	140,900	504,500	159,200	147,600	78,250	91,300	46,720	19,960	11,430	9,770
CAL YR 1969	TOTAL	828,291		MEAN	2,269	MAX	26,700	MIN	187	AC-FT	1,643,000	
WTR YR 1970	TOTAL	629,331		MEAN	1,724	MAX	20,600	MIN	156	AC-FT	1,248,000	

## PEAK DISCHARGE (BASE, 7,000 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1345	13.96	15,000	1-21	2300	17.31	27,900
12-24	0815	12.68	11,300	1-24	0200	17.59	29,200
1-14	1200	14.58	16,800	1-27	1000	13.28	13,600
1-16	1600	15.79	21,200				

## SACRAMENTO RIVER BASIN

## 11394620 FALL RIVER NEAR FEATHER FALLS, CALIF.

LOCATION.--Lat 39°40'00", long 121°08'01", in NW $\frac{1}{4}$  sec.19, T.21 N., R.8 E., Plumas County, on right bank 0.5 mile downstream from Coyote Creek and 8 miles northeast of Feather Falls.

DRAINAGE AREA.--9.89 sq mi.

PERIOD OF RECORD.--July 1963 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,000 ft (from topographic map).

AVERAGE DISCHARGE.--7 years, 44.1 cfs (31,950 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,400 cfs Jan. 21 (gage height, 6.61 ft), from rating curve extended as explained below; minimum daily, 1.4 cfs Aug. 23-25.

Period of record: Maximum discharge, 3,770 cfs Dec. 22, 1964 (gage height, 10.00 ft), from rating curve extended above 200 cfs on basis of slope-area measurement of maximum flow; minimum daily, 1.4 cfs Aug. 23-25, 1970.

REMARKS.--Records fair. No regulation or diversion above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	2.8	3.2	42	112	126	44	26	12	7.1	2.8	2.3
2	2.0	2.8	3.2	38	95	104	43	25	12	6.8	2.7	2.2
3	2.0	2.8	2.9	35	87	88	42	24	11	6.5	2.6	2.1
4	1.8	2.7	3.0	33	78	81	40	23	11	6.2	2.6	2.3
5	1.8	9.8	3.0	32	73	75	39	23	11	6.0	2.5	2.8
6	1.8	7.3	3.0	29	68	70	39	22	10	5.7	2.5	2.6
7	1.8	9.5	3.0	27	63	71	37	22	10	5.6	2.4	2.4
8	2.3	9.5	3.2	31	59	78	36	22	11	5.4	2.3	2.3
9	2.5	7.0	3.5	130	55	73	35	24	13	5.4	2.3	2.2
10	2.3	6.1	5.0	190	52	69	35	26	13	5.2	2.2	2.0
11	2.2	5.8	14	120	52	65	37	25	11	5.1	2.1	1.5
12	2.2	5.6	30	150	68	64	33	24	10	5.0	2.0	1.9
13	2.2	5.6	26	400	66	65	33	24	13	4.7	1.9	2.1
14	2.5	5.3	20	780	62	75	32	24	16	4.6	1.8	2.3
15	6.0	5.0	16	400	59	75	31	23	12	4.4	1.8	2.3
16	10	5.0	14	860	64	76	31	22	11	4.2	1.8	2.3
17	8.0	5.0	12	740	67	74	30	22	10	4.1	1.8	2.2
18	4.5	5.0	13	400	61	70	29	21	9.7	4.0	1.8	2.1
19	3.5	4.5	115	320	58	66	34	20	9.4	3.8	1.7	2.2
20	3.0	4.2	228	290	56	63	30	19	8.6	3.7	1.7	2.3
21	3.0	4.2	438	850	54	60	30	19	8.6	3.6	1.7	2.3
22	2.9	4.0	204	860	52	60	28	18	8.3	3.5	1.7	2.1
23	2.9	3.7	250	640	50	59	27	18	8.0	3.4	1.4	2.0
24	2.8	3.5	400	800	49	60	26	16	7.7	3.3	1.4	2.0
25	2.8	3.4	310	340	48	59	26	16	7.4	3.2	1.4	1.8
26	2.8	3.4	250	270	48	57	27	16	7.7	3.1	1.7	1.9
27	2.8	3.4	120	360	47	54	26	15	7.7	3.1	2.2	1.9
28	2.8	3.2	80	230	73	53	25	14	8.0	3.0	2.2	1.9
29	2.8	3.4	65	180	-----	52	25	14	8.6	2.9	2.3	1.8
30	2.8	3.2	54	155	-----	49	27	13	7.4	2.8	2.3	1.8
31	2.8	-----	46	127	-----	46	-----	13	-----	2.8	2.3	-----
TOTAL	95.6	146.7	2,738.0	9,859	1,776	2,137	977	633	304.1	138.2	63.9	64.3
MEAN	3.08	4.89	88.3	318	63.4	68.9	32.6	20.4	10.1	4.46	2.06	2.14
MAX	10	9.8	438	860	112	126	44	26	16	7.1	2.8	2.8
MIN	1.8	2.7	2.9	27	47	46	25	13	7.4	2.8	1.4	1.8
AC-FT	190	291	5,430	19,560	3,520	4,240	1,940	1,260	603	274	127	128
CAL YR 1969	TOTAL 23,283.0		MEAN 63.8		MAX 889		MIN 1.8		AC-FT 46,180			
WTR YR 1970	TOTAL 18,932.8		MEAN 51.9		MAX 860		MIN 1.4		AC-FT 37,550			

## PEAK DISCHARGE (BASE, 150 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1100	4.95	682	1-16	unknown	-	unknown
12-24	0300	4.40	480	1-21	2100	6.61	1,400
1-9	unknown	-	unknown	1-23	unknown	-	unknown
1-14	unknown	-	unknown	1-27	unknown	-	unknown

NOTE.--No gage-height record Jan. 6-28, Apr. 16 to May 19.



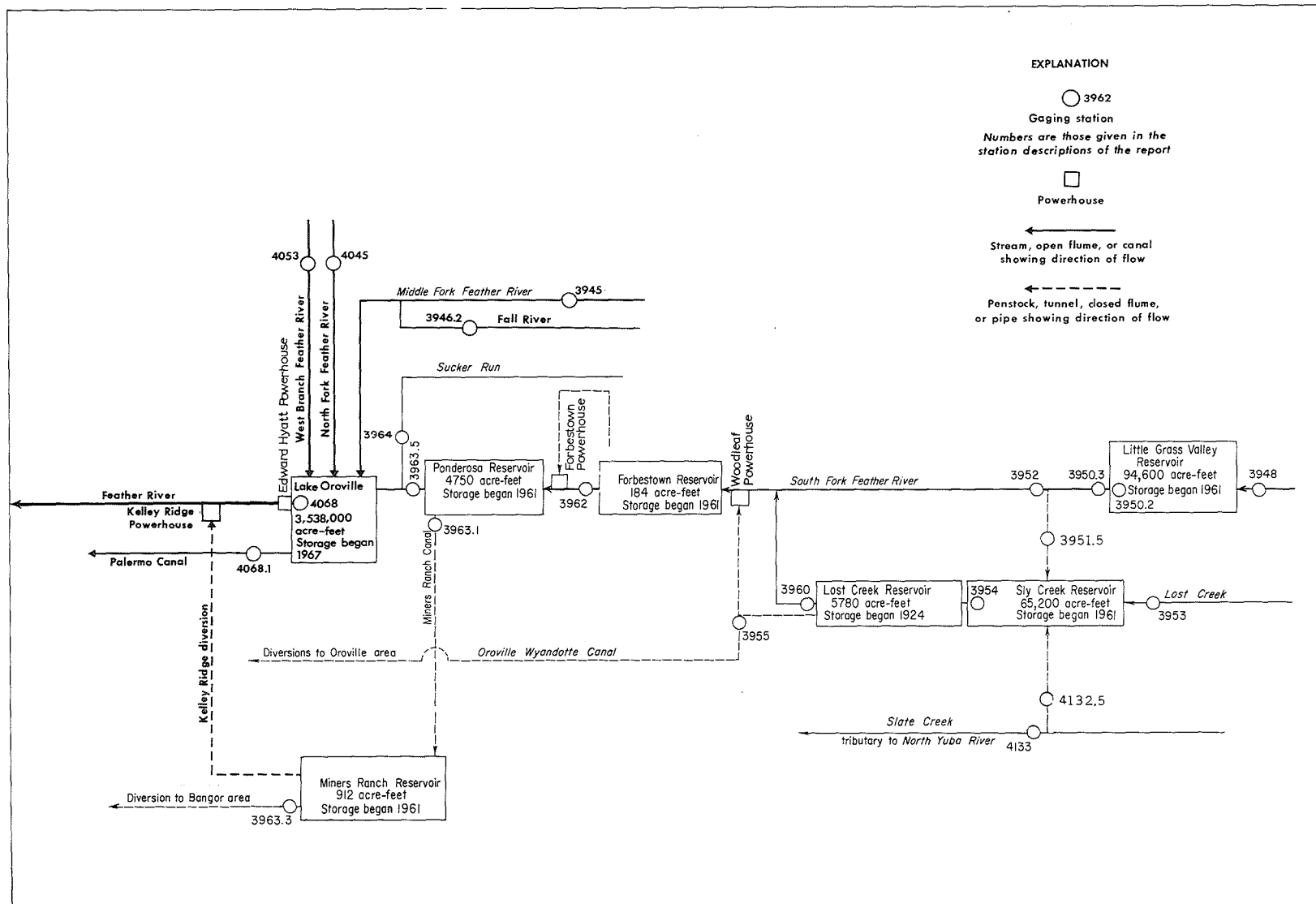


FIGURE 11.--Schematic diagram showing diversions and storage in South Fork Feather River basin.

## SACRAMENTO RIVER BASIN

## 11394800 SOUTH FORK FEATHER RIVER ABOVE LITTLE GRASS VALLEY RESERVOIR, CALIF.

LOCATION.--Lat 39°45'07", long 120°57'26", in NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.22, T.22 N., R.9 E., Plumas County, Plumas National Forest, on right bank 0.5 mile downstream from unnamed tributary, 4.5 miles upstream from Little Grass Valley Dam, and 5 miles north of LaPorte.

DRAINAGE AREA.--8.09 sq mi.

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 5,080 ft (from topographic map).

AVERAGE DISCHARGE.--10 years, 30.5 cfs (22,100 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,110 cfs Jan. 21 (gage height, 4.77 ft), from rating curve extended as explained below; minimum daily, 0.06 cfs Aug. 24, 25.

Period of record: Maximum discharge, 4,160 cfs Jan. 31, 1963 (gage height, 7.12 ft), from rating curve extended above 140 cfs on basis of slope-area measurement at gage height 5.47 ft; minimum daily, 0.06 cfs Sept. 9-13, 29, 1968, Aug. 24, 25, 1970.

REMARKS.--Records good. No storage or diversion above station. See schematic diagram of South Fork Feather River basin.

REVISIONS (WATER YEARS).--WRD Calif. 1969: 1966(M).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.30	.55	.63	36	50	36	34	48	38	3.7	.25	.11
2	.35	.55	.63	31	40	28	37	57	36	3.4	.25	.11
3	.30	.55	.63	28	38	27	38	66	32	3.0	.20	.15
4	.30	.51	.63	26	34	26	38	66	28	2.8	.20	.15
5	.35	2.6	.63	22	32	26	38	62	26	2.5	.20	.20
6	.35	2.5	.63	23	29	27	42	57	22	2.5	.20	.15
7	.35	2.5	.63	20	28	28	48	62	20	2.2	.15	.15
8	.47	2.5	.73	21	27	27	46	66	22	2.0	.15	.11
9	.47	2.2	.83	82	27	26	42	57	24	1.8	.20	.11
10	.55	2.2	.83	90	27	24	40	50	18	1.6	.15	.11
11	.73	3.0	1.1	64	29	26	36	46	16	1.6	.15	.11
12	.73	3.0	8.9	85	42	37	32	46	16	1.4	.11	.08
13	.73	3.0	21	157	40	46	32	51	20	1.2	.11	.20
14	.83	3.0	11	278	38	46	29	60	15	1.1	.11	.20
15	2.4	2.8	7.4	166	38	46	28	77	14	.83	.11	.25
16	8.0	3.7	5.9	472	37	42	27	95	13	.83	.11	.30
17	5.4	2.8	5.4	360	36	40	27	99	11	.73	.08	.35
18	2.8	2.0	4.9	233	32	37	24	90	11	.63	.08	.35
19	1.8	2.0	60	219	29	37	23	83	8.6	.55	.08	.35
20	1.2	1.8	166	219	28	38	22	74	8.0	.55	.08	.41
21	1.1	1.6	379	633	26	42	21	68	7.4	.55	.08	.47
22	.95	1.2	125	700	26	46	23	72	6.9	.47	.08	.55
23	.83	1.2	101	560	24	46	26	79	5.9	.55	.08	.55
24	.73	1.2	280	383	23	44	23	74	5.4	.55	.06	.63
25	.63	1.1	263	208	22	44	22	74	4.9	.47	.06	.41
26	.63	1.1	142	151	22	40	21	68	5.4	.41	.08	.25
27	.63	.95	95	131	22	38	22	62	4.9	.41	.08	.15
28	.63	.73	72	97	29	36	24	51	5.4	.35	.08	.20
29	.63	.73	57	85	-----	34	29	46	4.9	.35	.08	.20
30	.63	.63	48	70	-----	34	37	44	4.1	.30	.08	.20
31	.63	-----	40	59	-----	32	-----	43	-----	.30	.08	-----
TOTAL	36.43	54.20	1,900.40	5,709	875	1,106	931	1,993	453.8	39.63	3.81	7.56
MEAN	1.18	1.81	61.3	184	31.3	35.7	31.0	64.3	15.1	1.28	.12	.25
MAX	8.0	3.7	379	700	50	46	48	99	38	3.7	.25	.63
MIN	.30	.51	.63	20	22	24	21	43	4.1	.30	.06	.08
AC-FT	72	108	3,770	11,320	1,740	2,190	1,850	3,950	900	79	7.6	15
CAL YR 1969	TOTAL	18,020.55	MEAN	49.4	MAX	565	MIN	.08	ACFT	35,740		
WAT YR 1970	TOTAL	13,109.83	MEAN	35.9	MAX	700	MIN	.06	ACFT	26,000		

## PEAK DISCHARGE (BASE, 140 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1100	4.01	616	1-14	1000	3.66	430
12-25	1000	3.47	342	1-16	1400	4.00	610
1-9	2100	3.15	216	1-21	2200	4.77	1,110

## 11395020 LITTLE GRASS VALLEY RESERVOIR NEAR LAPORTE, CALIF.

LOCATION.--Lat 39°43'25", long 121°01'10", in W $\frac{1}{2}$  sec.31, T.22 N., R.9 E., Plumas County, Plumas National Forest, on right bank 300 ft upstream from dam on South Fork Feather River, 3.3 miles northwest of LaPorte.

DRAINAGE AREA.--25.8 sq mi.

PERIOD OF RECORD.--October 1961 to current year. Monthend elevation and contents only October 1961 to October 1962.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Oroville-Wyandotte Irrigation District). Prior to Nov. 1, 1962, in valve chamber in dam at same datum.

EXTREMES.--Current year: Maximum contents, 89,800 acre-ft June 17-29 (elevation, 5,044.0 ft); minimum, 49,200 acre-ft Nov. 11, 12 (elevation, 5,014.2 ft).

Period of record: Maximum contents, 96,100 acre-ft Apr. 29, 1965 (elevation, 5,047.9 ft); minimum since reservoir first filled, 48,800 acre-ft Oct. 25-28, 1968 (elevation, 5,013.8 ft).

REMARKS.--Reservoir is formed by rockfill dam. Storage began in October 1961. Total capacity, 94,700 acre-ft between elevations 4,876 ft (invert of release valve) and 5,047 ft (top of spillway gates), all of which is usable. Water is released down South Fork Feather River for power development and irrigation downstream. Records, including extremes, represent contents at 2400 hours. See schematic diagram of South Fork Feather River basin.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

5,000	34,600
5,010	44,400
5,020	55,900
5,030	68,900
5,040	83,500
5,048	96,300

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	UCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74,400	55,100	49,400	67,300	76,000	75,900	78,700	83,300	89,300	89,500	80,000	70,900
2	74,400	54,400	49,400	67,500	76,000	75,700	78,800	83,500	89,300	89,300	79,500	70,500
3	74,100	53,800	49,400	67,600	75,900	75,700	79,000	83,600	89,300	89,000	79,200	70,100
4	73,700	53,100	49,400	67,700	75,700	75,700	79,100	83,800	89,300	88,900	78,800	69,600
5	73,300	52,700	49,400	67,800	75,700	75,700	79,200	84,100	89,300	88,500	78,500	69,300
6	72,700	52,100	49,400	68,000	75,700	75,600	79,500	84,300	89,300	88,200	78,200	68,900
7	72,200	51,500	49,400	68,100	75,600	75,700	79,700	84,400	89,300	88,100	78,100	68,500
8	72,000	51,000	49,500	68,400	75,600	75,700	79,800	84,700	89,300	87,700	77,800	68,100
9	71,400	50,300	49,500	69,600	75,600	75,700	80,000	84,900	89,300	87,600	77,500	67,600
10	70,800	49,700	49,700	70,300	75,500	75,600	80,300	85,200	89,500	87,300	77,200	67,200
11	69,800	49,200	49,800	70,900	75,600	75,600	80,400	85,400	89,500	87,000	77,100	66,700
12	68,900	49,200	50,300	72,100	75,700	75,600	80,600	85,700	89,500	86,800	76,800	66,300
13	68,100	49,400	50,400	74,100	75,900	75,600	80,900	85,800	89,600	86,500	76,500	65,800
14	67,300	49,400	50,500	77,200	75,900	75,700	81,000	86,200	89,600	86,300	76,200	65,400
15	66,900	49,400	50,500	77,600	75,700	75,700	81,100	86,300	89,600	86,000	75,900	64,900
16	66,400	49,400	50,500	79,700	75,900	75,700	81,300	86,600	89,600	85,700	75,600	64,500
17	65,600	49,400	50,600	79,500	75,900	75,700	81,600	87,000	89,800	85,500	75,300	63,900
18	64,900	49,400	50,700	78,500	75,700	75,700	81,600	87,100	89,800	85,200	75,000	63,600
19	64,200	49,400	51,600	78,200	75,700	75,900	81,900	87,300	89,800	85,100	74,900	63,000
20	63,600	49,400	53,200	78,100	75,600	76,000	81,900	87,600	89,800	84,700	74,600	62,600
21	62,900	49,400	56,800	80,700	75,600	76,300	82,000	87,700	89,800	84,300	74,300	62,100
22	62,100	49,400	57,800	80,600	75,600	76,500	82,200	87,900	89,800	83,800	74,000	61,600
23	61,500	49,400	59,300	81,100	75,500	76,800	82,300	88,100	89,800	83,500	73,700	61,200
24	60,800	49,400	61,900	80,000	75,500	77,100	82,500	88,200	89,800	83,000	73,400	60,700
25	60,000	49,400	64,100	78,700	75,500	77,200	82,500	88,400	89,800	82,600	73,100	60,300
26	59,400	49,400	65,100	77,900	75,500	77,500	82,800	88,500	89,800	82,300	72,800	59,800
27	58,600	49,400	65,800	77,600	75,500	77,800	82,900	88,700	89,800	81,900	72,500	59,300
28	58,000	49,400	66,200	77,100	75,700	77,900	82,900	88,900	89,800	81,400	72,200	58,900
29	57,200	49,400	66,500	76,800	-----	78,100	83,000	89,000	89,800	81,100	72,100	58,400
30	56,500	49,400	66,800	76,500	-----	78,400	83,200	89,000	89,600	80,700	71,700	58,000
31	55,700	-----	67,100	76,200	-----	78,500	-----	89,200	-----	80,400	71,400	-----
MAX	74,400	55,100	67,100	81,100	76,000	78,500	83,200	89,200	89,800	89,500	80,000	70,900
MIN	55,700	49,200	49,400	67,300	75,500	75,600	78,700	83,300	89,300	80,400	71,400	58,000
(a)	5,019.8	5,014.3	5,028.6	5,035.0	5,034.7	5,036.6	5,039.8	5,043.6	5,043.9	5,037.9	5,031.7	5,021.6
(b)	-18,900	-6,300	+17,700	+9,100	-500	+2,800	+4,700	+6,000	+400	-9,200	-9,000	-13,300

CAL YR 1969 MAX 92,700 MIN 49,200 b +12,400  
WAT YR 1970 MAX 89,800 MIN 49,200 b -16,600

a Elevation, in feet, at end of month.  
b Change in contents, in acre-feet.

## SACRAMENTO RIVER BASIN

## 11395030 SOUTH FORK FEATHER RIVER BELOW LITTLE GRASS VALLEY DAM, CALIF.

LOCATION.--Lat 39°43'26", long 121°01'16", in SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.31, T.22 N., R.9 E, Plumas County, Plumas National Forest, on left bank 0.1 mile downstream from Little Grass Valley Dam, 0.7 mile downstream from Ice Creek, and 3.5 miles northwest of LaPorte.

DRAINAGE AREA.--25.9 sq mi.

PERIOD OF RECORD.--October 1927 to September 1933 (published as "near LaPorte"), October 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,809.0 ft above mean sea level. Prior to Oct. 1, 1960, at site 0.4 mile upstream at different datum. Oct. 1, 1960, to Oct. 30, 1962, at present site and datum. Nov. 1, 1962, to May 31, 1966, at site on outlet works at base of Little Grass Valley Dam 0.1 mile upstream at datum 4,850.00 ft above mean sea level.

AVERAGE DISCHARGE (adjusted for change in contents in Little Grass Valley Reservoir).--16 years, 92.0 cfs (66,650 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 2,590 cfs Jan. 22 (gage height, 12.78 ft), from rating curve extended above 530 cfs on basis of discharge obtained from established spillway rating curve; minimum daily, 3.0 cfs Dec. 3-8.

Period of record: Maximum discharge, 4,250 cfs Feb. 1, 1963; minimum, 0.2 cfs Oct. 28-31, Nov. 2, 1961.

REMARKS.--Records good. Flow regulated by Little Grass Valley Reservoir (see sta 11395020) beginning in October 1961. No diversion above station. See schematic diagram of South Fork Feather River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.4	338	3.8	6.2	275	196	8.1	8.2	7.8	120	191	186
2	9.4	338	3.8	6.2	225	179	8.1	8.4	14	120	191	186
3	118	335	3.0	6.2	189	153	8.1	8.8	18	120	191	186
4	218	335	3.0	6.2	168	144	8.1	9.0	18	120	149	186
5	218	335	3.0	6.2	151	132	8.1	9.0	18	120	117	186
6	218	335	3.0	6.2	137	117	8.2	9.0	18	120	117	186
7	216	335	3.0	6.0	124	116	8.4	8.8	18	118	117	186
8	216	335	3.0	6.2	111	142	8.4	8.8	18	118	117	203
9	216	335	4.2	9.4	109	124	8.5	9.0	18	118	117	216
10	319	335	5.6	10	104	127	8.7	9.0	18	118	117	216
11	407	172	5.6	8.3	104	114	8.8	8.8	18	118	117	216
12	407	7.3	6.6	10	138	105	8.7	8.7	18	118	117	216
13	407	4.0	6.9	19	189	101	8.5	8.7	18	118	117	216
14	404	4.0	6.0	286	186	117	8.5	8.8	19	118	117	216
15	404	4.0	5.8	690	168	132	8.4	8.8	14	118	117	216
16	400	4.0	5.8	1,120	168	138	8.4	9.0	7.7	118	117	216
17	400	4.0	5.8	1,330	189	144	8.2	8.8	7.5	118	117	216
18	365	4.0	5.8	1,040	166	140	8.1	8.7	7.5	118	117	216
19	350	4.0	12	896	144	62	8.1	8.4	7.5	118	117	216
20	379	3.8	19	822	124	8.1	8.1	8.2	7.5	148	117	216
21	356	3.8	31	1,180	111	8.1	8.1	8.2	7.5	191	116	216
22	347	3.8	9.4	2,400	106	8.1	8.1	8.2	7.5	191	116	216
23	347	3.8	11	1,970	101	8.2	8.1	8.2	7.4	191	116	216
24	344	3.8	21	2,230	91	8.4	8.1	8.1	7.4	191	116	216
25	344	3.8	15	1,390	85	8.4	8.1	8.1	7.4	191	116	216
26	341	3.8	9.1	1,060	83	8.4	8.1	8.1	7.4	191	116	216
27	341	3.8	7.7	930	81	8.2	8.1	8.0	7.4	191	116	216
28	341	3.8	7.2	690	104	8.2	8.1	8.0	7.4	191	116	216
29	341	3.8	6.9	521	-----	8.2	8.1	8.0	16	191	116	216
30	341	3.8	6.6	400	-----	8.2	8.1	7.8	80	191	116	216
31	341	-----	6.4	336	-----	8.1	-----	7.8	-----	160	141	-----
TOTAL	9,464.8	3,605.1	246.0	19,397.1	3,931	2,581.6	247.5	263.4	445.9	4,472	3,895	6,257
MEAN	305	120	7.94	626	140	83.3	8.25	8.50	14.9	144	126	209
MAX	407	338	31	2,400	275	196	8.8	9.0	80	191	191	216
MIN	9.4	3.8	3.0	6.0	81	8.1	8.1	7.8	7.4	118	116	186
AC-FT	18,770	7,150	488	38,470	7,800	5,120	491	522	884	8,870	7,730	12,410

CAL YR 1969 TOTAL 57,801.4 MEAN 158 MAX 1,100 MIN 3.0 ACFT 114,600 MEAN a 175 AC-FT a 127,000  
WAT YR 1970 TOTAL 54,806.4 MEAN 150 MAX 2,400 MIN 3.0 ACFT 108,700 MEAN a 127 AC-FT a 92,200

a Adjusted for change in contents in Little Grass Valley Reservoir.

## 11395200 SOUTH FORK FEATHER RIVER BELOW DIVERSION DAM, NEAR STRAWBERRY VALLEY, CALIF.

LOCATION.--Lat 39°38'51", long 121°07'04", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.30, T.21 N., R.8 E., Plumas County, Plumas National Forest, on right bank 0.1 mile downstream from diversion dam, 3.1 miles upstream from Rock Creek, and 5.8 miles north of Strawberry Valley.

DRAINAGE AREA.- 37.7 sq mi.

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder and since Nov. 7, 1962, concrete control. Datum of gage is 3,535.02 ft above mean sea level (levels by Oroville-Wyandotte Irrigation District).

AVERAGE DISCHARGE (adjusted for diversion to South Fork tunnel).--10 years, 150 cfs (108,700 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 3,770 cfs Jan. 22 (gage height, 10.64 ft), from rating curve extended above 560 cfs on basis of computation of flow over diversion dam of peak flow; minimum daily, 2.8 cfs Jan. 9, 11, 12.

Period of record: Maximum discharge, 6,330 cfs Jan. 31, 1963 (gage height, 13.21 ft), from rating curve extended above 500 cfs on basis of computation of maximum flow over diversion dam; minimum daily, 0.3 cfs Dec. 25, 1962, to Jan. 2, 1963, Mar. 1-3, 1963.

REMARKS.--Records good. Flow regulated by Little Grass Valley Reservoir (see sta 11395020). South Fork diversion tunnel (maximum capacity about 600 cfs) 500 ft upstream, diverts to Sly Creek Reservoir (see sta 11395400); diversion began in November 1961. See schematic diagram of South Fork Feather River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.2	11	4.3	3.5	348	4.3	3.6	9.8	9.8	9.5	9.2	9.5
2	9.6	11	4.3	3.5	177	4.0	3.6	9.8	9.8	9.5	9.2	9.5
3	9.6	11	4.3	3.5	4.0	4.0	3.6	9.8	9.8	9.5	9.2	9.5
4	10	8.6	4.3	3.5	4.0	4.0	3.6	9.8	9.8	9.5	9.2	9.8
5	10	5.2	4.3	3.5	4.0	4.0	3.6	9.8	9.8	9.2	9.2	9.8
6	10	5.2	4.3	14	3.8	3.8	3.6	9.8	9.8	9.2	9.2	9.8
7	12	5.2	4.3	3.0	3.8	3.8	3.6	9.8	9.8	9.2	9.2	9.8
8	13	5.2	4.3	5.4	3.8	3.8	3.6	9.8	9.8	9.5	9.2	9.8
9	10	5.2	4.3	2.8	3.8	3.8	3.6	9.8	9.8	9.5	9.2	9.2
10	10	5.2	4.3	3.0	3.8	3.8	3.6	9.8	9.8	9.5	9.2	9.0
11	22	5.2	4.3	2.8	3.8	3.8	3.6	9.8	9.8	9.8	9.2	9.0
12	11	8.9	4.6	2.8	4.0	3.8	3.6	9.8	9.8	10	9.2	8.8
13	11	4.0	4.6	38	4.0	3.8	3.6	9.8	9.8	10	9.2	8.8
14	12	4.0	4.6	846	4.0	3.8	3.6	9.8	9.8	9.8	9.2	8.8
15	12	4.3	4.3	766	4.0	3.8	3.6	9.8	9.8	9.8	9.2	8.8
16	15	4.3	4.3	2,000	4.0	3.8	3.6	9.8	9.8	9.5	9.2	9.0
17	13	4.3	4.3	2,240	4.0	3.8	3.6	9.8	9.5	9.5	9.2	9.0
18	13	4.3	4.6	1,600	3.8	3.8	3.6	9.8	9.5	9.2	9.2	9.0
19	13	6.8	4.9	1,260	3.8	3.8	3.6	9.8	9.5	9.2	9.5	9.0
20	13	4.3	4.9	1,220	3.6	3.8	3.6	9.8	9.5	9.5	9.5	9.0
21	33	4.3	107	2,320	3.6	3.8	3.6	9.8	9.5	9.5	9.5	9.0
22	62	4.3	14	3,030	3.6	3.8	3.6	9.8	9.5	9.5	9.5	9.0
23	50	4.3	3.8	2,540	3.6	3.8	3.6	9.8	9.5	9.2	9.5	9.0
24	34	4.3	24	2,720	3.4	3.8	3.6	9.8	9.5	9.2	9.5	8.8
25	12	4.3	4.0	1,780	3.4	3.6	3.6	9.8	9.2	9.2	9.5	8.8
26	11	4.3	3.8	1,220	3.4	3.6	3.6	9.8	9.2	9.2	9.5	8.8
27	11	4.3	3.8	1,250	3.6	3.6	3.6	9.8	9.2	9.2	9.5	8.8
28	11	4.3	3.8	908	4.0	3.6	3.6	9.8	9.5	9.2	9.5	8.8
29	11	4.3	3.5	676	-----	3.6	3.6	9.8	9.5	9.5	9.5	8.8
30	11	4.3	3.8	535	-----	3.6	6.1	9.8	9.5	9.5	9.5	8.8
31	11	-----	3.8	429	-----	3.6	-----	9.8	-----	9.5	9.5	-----
TOTAL	495.4	166.2	263.7	27,429.3	623.6	117.7	110.5	303.8	288.9	293.1	289.1	273.5
MEAN	16.0	5.54	8.51	885	22.3	3.80	3.68	9.80	9.63	9.45	9.33	9.12
MAX	62	11	107	3,030	348	4.3	6.1	9.8	9.8	10	9.5	9.8
MIN	9.2	4.0	3.5	2.8	3.4	3.6	3.6	9.8	9.2	9.2	9.2	8.8
AC-FT	983	330	523	54,410	1,240	233	219	603	573	581	573	542
MEAN a	312	123	124	1,050	198	155	36.6	28.8	27.7	147	130	211
AC-FT a	19,170	7,300	7,620	64,550	11,010	9,510	2,180	1,770	1,650	9,040	8,000	12,540
(b)	18,190	6,970	7,100	10,140	9,770	9,280	1,960	1,170	1,080	8,460	7,430	12,020

CAL YR 1969 TOTAL 27,007.3 MEAN 74.0 MAX 1,940 MIN 3.5 ACFT 53,570 MEAN a 231 AC-FT a 167,400  
WAT YR 1970 TOTAL 30,654.8 MEAN 84.0 MAX 3,030 MIN 2.8 ACFT 60,800 MEAN a 213 AC-FT a 154,300

a Adjusted for diversion to South Fork tunnel.

b Diversion, in acre-feet, from South Fork Feather River to South Fork diversion tunnel.

## SACRAMENTO RIVER BASIN

11395300 LOST CREEK ABOVE SLY CREEK RESERVOIR, CALIF.

LOCATION.--Lat 39°37'05", long 121°05'19", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.4, T.20 N., R.8 E., Plumas County, Plumas National Forest, on left bank 0.4 mile upstream from French Creek and 3.8 miles north of Strawberry Valley.

DRAINAGE AREA.--14.1 sq mi.

PERIOD OF RECORD.--October 1960 to September 1970 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 3,570 ft (from topographic map).

AVERAGE DISCHARGE.--10 years, 58.0 cfs (42,020 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 2,150 cfs Jan. 21 (gage height, 6.16 ft), from rating curve extended as explained below; minimum daily, 4.9 cfs Sept. 25-30.

Period of record: Maximum discharge, 5,640 cfs Dec. 22, 1964 (gage height, 8.48 ft, from floodmarks in gage well, 9.66 ft, from outside floodmarks), from rating curve extended above 250 cfs on basis of slope-area measurements at gage heights 5.97 and 7.87 ft; minimum, 3.2 cfs Oct. 7-10, 1961.

REMARKS.--Records good. No regulation or diversion above station. See schematic diagram of South Fork Feather River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	UCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.3	9.1	7.3	53	160	268	54	33	18	12	7.6	5.7
2	8.3	9.1	7.3	49	139	170	53	32	18	12	7.6	5.4
3	8.3	9.1	7.3	44	125	136	49	31	18	12	7.6	5.4
4	8.3	8.7	6.9	40	115	122	48	30	17	12	7.6	5.7
5	8.3	22	6.9	38	106	110	46	30	17	11	7.6	6.0
6	8.3	17	6.9	36	97	103	45	29	16	11	7.3	5.7
7	8.3	20	6.9	34	92	100	44	29	16	11	7.3	5.7
8	9.8	20	7.3	39	86	118	43	29	17	11	7.3	5.4
9	10	14	7.6	183	82	108	42	32	20	10	7.3	5.4
10	9.5	12	10	298	78	102	44	33	21	10	7.3	5.4
11	9.1	12	27	178	77	94	43	32	18	10	6.9	5.1
12	9.1	12	68	213	97	89	41	31	18	10	6.9	5.1
13	9.1	12	63	608	100	91	42	31	19	9.8	6.9	5.1
14	10	10	32	1,200	86	106	41	31	24	9.8	6.6	5.1
15	22	9.5	25	608	86	105	41	29	18	9.8	6.6	5.4
16	34	9.5	22	1,360	91	102	41	28	17	9.8	6.6	5.1
17	28	9.1	19	1,120	100	98	40	27	16	9.5	6.3	5.1
18	14	9.1	20	607	85	89	38	27	16	9.5	6.3	5.1
19	11	9.1	165	470	81	86	41	26	14	9.5	6.3	5.4
20	10	8.7	314	450	77	82	38	25	14	9.1	6.3	5.4
21	9.8	8.7	645	1,280	74	78	38	24	14	9.1	6.3	5.4
22	9.8	8.3	188	1,300	72	75	37	24	14	9.1	6.0	5.1
23	9.5	8.3	225	990	70	75	35	24	13	9.1	6.0	5.1
24	9.1	8.3	658	1,250	69	75	34	23	13	8.7	6.0	5.1
25	9.1	8.3	432	625	68	74	33	22	12	8.7	6.0	4.9
26	9.1	8.3	222	414	69	72	35	22	13	8.7	5.7	4.9
27	9.1	8.0	143	553	70	69	35	21	13	8.3	5.7	4.9
28	9.1	7.6	103	350	117	65	33	21	14	8.3	5.7	4.9
29	9.1	7.3	82	265	-----	63	33	20	14	8.3	5.7	4.9
30	9.1	7.3	69	212	-----	60	35	20	13	8.0	5.7	4.9
31	9.1	-----	60	184	-----	58	-----	19	-----	8.0	5.7	-----
TOTAL	345.6	322.4	3,656.4	15,051	2,569	3,043	1,222	835	485	303.1	204.7	157.8
MEAN	11.1	10.7	118	486	91.8	98.2	40.7	26.9	16.2	9.78	6.60	5.26
MAX	34	22	658	1,360	160	268	54	33	24	12	7.6	6.0
MIN	8.3	7.3	6.9	34	68	58	33	19	12	8.0	5.7	4.9
AC-FT	686	639	7,250	29,850	5,100	6,040	2,420	1,660	962	601	406	313
CAL YR 1969	TOTAL	33,510.8	MEAN	91.8	MAX	1,770	MIN	6.9	ACFT	66,470		
WAT YR 1970	TOTAL	28,195.0	MEAN	77.2	MAX	1,360	MIN	4.9	ACFT	55,920		

## PEAK DISCHARGE (BASE, 300 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1130	4.90	995	1-21	2230	6.16	2,150
12-24	0300	4.79	918	1-23	2400	6.11	2,090
1- 9	2130	3.95	490	1-27	0330	4.58	789
1-14	1030	5.75	1,720	3- 1	1000	3.61	357
1-16	0800	5.86	1,820				

## 11395400 SLY CREEK RESERVOIR NEAR STRAWBERRY VALLEY, CALIF.

LOCATION.--Lat 39°35'01", long 121°06'45", in NW $\frac{1}{4}$  sec.20, T.20 N., R.8 E., Butte County, Plumas National Forest, on right bank 100 ft upstream from dam on Lost Creek, 1.4 miles northwest of Strawberry Valley.

DRAINAGE AREA.--24.0 sq mi.

PERIOD OF RECORD.--November 1961 to current year (fragmentary prior to Mar. 14, 1962).

GAGE.--Nonrecording gage read once daily. Datum of gage is at mean sea level (levels by Oroville-Wyandotte Irrigation District). Prior to Sept. 30, 1966, water-stage recorder in valve chamber inside dam at same datum.

EXTREMES.--Current year: Maximum contents, 60,500 acre-ft May 21 (elevation, 3,522.4 ft); minimum, 20,300 acre-ft Dec. 19 (elevation, 3,432.3 ft).

Period of record: Maximum contents, 65,500 acre-ft June 2-5, 11, 12, 1962, Apr. 7, 1963 (elevation, 3,531.5 ft); minimum, 8,430 acre-ft Jan. 28, 29, 1966 (elevation, 3,385.5 ft).

REMARKS.--Reservoir is formed by earthfill dam. Storage began in November 1961. Total capacity, 65,200 acre-ft between elevations 3,285 ft (invert of outlet) and 3,531 ft (top of spillway gate) all of which is available for release. Water is diverted into reservoir from South Fork Feather River through South Fork diversion tunnel and from North Yuba River basin through Slate Creek tunnel. Records, including extremes, show contents at time nonrecording gage was read. See schematic diagram of South Fork Feather River basin.

COOPERATION.--Reservoir nonrecording gage readings furnished by Oroville-Wyandotte Irrigation District.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

3,420	16,600
3,450	26,300
3,480	38,500
3,510	53,400
3,532	66,200

## CONTENTS, IN ACRE-FEET, AT 1600, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36,400	35,100	27,600	36,800	57,000	55,700	54,700	58,600	59,600	53,100	49,500	39,600
2	35,600	35,100	27,200	36,400	56,800	56,300	55,200	58,600	59,400	52,900	49,700	39,300
3	34,800	35,200	26,700	36,100	57,200	56,500	55,800	58,600	59,300	52,800	49,700	39,200
4	35,000	35,600	26,200	35,600	57,200	57,000	55,900	58,800	59,200	52,400	49,500	38,700
5	34,600	35,900	25,800	34,900	57,500	56,800	56,200	58,700	59,000	52,200	49,300	38,200
6	34,100	36,200	25,400	34,500	57,500	56,600	56,500	59,000	58,900	52,400	49,000	38,400
7	33,600	36,400	25,200	34,000	57,500	56,400	56,800	59,000	58,800	52,300	48,700	37,900
8	33,500	36,600	24,400	33,300	57,500	56,400	55,900	59,100	58,800	52,300	48,600	37,700
9	33,100	36,800	23,900	33,000	57,400	56,400	56,300	59,200	58,600	52,000	48,600	37,500
10	32,700	37,000	23,400	35,100	57,400	56,300	56,900	59,500	58,400	51,800	48,400	37,200
11	32,600	37,300	23,100	36,700	57,400	56,200	57,400	59,800	58,100	51,800	48,300	37,000
12	32,500	36,900	23,400	37,900	57,400	55,900	57,900	59,700	57,800	51,800	47,900	36,800
13	32,400	36,500	23,800	40,800	57,700	55,700	58,200	59,700	57,700	51,700	47,800	37,000
14	32,800	35,900	23,400	46,100	57,600	55,500	58,300	59,700	57,700	51,600	47,100	37,100
15	33,000	35,500	22,700	49,700	57,600	56,100	58,300	59,800	57,600	51,600	46,700	37,100
16	34,000	35,000	21,900	53,800	57,500	56,200	58,300	59,900	57,800	51,000	46,200	37,200
17	33,600	34,800	21,300	56,300	57,800	56,400	58,700	60,100	57,500	50,700	46,300	36,800
18	34,300	33,800	20,500	58,000	57,200	56,200	58,700	60,300	57,200	50,400	46,100	36,800
19	34,400	33,400	20,300	57,900	57,200	55,900	58,700	60,400	57,100	50,300	45,200	36,700
20	34,300	33,000	21,300	57,800	57,100	55,200	58,800	60,400	57,000	50,300	44,600	36,900
21	34,300	32,700	24,800	58,200	57,000	54,900	58,800	60,500	56,100	50,000	44,200	37,000
22	34,300	32,200	25,900	58,700	56,600	54,400	58,700	60,400	56,200	50,000	43,800	36,800
23	33,400	31,700	26,400	58,200	56,400	53,900	58,700	60,300	56,200	50,000	43,500	36,800
24	33,400	31,200	29,800	58,200	56,100	53,200	58,800	60,200	55,000	49,800	43,200	36,800
25	33,500	30,500	32,500	58,000	55,700	52,700	58,600	60,300	54,700	49,800	42,600	36,700
26	33,600	29,600	34,700	57,600	55,600	52,100	58,700	60,300	54,400	49,800	42,000	36,500
27	33,600	29,700	36,000	57,800	55,200	52,200	58,500	60,100	54,200	50,100	41,600	36,600
28	33,700	29,200	36,300	57,500	54,800	52,700	58,600	60,100	54,100	49,900	41,300	36,800
29	34,000	28,700	37,100	57,300	-----	53,100	58,600	60,000	53,900	49,700	40,700	36,600
30	34,300	28,200	37,100	57,200	-----	53,700	58,600	59,800	53,400	49,600	40,500	36,600
31	34,100	-----	37,000	57,100	-----	54,300	-----	59,800	-----	49,500	40,200	-----
MAX	36,400	37,300	37,100	58,700	57,800	57,000	58,800	60,500	59,600	53,100	49,700	39,600
MIN	32,400	28,200	20,300	33,000	54,800	52,100	54,700	58,600	53,400	49,500	40,200	36,500
(a)	3,470.0	3,455.1	3,476.6	3,516.5	3,512.4	3,511.6	3,519.2	3,521.3	3,510.0	3,502.6	3,483.6	3,475.7
(b)	-3,100	-5,900	+8,800	+20,100	-2,300	-500	+4,300	+1,200	-6,400	-3,900	-9,300	-3,600

CAL YR 1969 MAX 60,500 MIN 20,200 b +4,200  
WAT YR 1970 MAX 60,500 MIN 20,300 b -600

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

## SACRAMENTO RIVER BASIN

11395500 OROVILLE-WYANDOTTE CANAL NEAR CLIPPER MILLS, CALIF.

LOCATION.--Lat 39°33'15", long 121°11'31", in NE $\frac{1}{4}$  sec.33, T.20 N., R.7 E., Butte County, in concrete valve house at head of canal, 2.5 miles north of Clipper Mills.

PERIOD OF RECORD.--October 1927 to September 1941 (published as Forbestown Ditch), October 1954 to current year. Monthly discharge only for October 1953 to September 1961, published with records for Lost Creek near Clipper Mills.

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 3,166.0 ft above mean sea level (levels by Oroville-Wyandotte Irrigation District). Prior to Sept. 30, 1941, nonrecording gages and Oct. 1, 1941, to Nov. 16, 1962, water-stage recorder at sites at different datums 4 miles upstream in abandoned portion of canal 0.3 mile downstream from Lost Creek Dam.

AVERAGE DISCHARGE.--31 years, 17.8 cfs (12,900 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 43 cfs Aug. 9 to Sept. 9, 1937; no flow at times in many years.

REMARKS.--Records good. Water is discharged to canal through valve in Woodleaf penstock. Prior to Nov. 16, 1962, canal diverted from Lost Creek Dam. Water is used for irrigation and domestic supply. See schematic diagram of South Fork Feather River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	8.5	7.5	1.8	.82	.75	.82	.55	10	12	17	16
2	20	8.6	7.3	3.1	.82	.71	.82	.55	11	12	16	16
3	20	8.0	7.0	3.1	.75	.68	.82	.55	12	12	16	16
4	19	8.3	7.2	3.3	.75	.68	.82	.55	11	12	17	16
5	18	8.0	8.1	3.8	.75	.68	.82	.55	11	12	20	18
6	17	6.3	8.3	3.9	.68	.68	.82	.55	12	12	20	18
7	19	5.1	7.2	3.9	.68	.68	.89	.55	12	12	20	18
8	20	4.8	7.3	4.0	.68	.68	.89	.55	11	12	20	18
9	17	4.3	8.0	3.7	.62	.68	.89	.55	11	12	18	19
10	17	4.0	8.0	3.3	.62	.68	.89	.55	11	12	19	20
11	17	4.0	8.1	3.1	.62	.68	.82	.55	11	12	18	19
12	17	5.4	3.6	3.0	.62	.68	.82	.55	11	12	18	18
13	16	5.2	0	2.8	.62	.68	.82	.55	11	11	18	19
14	16	4.7	0	3.7	.62	.68	.73	.55	11	14	18	19
15	15	4.4	0	5.5	.62	.68	.49	.48	11	15	18	19
16	14	4.4	2.2	5.7	.68	.68	.49	.48	11	14	18	18
17	13	4.4	3.4	2.7	.75	.68	.43	.48	11	15	17	16
18	10	4.2	3.6	.89	.75	.68	.43	5.8	12	15	17	16
19	6.3	3.8	3.6	.89	.68	.68	.43	8.9	12	16	17	16
20	6.4	6.0	3.2	.89	.68	.68	.43	8.8	12	16	17	16
21	5.4	7.2	3.0	.82	.68	.68	.43	9.4	12	17	18	14
22	8.3	6.6	2.9	.82	.62	.68	.43	9.4	12	17	18	14
23	11	5.5	2.9	.82	.62	.68	.37	9.4	12	16	18	16
24	11	5.7	3.3	.89	.68	.68	.37	9.2	12	16	18	15
25	11	7.0	3.8	.89	.62	.68	.37	9.0	11	16	17	14
26	10	8.5	3.8	.89	.62	.68	.37	9.0	12	17	18	14
27	9.6	8.1	3.6	.82	.68	.75	.37	8.9	12	16	17	15
28	9.1	7.8	3.2	.82	.68	.75	.31	9.0	12	16	17	14
29	8.6	7.2	2.9	.82	-----	.75	.43	8.8	12	16	17	14
30	9.0	7.5	2.6	.82	-----	.75	.49	9.2	12	16	18	14
31	9.3	-----	2.1	.82	-----	.75	-----	8.8	-----	16	17	-----
TOTAL	421.0	183.5	137.7	72.30	19.01	21.53	18.31	132.74	344	439	552	495
MEAN	13.6	6.12	4.44	2.33	.68	.69	.61	4.28	11.5	14.2	17.8	16.5
MAX	21	8.6	8.3	5.7	.82	.75	.89	9.4	12	17	20	20
MIN	5.4	3.8	0	.82	.62	.68	.31	.48	10	11	16	14
AC-FT	835	364	273	143	38	43	36	263	682	871	1,090	982

CAL YR 1969 TOTAL 3,110.75 MEAN 8.52 MAX 25 MIN 0 ACFT 6,170  
WAT YR 1970 TOTAL 2,836.09 MEAN 7.77 MAX 21 MIN 0 ACFT 5,630



## SACRAMENTO RIVER BASIN

841

## 11396000 LOST CREEK NEAR CLIPPER MILLS, CALIF.

LOCATION.--Lat 39°34'25", long 121°08'26", in SW $\frac{1}{4}$  sec.24, T.20 N , R.7 E., Butte County, Plumas National Forest, on left bank 0.3 mile downstream from Lost Creek Reservoir, and 2.8 miles north of Clipper Mills.

DRAINAGE AREA.--30.0 sq mi.

PERIOD OF RECORD.--October 1927 to September 1941, October 1948 to current year. Records for Woodleaf powerplant from February 1963 to September 1966 in files of Geological Survey.

GAGE.--Water-stage recorder. Altitude of gage is 3,170 ft (from topographic map).

AVERAGE DISCHARGE.--27 years (1927-41, 1948-61, prior to regulation by Sly Creek Reservoir), 73.0 cfs (52,850 acre-ft per year). 9 years (1961-70), 33.1 cfs (23,980 acre-ft per year), unadjusted.

EXTREMES.--Current year: Maximum discharge, 2,680 cfs Jan. 22 (gage height, 5.58 ft); minimum daily, 0.02 cfs Oct. 5, 6, Nov. 3, 4.

Period of record: Maximum discharge, 5,000 cfs Dec. 22, 1955 (gage height, 6.90 ft); no flow at times in some years.

REMARKS.--Records fair. Flow regulated by Sly Creek Reservoir (see sta 11395400) 1.5 miles upstream and Lost Creek Reservoir 0.3 mile upstream (usable capacity, 5,920 acre-ft with flashboards). Water is diverted into Sly Creek Reservoir through South Fork diversion tunnel from South Fork Feather River and through Slate Creek tunnel from North Yuba River basin. Woodleaf tunnel diverts from Lost Creek Reservoir to Woodleaf powerhouse. Oroville-Wyandotte Canal (see sta 11395500) diverts from Woodleaf penstock for irrigation and domestic use. Records represent seepage, release, or spill from Lost Creek Dam to Lost Creek. See schematic diagram of South Fork Feather River basin.

REVISIONS.--WRD Calif. 1968: 1967.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.8	.04	.04	.22	2.5	2.4	.24	1.6	1.1	.58	.46	.58
2	5.5	.04	.04	.18	2.3	1.0	.24	1.7	1.1	.52	.43	.55
3	4.4	.02	.04	.16	18	69	.22	1.6	1.1	.52	.43	.55
4	.14	.02	.04	.14	99	.52	.22	1.5	1.1	.52	.43	.52
5	.02	.24	.05	.14	110	.37	.20	1.5	1.1	.49	.43	.52
6	.02	.09	.05	.12	134	.34	.20	1.3	1.1	.49	.43	.52
7	.03	.16	.05	.12	110	.31	.80	1.2	1.0	.58	.43	.49
8	.09	.10	.10	.20	76	.52	43	1.2	1.0	.66	.43	.49
9	.08	.07	.09	1.4	54	.46	36	1.2	.94	.66	.43	.46
10	.08	.06	.24	1.8	30	.43	24	1.1	.90	.66	.49	.46
11	.07	.06	.57	.90	10	.40	3.6	.98	.90	.66	.55	.46
12	.07	.05	.74	1.0	64	.37	.26	.94	.90	.62	.55	.46
13	.07	.04	.31	3.8	278	.37	.31	.94	.90	.62	.55	.46
14	.10	.04	.16	7.8	320	.34	.28	.90	.82	.62	.55	.46
15	.26	.04	.11	3.8	272	.31	.26	.90	.69	.62	.58	.43
16	.20	.06	.09	6.4	282	.28	.26	.90	.36	.58	.58	.43
17	.11	.05	.09	103	388	.28	.24	.86	.82	.58	.58	.43
18	.09	.05	.12	784	171	.26	.24	.86	.78	.58	.55	.43
19	.08	.05	1.2	752	53	.26	.26	.82	.74	.52	.52	.43
20	.08	.05	1.5	632	.81	.24	.22	.78	.74	.49	.55	.40
21	.08	.05	3.0	1,220	.34	.24	.42	.78	.64	.49	.55	.40
22	6.0	.05	.74	2,240	.28	.24	.82	.78	.28	.49	.55	.37
23	11	.05	1.6	1,510	.24	.24	.78	.78	.74	.49	.55	.37
24	11	.05	3.2	2,060	.24	.24	.82	.74	.74	.49	.52	.37
25	11	.05	1.5	1,150	.20	.24	1.3	.78	.70	.49	.55	.34
26	10	.04	.86	728	.20	.22	1.6	.86	.70	.46	.52	.31
27	11	.04	.62	752	.18	.24	1.4	.90	.66	.46	.52	.31
28	9.1	.04	.43	471	.33	.22	1.2	.90	.66	.46	.52	.37
29	.19	.04	.34	220	-----	.22	1.5	1.1	.62	.46	.52	.37
30	.04	.04	.28	84	-----	.24	1.9	1.2	.62	.46	.58	.37
31	.04	-----	.24	14	-----	.24	-----	1.1	-----	.46	.58	-----
TOTAL	86.74	1.78	18.44	12,748.18	2,476.62	81.04	122.79	32.70	24.45	16.78	15.91	13.11
MEAN	2.80	.059	.59	411	88.5	2.61	4.09	1.05	.82	.54	.51	.44
MAX	11	.24	3.2	2,240	388	69	43	1.7	1.1	.66	.58	.58
MIN	.02	.02	.04	.10	.18	.22	.20	.74	.28	.46	.43	.31
AC-FT	172	3.5	37	25,290	4,910	161	244	65	49	33	32	26
(a)	23,480	17,500	25,150	22,690	27,110	28,090	8,560	12,230	12,430	14,230	18,700	17,090
CAL YR 1969	TOTAL 12,802.25	MEAN 35.1	MAX 1,930	MIN .02	ACFT 25,390							
WAT YR 1970	TOTAL 15,638.54	MEAN 42.8	MAX 2,240	MIN .02	ACFT 31,020							

a Diversion, in acre-feet, to Woodleaf powerplant; furnished by Oroville-Wyandotte Irrigation District.

## SACRAMENTO RIVER BASIN

## 11396200 SOUTH FORK FEATHER RIVER BELOW FORBESTOWN DAM, CALIF.

LOCATION.--Lat 39°33'05", long 121°12'30", in NE¼ sec.32, T.20 N., R.7 E., Butte County, Plumas National Forest, on right bank 500 ft downstream from Forbestown Dam, 0.4 mile upstream from Oroleve Creek, and 4.0 miles northeast of Forbestown.

DRAINAGE AREA.--87.5 sq mi.

PERIOD OF RECORD.--July 1962 to current year. Records for Forbestown powerplant from February 1963 to September 1966 in files of Geological Survey.

GAGE.--Water-stage recorder. Altitude of gage is 1,690 ft (from topographic map).

AVERAGE DISCHARGE.--8 years, 82.7 cfs (59,920 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 6,930 cfs Jan. 22 (gage height, 13.53 ft); minimum daily, 5.0 cfs Feb. 20, 23-25.

Period of record: Maximum discharge, 7,510 cfs Jan. 31, 1963 (gage height, 13.85 ft in gage well, 15.3 ft from floodmarks); minimum daily, 0.6 cfs Apr. 4, 1963.

REMARKS.--Records fair. Flow regulated by Little Grass Valley Reservoir (see sta 11395020), Sly Creek Reservoir (see sta 11395400) and smaller reservoirs. Water from North Yuba River basin is imported through Slate Creek tunnel (see sta 11413250) to Sly Creek Reservoir. Oroville-Wyandotte Canal (see sta 11395500) diverts above station. Tunnel 600 ft above station diverts most flow through Forbestown powerplant except fishwater releases and uncontrolled spill over Forbestown Dam. See schematic diagram of South Fork Feather River basin.

REVISIONS.--WRD Calif. 1968: 1967 diversions.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	14	5.5	6.2	361	207	7.2	6.6	5.5	10	11	11
2	14	14	5.5	6.2	230	104	7.2	6.6	5.5	10	11	10
3	14	14	5.5	6.2	38	26	7.0	6.6	5.5	10	11	10
4	14	11	5.5	6.2	95	31	6.8	6.6	5.3	10	11	10
5	14	5.5	5.5	6.2	134	29	7.0	6.6	5.3	10	11	10
6	14	5.2	5.5	6.2	161	45	8.3	6.6	5.3	10	11	10
7	14	5.5	5.5	6.2	133	34	6.6	6.6	5.3	10	11	10
8	14	5.5	5.5	6.2	92	85	6.6	6.6	5.3	10	11	10
9	14	5.5	5.5	6.8	57	64	6.6	6.6	5.3	10	11	10
10	14	5.5	5.5	141	28	62	6.6	6.6	5.3	10	11	10
11	14	5.5	5.5	52	6.1	50	6.6	6.6	7.9	10	11	10
12	14	5.5	5.5	46	52	40	6.6	6.6	9.8	10	11	10
13	14	5.5	5.5	234	280	31	6.8	6.6	9.8	10	11	10
14	14	5.5	5.5	1,280	332	25	6.6	6.6	9.8	10	11	9.8
15	14	5.5	5.5	843	244	17	6.6	6.6	9.8	10	11	9.8
16	14	5.5	5.5	2,270	229	50	6.6	6.6	9.8	10	11	9.8
17	14	5.5	5.5	2,580	405	15	6.6	6.6	9.8	10	11	9.8
18	14	5.5	5.5	2,340	145	15	6.6	6.6	10	10	10	9.8
19	14	5.5	13	1,840	26	6.8	6.6	6.6	10	10	10	9.8
20	14	5.5	48	1,700	5.0	6.8	6.6	6.6	10	10	10	9.8
21	14	5.2	290	3,840	10	7.3	6.4	6.6	10	10	10	9.8
22	14	5.2	20	5,750	6.8	11	6.6	6.6	10	10	10	9.8
23	14	5.2	98	4,200	5.0	18	6.6	6.6	10	10	10	9.6
24	14	5.2	335	5,180	5.0	7.1	6.6	6.6	10	10	10	9.6
25	14	5.2	88	2,870	5.0	7.1	6.6	32	10	10	10	9.6
26	14	5.2	10	1,810	23	7.1	6.6	5.8	10	10	10	9.6
27	14	5.2	6.2	2,020	52	7.1	6.8	5.8	10	11	10	9.6
28	14	5.5	6.2	1,320	17	7.1	6.6	5.5	10	11	10	9.6
29	14	5.5	6.2	900	-----	7.3	6.6	5.5	10	11	10	9.6
30	14	5.5	6.2	650	-----	7.3	6.8	5.5	10	11	11	9.6
31	14	-----	6.2	470	-----	7.3	-----	5.5	-----	11	11	-----
TOTAL	434	193.6	1,032.0	42,453.6	3,176.9	1,037.3	202.3	224.0	250.3	315	329	296.0
MEAN	14.0	6.45	33.3	1,369	113	33.5	6.74	7.23	8.34	10.2	10.6	9.87
MAX	14	14	335	5,750	405	207	8.3	32	10	11	11	11
MIN	14	5.2	5.5	6.2	5.0	6.8	6.4	5.5	5.3	10	10	9.6
AC-FT	861	384	2,050	84,210	6,300	2,060	401	444	496	625	653	587
(a)	24,040	17,400	28,100	37,420	34,420	33,770	10,950	13,040	12,530	13,700	17,550	15,880

CAL YR 1969 TOTAL 42,442.0 MEAN 116 MAX 4,000 MIN 4.9 ACFT 84,180

WAT YR 1970 TOTAL 49,944.0 MEAN 137 MAX 5,750 MIN 5.0 ACFT 99,060

a Diversion, in acre-feet, to Forbestown powerplant; furnished by Oroville-Wyandotte Irrigation District.

11396310 MINERS RANCH CANAL BELOW PONDEROSA DAM, NEAR FORBESTOWN, CALIF.

LOCATION.--Lat 39°33'00", long 121°18'20", in SE¼NW¼ sec.33, T 20 N., R.6 E., Butte County, on right bank 800 ft downstream from Ponderosa Dam and 3 miles northwest of Forbestown.

PERIOD OF RECORD.--October 1962 to current year.

GAGE.--Water-stage recorder and Parshall flume. Altitude of gage is 975 ft (from topographic map).

AVERAGE DISCHARGE.--8 years, 220 cfs (159,400 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 277 cfs July 22, 1965; no flow at times in most years.

REMARKS.--Records good. Canal diverts from South Fork Feather River at Ponderosa Dam. Water is used for power development and irrigation. See schematic diagram of South Fork Feather River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	247	153	227	232	181	222	5.7	248	250	248	258	264
2	246	188	229	232	181	208	58	248	248	248	264	267
3	246	174	230	232	180	206	174	247	250	250	264	266
4	246	188	230	232	192	206	254	248	250	250	266	263
5	246	202	232	232	208	208	246	247	247	250	266	263
6	245	229	230	230	208	209	246	247	244	250	267	261
7	245	232	230	232	208	209	247	247	244	248	267	263
8	244	234	230	232	208	209	254	247	242	247	266	259
9	244	234	230	232	208	211	261	246	245	247	264	261
10	244	233	230	232	210	211	261	245	246	247	266	261
11	244	232	230	230	210	210	259	242	247	246	266	261
12	244	232	232	230	195	224	258	244	247	242	267	259
13	75	232	233	232	176	238	257	246	246	241	267	258
14	0	232	232	203	176	238	259	246	245	236	267	258
15	62	232	232	190	172	238	258	246	246	243	267	258
16	178	232	233	192	170	238	257	246	248	253	264	257
17	233	232	233	174	174	238	258	246	247	253	263	258
18	247	232	233	174	174	239	259	246	247	253	263	258
19	247	232	233	172	195	239	259	246	246	253	264	257
20	247	232	233	172	228	239	261	245	246	253	262	256
21	247	232	233	174	239	239	261	246	246	238	263	256
22	248	230	230	172	239	239	261	245	246	227	261	258
23	248	230	232	172	239	221	262	245	246	228	259	258
24	248	230	232	169	239	203	262	245	248	228	261	258
25	248	230	230	167	239	203	263	245	246	228	262	258
26	247	230	230	167	239	204	261	247	246	229	262	257
27	246	230	230	168	239	204	261	248	245	252	262	257
28	246	228	230	177	239	204	261	248	244	253	262	254
29	246	226	230	182	-----	204	261	250	244	253	263	254
30	245	227	230	181	-----	74	261	250	246	256	263	253
31	201	-----	232	181	-----	3.4	-----	250	-----	254	263	-----
TOTAL	6,900	6,680	7,161	6,197	5,766	6,438.4	7,205.7	7,642	7,388	7,604	8,179	7,771
MEAN	223	223	231	200	206	208	240	247	246	245	264	259
MAX	248	234	233	232	239	239	263	250	250	256	267	267
MIN	0	153	227	167	170	3.4	5.7	242	242	227	258	253
AC-FT	13,690	13,250	14,200	12,290	11,440	12,770	14,290	15,160	14,650	15,080	16,220	15,410
(a)	11,900	12,810	14,060	12,130	11,240	13,040	12,100	13,720	12,900	13,020	12,900	12,500

CAL YR 1969 TOTAL 83,173.0 MEAN 228 MAX 258 MIN 0 ACFT 165,000  
WAT YR 1970 TOTAL 84,932.1 MEAN 233 MAX 267 MIN 0 ACFT 168,500

a Diversion, in acre-feet, to Kelly Ridge powerplant; furnished by Oroville-Wyandotte Irrigation District.

## SACRAMENTO RIVER BASIN

11396330 BANGOR CANAL BELOW MINERS RANCH RESERVOIR, NEAR OROVILLE, CALIF.

LOCATION.--Lat 39°30'17", long 121°27'17", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.18, T.19 N., R.5 E., Butte County, on left bank 400 ft downstream from outlet at Miners Ranch Dam and 5 miles east of Oroville.

PERIOD OF RECORD.--January 1963 to current year.

GAGE.--Water-stage recorder and Parshall flume. Altitude of gage is 815 ft (from topographic map).

AVERAGE DISCHARGE.--7 years, 15.4 cfs (11,160 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 65 cfs Aug. 17-20, 1963; no flow for several days in 1965 and 1969.

REMARKS.--Records excellent. Flow regulated by Miners Ranch Reservoir (capacity, 912 acre-ft) Canal completed in November 1962. Water is used for irrigation. See schematic diagram of South Fork Feather River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	14	3.7	4.0	2.4	8.2	3.1	23	29	29	29	29
2	29	14	3.7	4.0	2.2	4.4	8.1	23	29	29	29	29
3	29	14	3.7	4.0	2.2	4.4	13	23	30	29	29	29
4	29	14	3.7	4.0	2.2	4.6	16	23	30	29	29	29
5	29	14	3.7	3.7	2.8	4.6	16	27	30	29	29	30
6	29	14	3.7	3.3	3.7	4.4	16	28	30	29	29	30
7	29	8.2	3.7	3.1	3.7	4.4	16	28	30	29	29	30
8	29	4.4	3.7	3.1	3.7	4.6	17	28	30	29	29	30
9	29	4.2	3.7	3.3	3.7	4.9	20	28	30	29	29	30
10	29	4.2	3.7	2.9	3.7	4.9	23	28	30	29	29	30
11	29	4.0	3.7	2.6	3.7	4.6	23	28	30	29	29	30
12	29	4.0	3.7	3.1	4.0	4.6	23	28	30	29	30	30
13	29	3.7	3.7	2.6	7.1	4.6	23	28	30	30	30	30
14	28	3.7	3.7	4.2	4.9	4.9	23	28	30	30	30	30
15	19	4.0	3.7	2.0	4.4	4.4	23	28	30	30	30	30
16	13	4.0	3.7	5.9	5.1	4.4	23	28	30	30	30	30
17	14	3.7	3.7	3.7	4.6	4.4	23	28	30	30	30	30
18	14	3.7	3.7	3.1	4.6	4.4	23	29	30	30	30	30
19	14	4.0	3.7	3.7	4.4	4.4	23	29	30	30	30	30
20	14	3.7	3.7	2.9	4.2	4.4	23	29	30	30	30	30
21	14	3.7	3.7	8.1	4.2	4.4	23	29	30	30	30	30
22	14	4.0	3.7	2.6	4.2	4.4	23	29	30	30	30	29
23	14	3.7	3.5	3.3	4.2	4.4	23	29	30	30	30	27
24	14	3.7	3.1	2.9	4.2	4.4	23	29	30	30	30	27
25	14	4.0	2.4	2.0	4.2	4.4	23	29	30	30	30	27
26	14	3.7	2.2	2.2	4.2	4.4	23	29	30	30	30	27
27	14	3.7	1.8	3.8	4.2	4.4	23	29	29	30	30	27
28	14	3.7	1.8	2.6	4.4	4.4	23	29	29	30	30	27
29	14	3.7	2.0	2.4	-----	4.4	23	29	29	30	30	27
30	14	3.7	3.1	2.4	-----	4.2	23	29	29	29	29	27
31	14	-----	4.4	2.4	-----	3.3	-----	29	-----	29	29	-----
TOTAL	647	181.1	105.7	103.9	111.1	141.6	608.2	861	894	916	917	871
MEAN	20.9	6.04	3.41	3.35	3.97	4.57	20.3	27.8	29.8	29.5	29.6	29.0
MAX	29	14	4.4	8.1	7.1	8.2	23	29	30	30	30	30
MIN	13	3.7	1.8	2.0	2.2	3.3	3.1	23	29	29	29	27
AC-FT	1,280	359	210	206	220	281	1,210	1,710	1,770	1,820	1,820	1,730

CAL YR 1969 TOTAL 5,549.7 MEAN 15.2 MAX 32 MIN 1.2 ACFT 11,010  
WAT YR 1970 TOTAL 6,357.6 MEAN 17.4 MAX 30 MIN 1.8 ACFT 12,610

## 11396350 SOUTH FORK FEATHER RIVER AT PONDEROSA DAM, CALIF.

LOCATION.--Lat 39°32'52", long 121°18'11", in NW¼SE¼ sec.33, T.20 N., R.6 E., Butte County, at entrance to Miners Ranch Canal on the left end of Ponderosa Dam, 2,800 ft upstream from Sucker Run, and 2.6 miles northwest of Forbestown.

DRAINAGE AREA.--108 sq mi.

PERIOD OF RECORD.--July 1962 to current year.

GAGE.--Water-stage recorder, high level sluice gate, and concrete spillway of Ponderosa Dam. Datum of gage is at mean sea level (levels by Oroville-Wyandotte Irrigation District). Prior to Oct. 1, 1967, at site 1,800 ft downstream at different datum.

AVERAGE DISCHARGE (adjusted for diversion to Miners Ranch Canal).--8 years, 480 cfs (347,800 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 9,840 cfs Jan. 22 (elevation, 962.19 ft), from rating curve extended extended above 2,500 cfs on basis of computation of flow over dam at gage height, 965.0 ft; no flow for several months.

Period of record: Maximum discharge, 11,000 cfs Dec. 22, 1964 (gage height, 11.52 ft in gage well, 12.7 ft, outside from floodmarks, site and datum then in use); no flow for several months in 1968-70.

REMARKS.--Records good. Records are combined flow through sluice gate and flow over spillway. Flow regulated by several reservoirs and diversions. Water is imported from North Yuba River basin through Slate Creek tunnel. Miners Ranch Canal (see sta 11396310) diverts at Ponderosa Dam for power development and irrigation; diversion began in October 1962. See schematic diagram of South Fork Feather River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	180	103	142	330	1,020	1,010	42				0	108
2	177	116	141	325	888	801	0				0	108
3	176	112	141	330	427	645	0				0	104
4	175	114	139	330	487	625	0				0	108
5	177	121	141	330	664	593	0				0	110
6	177	133	141	330	697	612	0				0	100
7	177	136	140	330	658	593	0				0	104
8	170	140	140	335	619	710	0				0	104
9	173	142	141	475	568	645	0				0	104
10	170	138	144	773	520	645	0				0	104
11	168	136	140	580	496	632	0				0	47
12	165	140	158	568	550	586	0				0	0
13	488	139	449	980	982	556	0				61	0
14	592	140	403	2,830	1,140	526	0				107	0
15	533	142	394	1,870	925	520	0				108	0
16	378	142	408	3,930	902	501	0				99	0
17	176	140	363	4,080	1,230	484	0				97	0
18	168	143	305	3,680	858	478	0				100	0
19	164	141	460	2,980	652	466	0				103	0
20	162	143	586	2,900	544	466	0				106	0
21	162	142	1,020	5,640	526	454	0				108	0
22	167	136	580	8,380	508	427	0				107	0
23	176	139	613	6,100	484	466	0				104	0
24	173	140	1,310	7,790	449	484	0				105	0
25	165	143	697	4,740	416	454	0				107	0
26	158	141	520	3,080	466	332	0				108	0
27	154	138	388	3,560	428	25	0				106	0
28	158	141	350	2,500	526	27	0				108	44
29	158	140	340	1,880	-----	28	0				109	60
30	155	142	320	1,480	-----	89	0				106	0
31	120	-----	330	1,190	-----	126	-----		-----		104	-----
TOTAL	6,492	4,063	11,544	74,626	18,630	15,006	42	0	0	0	1,953	1,205
MEAN	209	135	372	2,407	665	484	1.40	0	0	0	63.0	40.2
MAX	592	143	1,310	8,380	1,230	1,010	42	0	0	0	109	110
MIN	120	103	139	325	416	25	0	0	0	0	0	0
AC-FT	12,880	8,060	22,900	148,000	36,950	29,760	83	0	0	0	3,870	2,390
MEAN a	432	358	603	2,607	871	692	242	247	246	245	327	299
AC-FT a	26,570	21,310	37,100	160,300	48,390	42,530	14,370	15,160	14,650	15,080	20,090	17,800
CAL YR 1969	TOTAL 153,012.3	MEAN 419	MAX 5,590	MIN 0	ACFT 303,500	MEAN a 647	AC-FT a 468,400					
WAT YR 1970	TOTAL 133,561	MEAN 366	MAX 8,380	MIN 0	ACFT 264,900	MEAN a 599	AC-FT a 433,400					

a Adjusted for diversion to Miners Ranch Canal.

## SACRAMENTO RIVER BASIN

## 11396400 SUCKER RUN NEAR FORBESTOWN, CALIF.

LOCATION.--Lat 39°33'12", long 121°18'04", in NW¼NE¼ sec.33, T.20 N., R.6 E., Butte County, on left bank at upstream side of road bridge, 0.7 mile upstream from confluence with South Fork Feather River, and 2.8 miles northwest of Forbestown.

DRAINAGE AREA.--18.7 sq mi.

PERIOD OF RECORD.--June 1965 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 960 ft (from topographic map).

AVERAGE DISCHARGE.--5 years, 25.9 cfs (18,760 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,230 cfs Jan. 24 (gage height, 5.88 ft), from rating curve extended as explained below; minimum daily, 3.2 cfs Sept. 23, 25.

Period of record: Maximum discharge, 1,320 cfs Jan. 21, 1967 (gage height, 6.03 ft), from rating curve extended as explained below; minimum daily, 0.40 cfs Oct. 7, 1966.

Flood of Dec. 22, 1964, reached a stage of 7.4 ft, from floodmarks, discharge, 2,190 cfs from rating curve extended above 600 cfs on basis of computation of maximum flow over rock control.

REMARKS.--Records good for flows above 15 cfs, poor below. Undetermined amount of water diverted above station at times for use at lumber mill in Feather Falls. See schematic diagram of South Fork Feather River basin.

REVISIONS (WATER YEARS).--WRD Calif. 1969: 1966-68(M).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	UCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	5.0	5.5	17	79	258	35	23	13	9.2	5.8	3.6
2	4.3	4.9	5.5	15	73	130	35	22	13	8.7	5.7	3.5
3	4.4	5.2	5.5	15	68	99	34	22	13	8.3	5.5	3.5
4	4.3	5.5	5.5	14	64	100	33	22	12	8.1	5.3	3.5
5	4.3	12	5.5	14	59	91	32	22	12	8.0	4.9	3.6
6	4.3	6.8	5.5	13	56	82	31	21	11	7.7	4.4	3.6
7	4.3	6.7	5.5	13	53	80	30	21	11	7.6	4.1	3.5
8	4.5	6.7	6.0	14	50	130	30	21	12	7.6	4.1	3.5
9	4.6	5.8	6.1	70	47	93	30	22	14	7.6	4.2	3.5
10	4.5	5.7	8.7	59	45	93	30	22	15	7.8	4.2	3.4
11	4.4	5.5	15	30	44	84	31	22	14	7.7	4.2	3.4
12	4.4	5.6	20	66	65	77	29	22	12	7.6	4.1	3.4
13	4.4	5.6	14	160	138	72	30	22	11	7.6	4.0	3.4
14	4.6	5.4	7.7	400	134	69	32	20	14	7.4	3.9	3.5
15	6.8	5.4	6.8	149	88	65	31	20	12	7.4	4.0	3.4
16	7.6	5.6	6.4	305	121	61	31	19	12	7.1	4.0	3.4
17	6.5	5.5	6.1	185	162	57	29	19	11	6.8	3.9	3.4
18	5.4	5.4	6.2	121	105	55	29	18	11	6.7	3.9	3.3
19	5.5	5.4	39	135	88	54	30	17	10	6.6	3.8	3.3
20	5.6	5.5	61	151	81	51	29	18	9.5	6.5	3.6	3.6
21	5.4	5.5	134	503	74	50	28	17	8.9	6.4	3.4	3.5
22	5.6	5.4	37	363	68	48	27	17	8.6	6.3	3.6	3.3
23	5.6	5.5	118	345	64	46	26	17	8.6	6.3	3.6	3.2
24	5.7	5.5	214	420	61	45	26	16	8.3	6.3	3.6	3.3
25	5.3	5.3	75	185	57	42	26	16	8.3	6.3	3.7	3.2
26	5.2	5.4	43	143	54	41	28	16	8.3	6.2	3.6	3.4
27	5.4	5.4	30	265	52	40	29	16	8.4	6.1	3.4	3.6
28	5.4	5.4	24	146	72	39	26	16	8.6	6.1	3.6	3.5
29	5.2	5.4	21	117	-----	38	25	15	10	6.0	3.6	3.3
30	5.3	5.5	19	100	-----	37	24	15	9.8	6.0	3.6	3.3
31	5.1	-----	18	89	-----	36	-----	15	-----	5.9	3.6	-----
TOTAL	158.2	173.5	974.5	4,622	2,122	2,263	886	591	330.3	219.9	126.9	102.9
MEAN	5.10	5.78	31.4	149	75.6	73.0	29.5	19.1	11.0	7.09	4.09	3.43
MAX	7.6	12	214	503	162	258	35	23	15	9.2	5.8	3.6
MIN	4.3	4.9	5.5	13	44	36	24	15	8.3	5.9	3.4	3.2
AC-FT	314	344	1,930	9,170	4,210	4,490	1,760	1,170	655	436	252	204

CAL YR 1969 TOTAL 14,207.8 MEAN 38.9 MAX 830 MIN 3.8 AC-FT 28,180  
 WTR YR 1970 TOTAL 12,570.2 MEAN 34.4 MAX 503 MIN 3.2 AC-FT 24,930

## PEAK DISCHARGE (BASE, 300 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-23	2300	4.34	494	1-27	0400	4.14	469
1-14	unknown	5.20	890	2-13	2200	3.66	318
1-16	0800	4.41	564	2-16	2330	3.73	339
1-21	2230	4.86	744	3- 1	1130	4.30	525
1-24	0015	5.88	1,230				

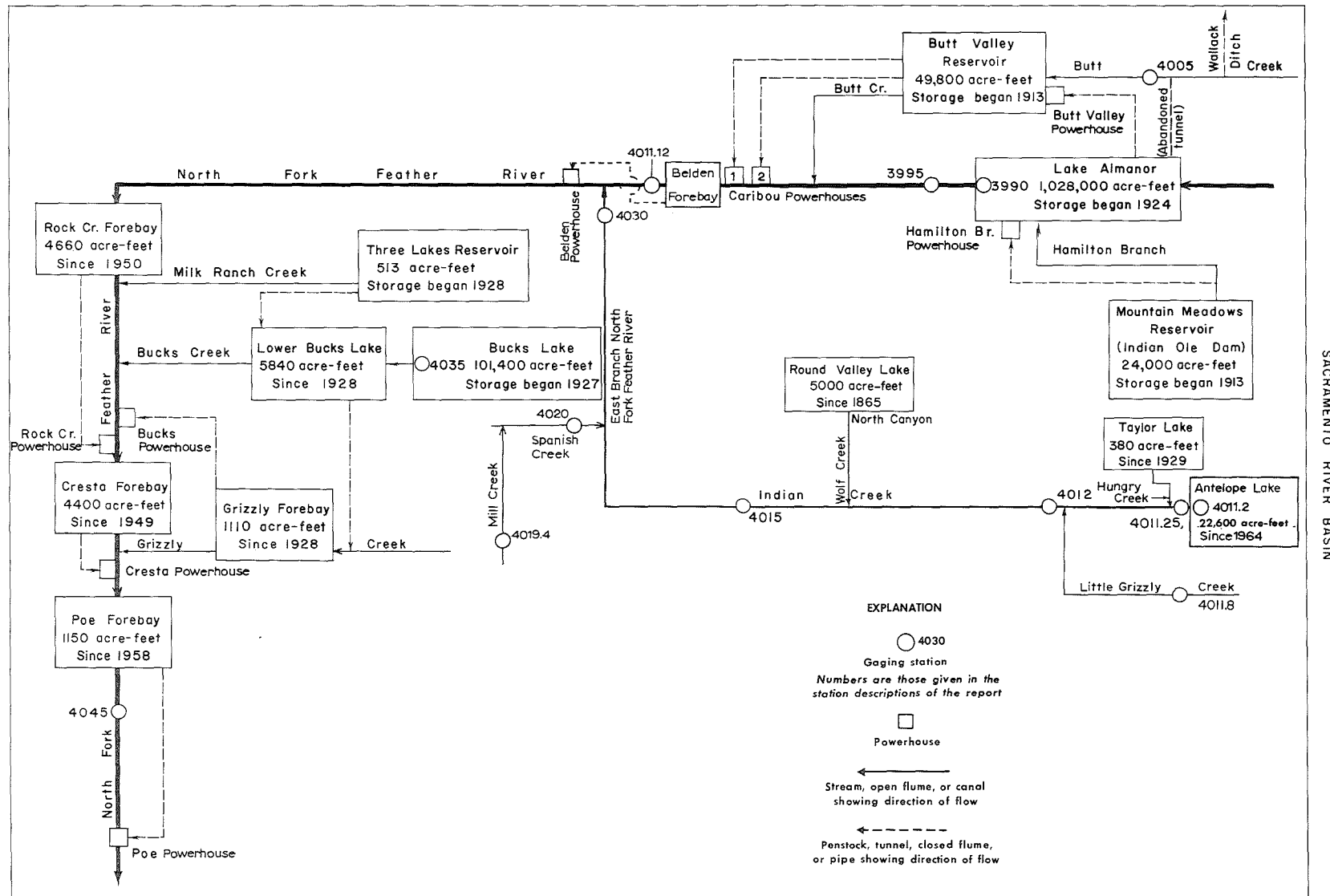


FIGURE 12.--Schematic diagram showing diversions and storage in North Fork Feather River basin.

## SACRAMENTO RIVER BASIN

## 11399000 LAKE ALMANOR AT PRATTVILLE, CALIF.

LOCATION.--Lat 40°12'50", long 121°09'40", in SW¼NE¼ sec.11, T.27 N., R.7 E., Plumas County, Plumas National Forest, at outlet tower to No. 2 tunnel on North Fork Feather River at Prattville, 4.7 miles northwest of Lake Almanor Dam, and 5.6 miles northwest of Canyon Dam.

DRAINAGE AREA.--491 sq mi.

PERIOD OF RECORD.--July 1913 to current year. Monthly contents only for some periods, published in WSP 1315-A. Published as "near Prattville" 1937-60. Prior to October 1964, records published as usable contents.

GAGE.--Nonrecording gage monitored once daily. Datum of gage is 10.23 ft below mean sea level (levels by Pacific Gas and Electric Co.). Prior to June 1, 1965, nonrecording gage at site 4.7 miles southeast at same datum.

EXTREMES (at 2400).--Current year: Maximum contents observed, 1,061,000 acre-ft July 12 (gage height, 4,490.92 ft); minimum observed, 651,200 acre-ft Dec. 18 (gage height, 4,474.03 ft).  
Period of record: Maximum contents, 1,061,000 acre-ft July 12, 1970 (gage height, 4,490.92 ft); minimum, 5,230 acre-ft Feb. 5, 1918 (gage height, 4,416.1 ft).

REMARKS.--Lake is formed by earthfill dam; storage began in July 1913; dam raised to gage height 4,455 ft in 1917 and 4,515 ft in 1927. Capacity, 1,036,000 acre-ft between gage heights 4,490 ft (upper storage limit) and 4,422 ft (bottom of lowest outlet) of which 8,950 acre-ft is not available for release. Water is diverted by tunnel and penstock to Butt Valley Reservoir and powerhouse for use in Caribou powerplants; some water also released down North Fork Feather River (see sta 11399500). Figures given herein represent total contents at 2400 hours. See Schematic diagram of North Fork Feather River basin.

COOPERATION.--Record of contents collected by Pacific Gas and Electric Co. under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

REVISIONS.--WSP 1931: Drainage area.

## CAPACITY TABLE (GAGE HEIGHT, IN FEET, AND CONTENTS, IN ACRE-FEET)

4,422	8,950	4,432	34,200	4,450	220,800	4,475	672,700
4,424	10,100	4,434	49,500	4,455	294,500	4,480	787,300
4,426	11,300	4,437	74,200	4,460	376,700	4,485	908,500
4,428	13,500	4,440	101,900	4,465	467,000	4,490	1,036,000
4,430	21,200	4,445	156,400	4,470	565,500	4,491	1,063,000

## CONTENTS, IN THOUSANDS OF ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	845.4	766.9	683.8	691.5	877.3	923.4	926.2	937.5	1,001	1,053	1,019	934.7
2	842.0	763.8	680.5	692.6	880.3	923.4	924.9	939.3	1,002	1,056	1,017	932.0
3	837.9	761.0	677.6	693.9	883.5	919.7	924.2	941.3	1,004	1,054	1,014	929.2
4	837.2	756.6	674.0	695.5	887.2	920.4	923.4	941.5	1,005	1,056	1,011	926.4
5	836.5	758.7	671.6	696.0	889.9	920.4	922.4	942.6	1,006	1,057	1,009	923.2
6	834.3	755.9	668.7	693.7	893.1	919.4	921.4	944.3	1,008	1,057	1,006	920.2
7	831.4	753.8	665.3	691.5	895.8	921.9	920.4	945.8	1,010	1,057	1,004	917.4
8	828.5	751.5	662.9	690.8	898.8	924.7	919.4	947.6	1,011	1,057	1,001	914.4
9	825.4	748.5	660.0	695.3	901.7	926.4	918.4	950.9	1,012	1,057	998.5	911.7
10	823.0	745.9	657.2	697.8	904.2	926.4	917.4	953.7	1,015	1,058	995.9	908.2
11	819.2	742.7	656.9	700.0	906.2	926.7	916.9	954.9	1,017	1,059	993.3	905.2
12	815.8	740.2	660.2	703.4	909.0	925.9	918.9	956.7	1,019	1,061	990.7	902.2
13	812.7	737.6	662.2	709.1	909.7	925.9	920.4	959.0	1,020	1,059	988.2	899.0
14	809.6	734.6	660.7	717.0	912.2	927.2	920.9	960.3	1,023	1,057	985.6	895.8
15	809.6	731.9	658.0	721.8	914.7	929.5	919.9	962.1	1,024	1,055	982.8	892.3
16	809.4	728.7	655.4	728.7	918.2	929.5	920.9	964.6	1,026	1,053	980.2	889.1
17	808.2	725.3	652.8	736.0	919.7	930.0	922.2	967.7	1,028	1,052	977.6	885.9
18	806.3	722.0	651.2	742.5	918.4	929.5	923.7	970.0	1,030	1,049	975.1	882.2
19	804.4	719.1	654.3	747.6	917.2	929.0	925.9	972.3	1,032	1,047	972.3	878.8
20	802.7	715.9	658.3	752.9	915.9	929.0	927.7	974.6	1,034	1,045	969.5	875.1
21	800.1	713.2	666.7	762.9	914.9	929.0	928.5	976.1	1,035	1,043	966.6	871.7
22	797.5	710.0	671.6	775.8	913.9	930.5	929.0	978.4	1,037	1,041	963.8	868.2
23	794.4	706.8	678.2	798.7	913.4	930.2	929.5	981.0	1,038	1,039	961.0	865.1
24	791.5	704.1	681.8	818.9	912.4	929.5	930.5	983.5	1,040	1,037	958.0	863.1
25	788.9	701.2	685.9	831.9	911.4	928.7	932.2	985.9	1,042	1,035	954.9	863.4
26	785.6	698.4	688.5	843.9	910.9	927.5	935.0	988.2	1,043	1,032	951.9	864.1
27	782.6	695.5	691.2	852.7	910.9	927.7	935.7	990.2	1,045	1,030	948.9	865.1
28	779.5	692.4	692.8	859.0	914.7	927.7	936.0	991.8	1,049	1,027	945.8	865.1
29	776.2	689.4	693.0	864.1	-----	928.5	936.2	994.4	1,051	1,025	943.1	865.1
30	773.2	686.3	691.0	868.7	-----	928.5	936.5	997.2	1,053	1,023	940.3	864.8
31	770.1	-----	689.9	873.1	-----	927.5	-----	999.0	-----	1,021	937.5	-----
MAX	845.4	766.9	693.0	873.1	919.7	930.5	936.5	999.0	1,053	1,061	1,019	934.7
MIN	770.1	686.3	651.2	690.8	877.3	919.4	916.9	937.5	1,001	1,021	937.5	863.1
(a)	4,479.27	4,475.61	4,475.77	4,483.57	4,485.25	4,485.76	4,486.12	4,488.57	4,490.62	4,489.41	4,486.16	4,483.23
(b)	-78,400	-83,800	+3,600	+183,200	+41,600	+12,800	+9,000	+62,500	+54,000	-32,000	-83,500	-72,700

CAL YR 1969 b +128,300  
WTR YR 1970 b +16,300

a Elevation, in feet, at end of month.  
b Change in contents, in acre-feet.



## 11399500 NORTH FORK FEATHER RIVER NEAR PRATTVILLE, CALIF.

LOCATION.--Lat 40°10'10", long 121°05'29", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.28, T.27 N., R.8 E., Plumas County, Plumas National Forest, on left bank 0.5 mile downstream from Almanor Dam, 4.5 miles southeast of Prattville, and 9 miles upstream from Butt Creek.

DRAINAGE AREA.--493 sq mi.

PERIOD OF RECORD.--June 1905 to current year (daily discharges for July 1921 to September 1936 include water diverted through Almanor-Butt Creek tunnel). Records for water year 1911 incomplete, yearly estimate published in WSP 1315-A. Published as "below Prattville" prior to 1911. Supplemental records for Almanor-Butt Creek tunnel diversion computed November 1924 to Dec. 30, 1958, as difference of flow between Butt Creek above Almanor-Butt Creek tunnel (unpublished prior to 1936 and since 1964), and Butt Creek below Almanor-Butt Creek tunnel (unpublished prior to 1936 and 1960-64).

GAGE.--Water-stage recorder and broad-crested weir. Altitude of gage is 4,380 ft (from topographic map). Prior to Oct. 1, 1936, nonrecording gages or water-stage recorders at several sites within half a mile of present site at various datums.

AVERAGE DISCHARGE (adjusted for diversion and leakage).--65 years, 900 cfs (652,000 acre-ft per year).

EXTREMES.--Current year: Maximum daily discharge, 66 cfs Jan. 29; minimum daily, 8.9 cfs Sept. 22-24. Period of record: Maximum discharge, 10,000 cfs Mar. 19, 1907, before construction of dam (gage height, 16.2 ft at former site), from rating curve extended above 3,700 cfs; no flow Apr. 15, 16, 1914, at times January to April 1919, Apr. 21, 1923.

REMARKS.--Flow regulated by Lake Almanor 0.5 mile upstream (see sta 11399000) and Mountain Meadows Reservoir since 1924 (capacity, 24,000 acre-ft). Water diverted for power from Lake Almanor through old Almanor-Butt Creek tunnel to Butt Creek until Dec. 30, 1958. Diversion through new tunnel and Butt Valley powerhouse began Dec. 31, 1958. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

REVISIONS (WATER YEARS).--WSP 1245: 1951 (yearly summaries). WSP 1285: 1952 (yearly summaries).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	30	34	37	35	36	37	39	40	36	37	35
2	34	30	36	37	35	36	37	39	37	37	40	35
3	34	29	37	37	36	36	37	39	35	37	40	35
4	34	29	37	37	36	36	37	39	35	37	40	35
5	34	30	37	37	36	36	37	39	35	37	40	35
6	34	29	37	37	36	37	37	39	35	37	38	35
7	33	29	36	37	36	37	37	39	35	37	37	35
8	33	29	36	37	36	37	38	38	35	37	37	35
9	33	29	36	37	36	37	38	39	35	37	37	34
10	33	29	36	37	36	37	38	39	35	37	37	34
11	32	29	36	37	37	37	38	39	35	37	37	34
12	32	29	36	38	36	37	38	39	35	37	37	34
13	32	29	35	40	36	37	38	39	35	37	37	34
14	32	28	35	42	36	37	38	39	35	37	40	34
15	32	28	35	42	36	37	38	39	35	37	39	34
16	32	28	35	44	36	37	38	39	35	37	37	34
17	32	28	34	47	36	37	38	39	35	37	37	34
18	32	32	34	44	36	37	38	39	35	37	37	34
19	32	37	35	44	36	37	38	40	35	37	37	34
20	32	37	35	42	36	37	39	40	35	37	36	34
21	32	37	36	40	36	37	39	40	35	37	36	17
22	32	36	36	40	36	38	39	40	35	37	36	8.9
23	31	36	37	42	36	38	39	41	35	37	36	8.9
24	31	36	37	45	36	38	39	41	35	37	36	8.9
25	31	36	37	42	36	37	39	41	36	37	36	22
26	31	35	37	43	36	37	39	41	36	37	36	35
27	31	35	37	45	36	37	39	41	36	37	36	35
28	31	35	37	43	36	37	39	41	36	37	36	35
29	30	35	37	66	-----	37	39	41	36	36	37	34
30	30	34	37	28	-----	37	39	41	36	36	37	36
31	30	-----	37	32	-----	37	-----	40	-----	36	35	-----
TOTAL	996	953	1,117	1,256	1,007	1,145	1,144	1,229	1,063	1,143	1,154	928.7
MEAN	32.1	31.8	36.0	40.5	36.0	36.9	38.1	39.6	35.4	36.9	37.2	31.0
MAX	34	37	37	66	37	38	39	41	40	37	40	36
MIN	30	28	34	28	35	36	37	38	35	36	35	8.9
AC-FT	1,980	1,890	2,220	2,490	2,000	2,270	2,270	2,440	2,110	2,270	2,290	1,840
MEAN a	2,070	2,250	1,390	280	759	1,050	876	333	209	1,150	1,920	1,740
AC-FT a	127,400	133,700	85,170	17,230	42,150	64,600	52,140	20,490	12,420	70,670	117,900	103,800

CAL YR 1969 TOTAL 13,885.0 MEAN 38.0 MAX 81 MIN 28 AC-FT 27,540 MEAN a 1,180 ACFT a 852,800  
WAT YR 1970 TOTAL 13,135.7 MEAN 36.0 MAX 66 MIN 8.9 AC-FT 26,050 MEAN a 1,170 ACFT a 847,600

a Adjusted for diversion through Butt Valley powerhouse and leakage from Almanor-Butt Creek tunnel No. 1.



## 11401112 NORTH FORK FEATHER RIVER BELOW BELDEN DAM, CALIF.

LOCATION.--Lat 40°04'18", long 121°09'46", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.26, T.26 N., R.7 E., Plumas County, Plumas National Forest, on left bank 0.2 mile downstream from Belden Dam, 0.4 mile upstream from Deadwood Canyon, and 6.2 miles northeast of Belden.

DRAINAGE AREA.--612 sq mi.

PERIOD OF RECORD.--October 1969 to September 1970. July 1959 to September 1969 in files of Pacific Gas and Electric Co.

GAGE.--Water-stage recorder. Altitude of gage is 2,900 ft (from topographic map).

EXTREMES.--Maximum discharge during period: 1,870 cfs Mar. 9 (gage height, 7.46 ft); minimum daily, 56 cfs May 20.

REMARKS.--Flow regulated by Belden Reservoir 0.2 mile upstream, Lake Almanor (see sta 11399000), Butt Valley Reservoir, and Mountain Meadows Reservoir (combined capacity, 1,104,260 acre-ft). Diversion through tunnel to Belden powerhouse began on Aug. 27, 1969. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	116	75	91	93	87	90	97	87	147	167	169	158
2	74	75	92	93	193	86	96	88	167	171	173	158
3	75	76	93	94	201	85	94	90	165	171	175	158
4	73	75	93	92	210	90	90	87	167	581	175	162
5	75	77	93	93	302	87	90	86	165	615	173	160
6	78	82	93	93	608	87	88	87	169	171	173	160
7	80	80	92	93	592	91	87	71	162	171	175	162
8	76	80	91	93	836	105	86	61	163	175	171	162
9	75	84	92	92	917	428	87	63	165	173	173	163
10	75	86	92	92	926	94	87	63	160	173	173	163
11	75	88	93	92	897	98	88	61	169	167	173	163
12	74	91	93	91	512	93	87	60	171	175	177	163
13	75	93	93	91	261	96	82	60	167	167	175	163
14	75	92	93	96	144	100	85	60	171	167	177	163
15	76	92	94	93	88	97	85	60	171	169	175	163
16	76	90	92	91	83	97	86	58	169	175	175	165
17	74	75	94	92	86	97	85	59	167	171	171	167
18	69	74	94	90	90	100	87	60	165	171	175	167
19	71	75	94	88	90	96	88	58	165	171	173	167
20	73	77	88	91	87	96	87	56	167	171	175	167
21	73	78	86	94	88	97	83	59	171	173	175	165
22	73	80	86	97	85	96	83	61	169	175	173	163
23	74	80	87	96	88	97	87	60	171	173	169	162
24	75	82	88	102	88	96	85	59	165	171	171	158
25	75	83	85	98	90	100	84	59	167	169	173	149
26	75	85	84	88	92	100	85	59	169	171	173	162
27	75	86	85	85	91	97	87	60	169	173	171	154
28	74	88	91	79	90	98	86	59	167	173	171	151
29	74	88	94	82	-----	98	87	59	167	175	171	156
30	75	90	93	80	-----	93	87	60	165	177	169	158
31	74	-----	93	78	-----	93	-----	60	-----	175	167	-----
TOTAL	2,352	2,477	2,822	2,822	7,922	3,278	2,616	2,030	4,992	6,177	5,359	4,832
MEAN	75.9	82.6	91.0	91.0	283	106	87.2	65.5	166	199	173	161
MAX	116	93	94	102	926	428	97	90	171	615	177	167
MIN	69	74	84	78	83	85	82	56	147	167	167	149
AC-FT	4,670	4,910	5,600	5,600	15,710	6,500	5,190	4,030	9,900	12,250	10,630	9,580
CAL YR 1969	TOTAL	290,953	MEAN	797	MAX	2,840	MIN	69	AC-FT	577,100		
WTR YR 1970	TOTAL	47,679	MEAN	131	MAX	926	MIN	56	AC-FT	94,570		

## SACRAMENTO RIVER BASIN

11401125 INDIAN CREEK NEAR BOULDER CREEK GUARD STATION, NEAR TAYLORSVILLE, CALIF.

LOCATION.--Lat 40°10'42", long 120°36'35", in SE $\frac{1}{4}$  sec.22, T.27 N., R.12 E., Plumas County, on left bank 150 ft downstream from Antelope Dam, 1.0 mile upstream from Cold Stream, 2.2 miles south of Boulder Creek Guard station, 12.1 miles northeast of Genesee, and 17.1 miles northeast of Taylorsville.

DRAINAGE AREA.--68.6 sq mi.

PERIOD OF RECORD.--October 1965 to current year. June 1961 to September 1965 in reports of California Department of Water Resources.

GAGE.--Water-stage recorder and steel-lipped weir. Supplementary water-stage recorder on dam and concrete spillway. Altitude of gage is 4,930 ft (from topographic map). October 1965 to September 1968, at site 0.9 mile downstream at different datum.

AVERAGE DISCHARGE.--5 years, 74.0 cfs (53,600 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 828 cfs Jan. 24 (includes flow over spillway); minimum daily, 10 cfs for several months.

Period of record: Maximum discharge, 828 cfs May 24, 1967, Jan. 24, 1970; minimum daily, 3.7 cfs Sept. 14-18, 1966.

REMARKS.--Flow regulated since Nov. 25, 1963 by Antelope Lake (capacity, 22,500 acre-ft) and storage in Taylor Lake since 1929 (capacity, 380 acre-ft). Some diversions for irrigation upstream. See schematic diagram of North Fork Feather River basin. Records since October 1968 are combined flow of release from Antelope Dam and flow over spillway.

COOPERATION.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	10	10	10	155	99	121	110	94	33	10	10
2	10	10	10	10	133	101	121	114	88	31	10	10
3	10	10	10	10	123	97	121	130	81	28	10	10
4	10	10	10	10	114	92	121	147	77	26	10	10
5	10	10	10	10	110	88	123	168	73	24	10	10
6	10	10	10	10	106	85	135	175	71	22	10	10
7	10	10	10	10	103	88	140	181	65	20	10	10
8	10	10	10	10	101	103	142	181	59	17	10	10
9	10	10	10	12	101	106	142	181	57	15	10	10
10	10	10	10	29	101	106	150	203	59	14	10	10
11	10	10	10	33	101	99	157	203	61	12	10	10
12	10	10	10	38	108	94	155	197	59	12	10	10
13	10	10	10	46	117	99	150	194	61	12	10	10
14	10	10	10	73	117	112	145	186	63	11	10	10
15	10	10	10	79	108	130	140	183	63	11	10	10
16	10	10	10	106	108	135	130	186	57	10	10	10
17	10	10	10	189	114	137	121	197	57	10	10	10
18	10	10	10	208	108	133	119	206	56	10	10	10
19	10	10	10	186	101	126	117	206	52	10	10	10
20	10	10	10	168	92	119	119	194	49	10	10	10
21	10	10	10	208	88	119	112	177	46	10	10	10
22	10	10	10	533	85	119	106	168	42	10	10	10
23	10	10	10	595	85	123	103	165	38	10	10	10
24	10	10	10	766	85	130	99	152	35	10	10	10
25	10	10	10	529	83	140	99	145	33	10	10	10
26	10	10	10	386	83	142	106	137	33	10	10	10
27	10	10	10	340	85	137	108	130	33	10	10	10
28	10	10	10	268	88	135	108	125	33	10	10	10
29	10	10	10	211	-----	133	108	121	33	10	10	10
30	10	10	10	189	-----	133	108	110	33	10	10	10
31	10	-----	10	162	-----	128	-----	101	-----	10	10	-----
TOTAL	310	300	310	5,434	2,903	3,588	3,726	5,073	1,661	448	310	300
MEAN	10.0	10.0	10.0	175	104	116	124	164	55.4	14.5	10.0	10.0
MAX	10	10	10	766	155	142	157	206	94	33	10	10
MIN	10	10	10	10	83	85	99	101	33	10	10	10
AC-FT	615	595	615	10,780	5,760	7,120	7,390	10,060	3,290	889	615	595

CAL YR 1969 TOTAL 30,609 MEAN 83.9 MAX 543 MIN 10 AC-FT 60,710  
WTR YR 1970 TOTAL 24,363 MEAN 66.7 MAX 766 MIN 10 AC-FT 48,320

## 11401180 LITTLE GRIZZLY CREEK NEAR GENESEE, CALIF.

LOCATION.--Lat 40°00'50", long 120°45'11", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.21, T.25 N., R.11 E., Plumas County, Plumas National Forest, on right bank 2.5 miles upstream from Indian Creek and 2 miles south of Genesee.

DRAINAGE AREA.--29.6 sq mi.

PERIOD OF RECORD.--August 1964 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,180 ft (from topographic map).

AVERAGE DISCHARGE.--6 years, 56.8 cfs (41,150 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,800 cfs Jan. 24 (gage height, 6.15 ft); minimum daily, 6.5 cfs Sept. 11, 12, 29, 30.

Period of record: Maximum discharge, 1,800 cfs Jan. 24, 1970 (gage height, 6.15 ft), from rating curve extended above 500 cfs on basis of slope-area measurement at gage height, 5.90 ft; minimum daily, 3.5 cfs Sept. 10, 11, 30, 1966.

REMARKS.--Records good. Records of water temperatures for the water year 1970 are published in Part 2 of this report. See schematic diagram of North Fork Feather River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.2	7.8	7.8	18	89	56	58	53	118	23	9.1	6.8
2	7.2	7.8	7.8	15	77	53	58	60	115	22	9.0	6.8
3	7.4	7.8	7.8	14	70	49	57	78	113	20	8.9	6.8
4	7.6	8.3	7.6	15	66	47	57	105	108	20	8.7	6.9
5	7.6	15	7.4	13	60	45	61	124	102	18	8.6	7.5
6	7.6	13	8.0	13	56	44	65	133	92	18	8.5	7.3
7	7.6	12	7.7	15	53	45	68	130	84	16	8.5	7.1
8	8.3	11	7.9	15	51	53	68	132	78	16	8.4	6.9
9	8.1	10	8.0	54	51	56	71	141	75	16	8.1	6.8
10	7.9	10	8.1	125	50	54	80	149	78	15	8.0	6.6
11	7.8	9.9	9.1	68	51	49	83	127	63	15	7.8	6.5
12	7.8	10	16	55	60	47	79	117	59	14	7.7	6.5
13	7.8	10	18	87	63	50	76	112	59	14	7.6	6.6
14	8.0	9.9	12	235	59	62	73	110	55	14	7.6	6.9
15	12	9.8	10	137	58	66	68	120	49	13	7.5	6.9
16	22	11	9.7	365	60	65	65	150	48	13	7.4	6.9
17	19	9.3	9.1	389	69	67	65	185	44	12	7.4	6.7
18	11	8.8	9.3	192	62	62	60	200	40	12	7.5	6.7
19	9.7	8.8	39	138	56	59	60	194	38	12	7.4	6.7
20	9.5	8.8	72	145	52	57	54	178	36	11	7.3	6.9
21	9.9	8.7	134	430	50	57	51	170	36	11	7.3	6.9
22	9.5	8.5	61	792	48	59	49	170	34	11	7.2	6.8
23	9.0	8.3	50	634	46	61	46	174	30	11	7.2	6.8
24	8.7	8.3	101	922	44	67	45	166	29	11	7.1	6.7
25	8.5	8.2	112	401	43	70	47	174	28	10	7.1	6.7
26	8.3	8.2	70	261	43	69	51	186	30	10	7.1	6.6
27	8.2	8.1	46	303	43	66	49	180	32	10	7.1	6.6
28	8.2	7.9	33	207	45	67	46	162	31	9.9	6.9	6.6
29	8.0	7.7	27	155	-----	67	47	147	30	9.8	7.0	6.5
30	8.0	7.7	23	126	-----	64	52	136	25	9.3	6.9	6.5
31	8.0	-----	20	103	-----	60	-----	126	-----	9.3	6.8	-----
TOTAL	285.4	280.6	959.3	6,442	1,575	1,793	1,809	4,389	1,759	426.3	238.7	203.5
MEAN	9.21	9.35	30.9	208	56.3	57.8	60.3	142	58.6	13.8	7.70	6.78
MAX	22	15	134	922	89	70	83	200	118	23	9.1	7.5
MIN	7.2	7.7	7.4	13	43	44	45	53	25	9.3	6.8	6.5
AC-FT	566	557	1,900	12,780	3,120	3,560	3,590	8,710	3,490	846	473	404
CAL YR 1969	TOTAL 27,483.0		MEAN 75.3		MAX 810		MIN 7.2		AC-FT 54,510			
WTR YR 1970	TOTAL 20,160.8		MEAN 55.2		MAX 922		MIN 6.5		AC-FT 39,990			

## PEAK DISCHARGE (BASE, 300 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-14	1130	3.56	307	1-24	0030	6.15	1,800
1-16	1400	4.15	508	1-27	0430	3.63	352

## SACRAMENTO RIVER BASIN

## 11401200 INDIAN CREEK NEAR TAYLORSVILLE, CALIF.

LOCATION.--Lat 40°02'53", long 120°49'01", in SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.12, T.25 N., R.10 E., Plumas County, on right bank 0.3 mile upstream from Montgomery Creek and 2.3 miles southeast of Taylorsville.

DRAINAGE AREA.--526 sq mi.

PERIOD OF RECORD.--May 1957 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,580 ft (from topographic map). Prior to Oct. 22, 1963, at site 1.0 mile downstream at different datum.

AVERAGE DISCHARGE.--13 years, 374 cfs (271,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 14,200 cfs Jan. 24 (gage height, 15.07 ft); minimum daily, 33 cfs Sept. 17.

Period of record: Maximum discharge, 30,200 cfs Feb. 1, 1963 (gage height, 10.65 ft, site and datum then in use), from rating curve extended above 3,000 cfs on basis of slope-area measurements at gage heights 10.3 and 10.65 ft; minimum daily, 13 cfs Aug. 2-4, 1961.

Flood of Dec. 23, 1955, reached a stage of 11.5 ft, from floodmarks, site and datum then in use (discharge, unknown).

REMARKS.--Flow partly regulated by Antelope Lake (see sta 11401120) and storage in Taylor Lake since 1929 (capacity, 380 acre-ft). Some diversions for irrigation upstream. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	65	52	180	1,080	839	544	424	395	135	50	41
2	44	65	53	155	904	708	539	420	379	125	49	41
3	46	65	53	142	879	680	520	454	371	117	48	41
4	48	65	54	145	874	660	508	514	354	110	49	42
5	49	91	54	131	808	617	511	572	337	104	48	44
6	49	96	57	129	754	621	530	610	327	97	48	48
7	50	90	59	136	729	691	542	624	302	93	47	49
8	54	85	59	131	718	839	530	617	280	91	46	44
9	56	80	61	212	714	831	538	614	274	92	47	41
10	53	77	64	770	690	742	567	735	287	92	46	37
11	51	75	71	555	685	672	615	731	267	90	46	36
12	52	74	91	470	772	637	588	675	242	87	45	37
13	56	73	97	658	871	713	571	685	247	84	44	39
14	57	73	88	1,670	807	819	566	644	252	80	44	41
15	68	73	81	1,340	790	882	537	621	230	76	43	41
16	109	74	79	3,340	807	839	510	650	213	73	42	35
17	126	72	77	4,270	801	841	494	710	196	70	41	33
18	101	69	79	2,500	806	753	477	733	181	68	40	34
19	87	69	135	1,850	724	712	471	716	165	65	40	35
20	80	68	251	2,140	666	686	465	679	156	64	39	37
21	76	69	600	3,460	645	672	438	645	151	63	38	38
22	73	68	512	7,790	642	662	407	624	149	61	38	37
23	71	67	358	4,800	624	666	385	617	136	60	38	37
24	70	67	535	9,810	632	683	374	596	128	59	38	39
25	69	66	671	3,760	613	703	366	584	124	58	38	40
26	67	64	548	2,660	651	694	396	590	126	57	37	41
27	66	61	392	3,770	685	654	450	583	138	56	37	42
28	67	57	277	2,350	732	635	442	533	147	55	37	42
29	67	54	245	1,720	-----	624	440	499	155	53	38	44
30	67	53	220	1,510	-----	605	455	465	149	52	40	45
31	65	-----	189	1,190	-----	592	-----	432	-----	51	40	-----
TOTAL	2,038	2,125	6,162	63,744	21,103	21,972	14,776	18,596	6,858	2,438	1,321	1,201
MEAN	65.7	70.8	199	2,056	754	709	493	600	229	78.6	42.6	40.0
MAX	126	96	671	9,810	1,080	882	615	735	395	135	50	49
MIN	44	53	52	129	613	592	366	420	124	51	37	33
AC-FT	4,040	4,210	12,220	126,400	41,860	43,580	29,310	36,890	13,600	4,840	2,620	2,380

CAL YR 1969 TOTAL 232,226 MEAN 636 MAX 7,550 MIN 44 AC-FT 460,600  
WTR YR 1970 TOTAL 162,334 MEAN 445 MAX 9,810 MIN 33 AC-FT 322,000

## 11401500 INDIAN CREEK NEAR CRESCENT MILLS, CALIF.

LOCATION.--Lat 40°04'42", long 120°55'36", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.25, T.26 N., R.9 E., Plumas County, on left bank 0.8 mile upstream from Dixie Creek and 1.5 miles south of Crescent Mills.

DRAINAGE AREA.--739 sq mi.

PERIOD OF RECORD.--January 1906 to December 1909, September 1911 to March 1918, October 1930 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,500 ft (from topographic map). Prior to March 1918, nonrecording gage at site 800 ft upstream at different datum.

AVERAGE DISCHARGE.--49 years (1906-9, 1911-17, 1930-70), 550 cfs (398,500 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 19,300 cfs Jan. 24 (gage height, 16.09 ft); minimum daily, 15 cfs Aug. 21.

Period of record: Maximum discharge observed, 25,000 cfs Mar. 19, 1907 (gage height, 20.2 ft, site and datum then in use); minimum, 1.7 cfs Aug. 25, 1931.

REMARKS.--Records good. Natural flow affected by storage in Round Valley Reservoir since 1865 (capacity, 5,000 acre-ft), Taylor Lake since 1929 (capacity, 380 acre-ft), and Antelope Lake since November 1963, see sta 11401120 (capacity, 22,500 acre-ft). Diversions above station for irrigation of about 11,800 acres of which 9,700 acres is in Indian and Genesee Valleys. See schematic diagram of North Fork Feather River basin. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

REVISIONS (WATER YEARS).--WSP 1445: 1906-9. WSP 1931: 1956, 1958(M). WRD Calif. 1968: 1967.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	96	97	300	1,610	1,480	733	584	480	182	31	18
2	45	96	99	258	1,370	1,380	697	560	443	156	26	17
3	45	96	100	226	1,270	1,190	689	578	416	133	24	18
4	51	94	98	233	1,230	1,120	670	635	405	123	26	16
5	50	162	95	209	1,140	1,070	667	701	373	113	31	17
6	53	200	101	195	1,050	1,020	687	751	372	97	31	18
7	54	174	101	214	1,010	1,080	701	784	340	88	28	18
8	59	163	106	233	983	1,580	696	780	307	81	20	20
9	68	143	107	584	963	1,630	701	765	310	75	19	24
10	65	132	112	1,970	939	1,440	718	916	343	77	19	28
11	60	125	141	1,330	928	1,250	793	954	327	58	19	31
12	54	120	257	1,060	1,100	1,120	758	915	306	53	21	32
13	55	118	276	1,640	1,410	1,160	736	919	316	44	18	32
14	60	117	198	3,840	1,270	1,290	744	854	357	43	17	32
15	76	118	166	4,020	1,170	1,440	707	800	326	45	17	32
16	138	126	149	4,510	1,220	1,350	668	812	291	41	21	31
17	213	124	137	7,620	1,560	1,320	648	889	281	36	22	26
18	171	115	150	6,410	1,330	1,190	625	921	253	36	24	23
19	140	112	600	4,200	1,160	1,090	587	892	218	36	25	30
20	121	111	1,100	3,360	1,050	1,020	561	854	191	33	20	29
21	113	110	2,000	3,900	991	976	580	792	166	37	15	32
22	109	108	1,100	8,560	961	940	538	764	156	44	18	33
23	106	106	878	9,210	923	931	499	752	127	44	21	32
24	102	105	1,510	15,600	913	944	482	726	128	39	21	31
25	99	105	1,610	10,800	884	971	472	711	123	38	21	32
26	98	105	1,190	6,250	905	955	531	711	127	38	17	32
27	99	104	795	5,990	940	901	621	712	179	35	17	32
28	98	100	563	5,340	1,010	862	605	663	212	34	20	32
29	99	97	444	3,590	-----	849	566	616	222	33	22	34
30	98	97	380	2,560	-----	824	590	571	222	27	22	33
31	96	-----	326	1,850	-----	798	-----	518	-----	30	18	-----
TOTAL	2,741	3,579	14,986	116,062	31,290	35,171	19,270	23,400	8,317	1,949	671	815
MEAN	88.4	119	483	3,744	1,118	1,135	642	755	277	62.9	21.6	27.2
MAX	213	260	2,000	15,600	1,610	1,630	793	954	480	182	31	34
MIN	45	94	95	195	884	798	472	518	123	27	15	16
AC-FT	5,440	7,100	29,720	230,200	62,060	69,760	38,220	46,410	16,500	3,870	1,330	1,620
CAL YR 1969	TOTAL 373,312		MEAN 1,023		MAX 15,000		MIN 24		AC-FT 740,500			
WTR YR 1970	TOTAL 258,251		MEAN 708		MAX 15,600		MIN 15		AC-FT 512,200			

PEAK DISCHARGE (BASE, 1,100 CFS)							
DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	unknown	7.70	3,120	2-13	0400	5.94	1,470
12-24	1600	6.13	1,680	2-17	0300	6.33	1,750
1-10	0830	6.90	2,320	3- 1	1830	6.24	1,670
1-14	2030	8.97	4,680	3- 9	0400	6.33	1,730
1-17	1530	11.22	8,140	3-15	0600	5.98	1,480
1-24	1530	16.09	19,300				

## SACRAMENTO RIVER BASIN

11401940 MILL CREEK NEAR QUINCY, CALIF.

LOCATION.--Lat 39°56'03", long 120°54'18", in NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.19, T.24 N., R.10 E., Plumas County, on left bank at culvert on State Highways 70 and 89, 2.2 miles east of Quincy.

DRAINAGE AREA.--6.72 sq mi.

PERIOD OF RECORD.--Water years 1963-65 (annual maximum), October 1965 to current year.

GAGE.--Water-stage recorder and crest-stage gage with culvert control, and float operated rain gage. Altitude of gage is 3,500 ft (from topographic map). Prior to July 24, 1967, at site 38 ft downstream at datum 0.55 ft lower.

EXTREMES.--Current year: Maximum discharge, 422 cfs Jan. 14, 24 (gage height, 4.79 ft); no flow for several months.

Period of record: Maximum discharge, 601 cfs Dec. 22, 1964 (gage height, 7.02 ft, site and datum then in use), from rating curve extended above 220 cfs on basis of computation of flow through culvert at gage heights 5.53 and 7.02 ft; no flow for several months each year.

REMARKS.--Records fair prior to Feb. 5, good thereafter. Some diversion for irrigation upstream from station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	.60	16	64	28	14	3.4	1.5			
2	0	0	.60	14	56	22	14	3.4	1.5			
3	0	0	.60	13	44	19	14	4.0	1.6			
4	0	0	.60	12	36	18	12	4.5	1.5			
5	0	.74	.60	12	34	17	10	5.0	1.4			
6	0	1.4	.86	11	31	17	11	5.0	.82			
7	0	2.6	.86	10	30	18	11	4.5	.48			
8	0	2.4	.86	9.4	28	26	10	4.5	.38			
9	0	1.6	.60	26	26	24	7.3	4.5	.34			
10	0	1.4	.60	33	25	22	6.8	4.2	.48			
11	0	1.4	2.0	18	25	21	6.8	3.0	.33			
12	0	1.4	10	17	32	20	6.8	2.6	.13			
13	0	1.4	8.9	59	31	20	6.5	2.2	.04			
14	0	1.4	2.9	267	28	25	6.5	2.1	.22			
15	.01	1.2	2.2	110	25	23	6.5	2.4	.14			
16	.04	1.4	2.2	164	28	22	6.2	3.2	.06			
17	.01	1.0	2.2	161	31	21	4.5	4.0	0			
18	0	.86	2.6	93	26	20	4.2	4.2	0			
19	0	.86	14	69	23	19	4.2	3.7	0			
20	0	.86	29	58	21	18	4.0	3.2	0			
21	0	.86	67	145	19	17	3.7	3.0	0			
22	0	.72	26	249	17	17	3.4	3.0	0			
23	0	.72	23	213	17	17	3.4	3.0	0			
24	0	.72	73	271	16	18	3.4	3.0	0			
25	0	.72	48	159	16	17	3.4	3.0	0			
26	0	.72	28	133	15	17	4.2	3.0	0			
27	0	.72	21	158	14	16	3.7	3.0	0			
28	0	.60	16	122	17	16	3.4	2.8	0			
29	0	.60	16	98	-----	16	3.4	2.4	0			
30	0	.60	16	81	-----	16	3.4	2.1	0			
31	0	-----	15	72	-----	14	-----	1.6	-----			
TOTAL	.06	28.90	431.78	2,873.4	775	601	201.7	103.5	10.92	0	0	0
MEAN	.001	.96	13.9	92.7	27.7	19.4	6.72	3.34	.36	0	0	0
MAX	.04	2.6	73	271	64	28	14	5.0	1.6	0	0	0
MIN	0	0	.60	9.4	14	14	3.4	1.6	0	0	0	0
AC-FT	.1	57	856	5,700	1,540	1,190	400	205	22	0	0	0
(a)	2.39	1.98	11.80	18.72	3.45	3.28	1.40	.65	.42	0	0	0

CAL YR 1969 TOTAL 5,095.96 MEAN 14.0 MAX 252 MIN 0 ACFT 10,110  
WAT YR 1970 TOTAL 5,026.26 MEAN 13.8 MAX 271 MIN 0 ACFT 9,970

a Precipitation, in inches (some precipitation falling as snow may not be included).



## 11402000 SPANISH CREEK ABOVE BLACKHAWK CREEK, AT KEDDIE, CALIF.

LOCATION.--Lat 40°00'11", long 120°57'12", in NE $\frac{1}{4}$  sec.27, T.25 N., R.9 E., Plumas County, on right bank 200 ft upstream from Blackhawk Creek and 0.9 mile southeast of Keddle.

DRAINAGE AREA.--184 sq mi.

PERIOD OF RECORD.--October 1933 to current year. Prior to October 1953, published as "at Keddle." Records for October 1911 to September 1933 at site 1.2 miles downstream not equivalent owing to inflow.

GAGE.--Water-stage recorder. Altitude of gage is 3,250 ft (from topographic map).

AVERAGE DISCHARGE.--37 years, 267 cfs (193,400 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 12,400 cfs Jan. 24 (gage height, 12.14 ft), from rating curve extended as explained below; minimum daily, 19 cfs Aug. 15.  
Period of record: Maximum discharge, 15,400 cfs Dec. 22, 1964 (gage height, 13.53 ft), from rating curve extended above 4,400 cfs on basis of slope-area measurement at gage height 12.47 ft; minimum, 3.8 cfs Aug. 12, 1934.

REMARKS.--Records good. Flow regulated by five small reservoirs having a combined capacity of 800 acre-ft. Approximately 4,600 acres irrigated above station (from information furnished by U.S. Forest Service). City of Quincy diverts about 450 acre-ft annually for municipal supply. See schematic diagram of North Fork Feather River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	59	61	203	718	1,270	253	202	172	74	31	24
2	38	59	61	182	620	875	248	200	168	68	29	23
3	39	59	61	164	561	648	244	216	165	65	30	23
4	39	59	61	159	521	583	238	243	150	61	29	22
5	40	138	60	143	478	540	236	261	146	58	28	26
6	42	126	61	137	444	502	244	271	140	56	27	28
7	43	108	61	139	417	494	242	246	130	55	27	25
8	48	121	63	153	397	889	240	242	124	51	27	26
9	51	93	67	618	382	740	238	246	128	44	27	24
10	48	84	73	1,580	364	651	246	304	142	44	27	24
11	48	79	140	690	360	552	262	255	125	45	26	26
12	47	76	559	604	528	493	241	245	116	46	26	27
13	48	75	496	2,010	683	491	239	234	117	44	26	25
14	50	73	214	7,050	614	592	236	222	121	42	23	26
15	68	72	153	3,160	514	610	224	229	122	40	19	28
16	115	73	127	4,570	586	538	229	244	112	40	20	27
17	136	70	113	4,490	918	502	248	268	100	38	22	27
18	89	68	106	2,350	630	444	231	281	89	37	22	27
19	73	67	839	1,540	532	406	241	278	87	37	21	28
20	67	67	1,360	1,390	474	379	221	255	84	37	28	29
21	64	67	2,990	3,480	436	359	209	239	79	38	26	29
22	66	66	1,040	5,610	407	346	199	237	74	35	24	29
23	61	65	818	4,460	386	341	191	238	73	36	25	30
24	60	65	2,910	7,940	369	340	185	236	64	36	24	28
25	59	64	1,700	3,210	349	342	183	233	64	33	24	25
26	59	63	932	2,020	341	333	202	222	67	30	23	27
27	59	63	561	3,460	338	314	220	212	80	30	23	30
28	58	62	402	1,910	382	300	203	208	79	30	24	33
29	58	61	317	1,340	-----	293	193	198	92	31	24	35
30	57	61	262	1,050	-----	283	198	188	83	30	23	39
31	57	-----	225	840	-----	268	-----	180	-----	31	23	-----
TOTAL	1,826	2,263	16,893	66,652	13,749	15,718	6,784	7,333	3,293	1,342	778	820
MEAN	58.9	75.4	545	2,150	491	507	226	237	110	43.3	25.1	27.3
MAX	136	138	2,990	7,940	918	1,270	262	304	172	74	31	39
MIN	38	59	60	137	338	268	183	180	64	30	19	22
AC-FT	3,620	4,490	33,510	132,200	27,270	31,180	13,460	14,550	6,530	2,660	1,540	1,630
CAL YR 1969	TOTAL 169,474		MEAN 464		MAX 10,400		MIN 28		AC-FT 336,200			
WTR YR 1970	TOTAL 137,451		MEAN 377		MAX 7,940		MIN 19		AC-FT 272,600			

## PEAK DISCHARGE (BASE, 1,700 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1600	7.87	5,000	1-16	1800	8.95	6,660
12-24	0700	7.30	4,220	1-22	0330	9.33	7,300
1-10	0030	5.95	2,540	1-24	0245	12.14	12,400
1-14	1330	11.24	10,700	1-27	0600	7.77	4,960

## SACRAMENTO RIVER BASIN

## 11403000 EAST BRANCH OF NORTH FORK FEATHER RIVER NEAR RICH BAR, CALIF.

LOCATION.--Lat 40°00'38", long 121°13'03", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.20, T.25 N., R.7 E., Plumas County, Plumas National Forest, on left bank 0.5 mile upstream from mouth, and 1.3 miles west of Rich Bar.

DRAINAGE AREA.--1,025 sq mi.

PERIOD OF RECORD.--October 1950 to September 1961, December 1967 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,300 ft (from topographic map). Prior to Nov. 29, 1950, at site 30 ft downstream at same datum.

AVERAGE DISCHARGE.--13 years (1950-51, 1969-70), 1,115 cfs (807,800 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 30,400 cfs Jan. 24 (gage height, 14.10 ft), from rating curve extended above 15,000 cfs as explained below; minimum daily, 78 cfs Aug. 16.

Period of record: Maximum discharge, 48,000 cfs Dec. 23, 1955 (gage height, 16.52 ft), from rating curve extended above 15,000 cfs on basis of study of upstream and downstream peak discharges; minimum, 39 cfs Sept. 6, 7, 1955, July 28, Aug. 23, 1961.

REMARKS.--No storage or diversion between stations on Indian and Spanish Creeks and station near Rich Bar.

COOPERATION.--Records furnished by Pacific Gas and Electric Co. and reviewed by Geological Survey.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	125	170	181	834	2,840	2,940	1,300	1,060	891	411	109	81
2	125	172	181	744	2,430	2,770	1,270	1,080	822	378	107	83
3	122	170	183	642	2,160	2,290	1,240	1,110	785	331	99	80
4	122	170	181	573	1,990	2,100	1,220	1,160	735	303	99	80
5	129	272	179	531	1,870	2,030	1,240	1,200	692	288	101	79
6	129	370	177	502	1,840	1,930	1,240	1,250	662	260	102	84
7	132	308	181	483	1,810	1,960	1,250	1,300	630	234	101	86
8	136	311	185	805	1,770	2,730	1,250	1,300	599	219	97	83
9	149	277	190	1,700	1,740	2,820	1,260	1,350	622	204	90	86
10	152	245	208	4,150	1,670	2,540	1,300	1,510	630	193	87	86
11	146	229	308	2,620	1,650	2,250	1,360	1,450	610	191	87	90
12	139	221	976	2,020	1,890	2,040	1,300	1,410	579	170	87	93
13	136	217	1,020	4,040	2,440	2,030	1,290	1,390	606	159	88	94
14	139	212	522	12,800	2,300	2,210	1,270	1,360	626	147	86	93
15	160	210	393	7,950	2,070	2,440	1,240	1,320	599	143	83	94
16	236	212	334	9,550	2,050	2,280	1,210	1,350	568	143	78	96
17	314	214	300	12,900	2,860	2,200	1,190	1,360	535	135	79	94
18	306	208	290	9,330	2,390	2,040	1,160	1,460	504	129	84	88
19	241	202	1,420	6,160	2,110	1,900	1,140	1,450	477	127	87	87
20	212	200	2,770	5,050	1,930	1,780	1,110	1,360	451	125	84	94
21	198	198	5,650	7,890	1,820	1,720	1,080	1,290	432	121	94	94
22	190	198	3,390	15,200	1,750	1,670	1,040	1,270	417	127	81	96
23	190	196	2,160	14,900	1,690	1,640	1,000	1,250	399	133	80	97
24	185	192	5,260	28,800	1,640	1,650	963	1,210	384	131	84	97
25	179	192	4,040	16,800	1,590	1,680	927	1,170	370	123	83	91
26	176	190	2,880	9,290	1,590	1,660	1,000	1,140	335	119	84	91
27	174	189	1,910	10,500	1,620	1,600	1,100	1,130	384	118	84	93
28	174	187	1,440	8,320	1,700	1,520	1,030	1,110	454	116	84	96
29	172	183	1,140	5,800	-----	1,500	1,030	1,080	464	114	84	99
30	172	181	1,050	4,360	-----	1,460	1,030	996	454	111	87	102
31	172	-----	931	3,250	-----	1,400	-----	932	-----	106	86	-----
TOTAL	5,332	6,496	40,030	208,494	55,210	62,780	35,040	38,808	16,716	5,609	2,766	2,707
MEAN	172	217	1,291	6,726	1,972	2,025	1,168	1,252	557	181	89.2	90.2
MAX	314	370	5,650	28,800	2,860	2,940	1,360	1,510	891	411	109	102
MIN	122	170	177	483	1,590	1,400	927	932	335	106	78	79
AC-FT	10,580	12,880	79,400	413,500	109,500	124,500	69,500	76,980	33,160	11,130	5,490	5,370
CAL YR 1969	TOTAL 610,611		MEAN 1,673	MAX 26,000	MIN 98	AC-FT 1,211,000						
WTR YR 1970	TOTAL 479,988		MEAN 1,315	MAX 28,800	MIN 78	AC-FT 952,100						

## SACRAMENTO RIVER BASIN

859

## 11403500 BUCKS LAKE NEAR BUCKS LODGE, CALIF.

LOCATION.--Lat 39°53'45", long 121°12'10", in NW¼ sec.33, T.24 N., R.7 E., Plumas County, Plumas National Forest, in intake tower No. 2 upstream from dam on Bucks Creek, 2 miles northwest of Bucks Lodge, and 15 miles west of Quincy.

DRAINAGE AREA.--28.6 sq mi.

PERIOD OF RECORD.--1927-28 (year-end contents only, published in WSP 1315-A), October 1928 to current year. Prior to October 1954 published as Bucks Creek Reservoir near Bucks Ranch.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Feather River Power Co.).

EXTREMES.--Current year: Maximum contents, 101,600 acre-ft July 13 (elevation, 5,154.83 ft); minimum, 35,400 acre-ft Dec. 18 (elevation, 5,112.37 ft).

Period of record: Maximum contents, 105,800 acre-ft June 23, 1938 (elevation, 5,157.1 ft); minimum, 12,330 acre-ft Feb. 27, 1929, (elevation, 5,090.7 ft).

REMARKS.--Reservoir is formed by concrete-faced, rockfill dam completed in 1927; storage began in May 1927. Capacity, 101,700 acre-ft between elevations 5,064.75 ft (sill of outlet gate) and 5,154.85 ft (spillway crest) above mean sea level. Released water flows down Bucks Creek to Lower Bucks Lake, where it enters tunnel that discharges into Grizzly Creek, thence to Bucks Creek powerhouse. Figures given herein represent total contents, of which 274 acre-ft is not available for release. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Record of contents collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

5,064.75	274	5,075	2,400	5,100	21,200	5,125	52,500
5,066	388	5,080	4,740	5,105	26,600	5,130	60,000
5,068	635	5,085	7,920	5,110	32,500	5,140	75,900
5,070	977	5,090	11,700	5,115	38,800	5,150	93,000
5,072	1,440	5,095	16,200	5,120	45,500	5,160	111,200

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59,752	47,188	39,028	46,616	85,719	85,393	80,790	84,196	96,634	101,144	95,137	79,045
2	59,205	46,783	38,640	46,366	86,097	85,205	80,554	84,503	96,955	101,235	94,604	78,545
3	58,705	46,380	38,265	46,102	86,304	84,965	80,386	84,880	97,242	101,290	94,072	78,028
4	58,251	45,978	37,866	45,853	86,510	84,794	80,386	85,239	97,546	101,344	93,542	77,513
5	57,814	45,964	37,482	45,660	86,665	84,555	80,386	85,616	97,815	101,380	93,012	77,016
6	57,378	45,618	37,099	45,535	86,803	84,281	80,420	85,943	98,031	101,435	92,501	76,519
7	56,869	45,327	36,730	45,784	86,958	84,281	80,436	86,252	98,246	101,471	91,991	76,024
8	56,525	44,985	36,388	46,019	87,079	84,060	80,470	86,648	98,480	101,508	91,464	75,563
9	56,063	44,617	36,046	45,812	87,200	83,889	80,504	87,131	98,732	101,526	90,956	75,069
10	55,632	44,249	35,832	46,630	87,234	83,651	80,588	87,545	99,020	101,562	90,448	74,577
11	55,143	43,883	35,719	47,006	87,148	83,361	80,604	87,995	99,236	101,580	89,925	74,102
12	54,700	43,518	36,160	47,734	87,459	83,123	80,638	88,325	99,398	101,599	89,419	73,612
13	54,243	43,154	36,451	49,159	87,563	82,886	80,689	88,637	99,579	101,508	88,897	73,123
14	53,847	42,804	36,451	51,635	87,459	82,835	80,689	89,019	99,777	101,290	88,377	72,619
15	53,788	42,349	36,337	52,460	87,286	82,648	80,689	89,471	99,976	101,017	87,857	72,116
16	53,744	42,082	36,046	55,528	87,424	82,580	80,705	89,959	100,184	100,763	87,338	71,631
17	53,422	41,682	35,732	57,889	87,321	82,580	80,823	90,483	100,365	100,510	86,820	71,146
18	53,145	41,390	35,455	58,932	87,114	82,614	81,110	90,956	100,510	100,256	86,304	70,663
19	52,577	41,231	36,870	59,874	86,889	82,597	81,396	91,394	100,655	99,976	85,788	70,164
20	52,112	41,072	38,821	61,006	86,683	82,597	81,616	91,815	100,745	99,705	85,273	69,667
21	51,707	40,901	42,563	64,323	86,459	82,597	81,835	92,237	100,800	99,434	84,743	69,171
22	51,317	40,716	43,235	69,155	86,218	82,614	82,021	92,677	100,854	99,182	84,196	68,676
23	50,900	40,492	43,829	73,596	85,994	82,648	82,258	93,135	100,908	98,930	83,651	68,182
24	50,499	40,374	45,177	77,132	85,737	82,682	82,445	93,595	100,981	98,660	83,123	67,513
25	50,069	40,203	46,213	79,012	85,479	82,631	82,716	94,072	101,072	98,426	82,614	67,163
26	49,642	40,019	46,574	80,874	85,256	82,394	83,089	94,462	101,144	98,138	82,106	66,655
27	49,244	39,836	46,922	82,563	84,999	82,140	83,293	94,941	101,253	97,761	81,582	66,148
28	48,819	39,653	47,201	83,361	85,222	81,886	83,497	95,315	101,435	97,224	81,076	65,659
29	48,423	39,471	47,271	84,025	-----	81,633	83,702	95,670	101,526	96,705	80,571	65,186
30	48,015	39,301	47,062	84,657	-----	81,362	83,906	96,027	101,344	96,187	80,050	64,731
31	47,593	-----	46,853	85,205	-----	81,059	-----	96,330	-----	95,688	79,547	-----
MAX	59,752	47,188	47,271	85,205	87,563	85,393	83,906	96,330	101,526	101,599	95,137	79,045
MIN	47,593	39,301	35,455	45,535	84,999	81,059	80,386	84,196	96,634	95,688	79,547	64,731
(a)	5,121.52	5,115.39	5,121.00	5,145.54	5,145.55	5,143.10	5,144.78	5,151.90	5,154.68	5,151.54	5,142.20	5,133.06
(b)	-12,600	-8,290	+7,550	+38,400	+17	-4,160	+2,850	+12,400	+5,010	-5,660	-16,100	-14,800

CAL YR 1969 b +11,200  
WTR YR 1970 b +4,520

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet, rounded to Geological Survey standards.

## SACRAMENTO RIVER BASIN

## 11404500 NORTH FORK FEATHER RIVER AT PULGA, CALIF.

LOCATION.--Lat 39°47'39", long 121°27'03", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.6, T.22 N., R.5 E., Butte County, Plumas National Forest, on left bank between railroad and highway bridges, 0.5 mile downstream from Flea Valley Creek and Pulga, and 1.5 miles downstream from Poe Dam.

DRAINAGE AREA.--1,953 sq mi.

PERIOD OF RECORD.--October 1910 to current year. Monthly discharge only for some periods and yearly estimates for water years 1911 and 1938, published in WSP 1315-A. Prior to October 1962, published as "at Big Bar."

GAGE.--Water-stage recorder. Datum of gage is 1,304.88 ft above mean sea level (levels by Pacific Gas and Electric Co.). Prior to Oct. 1, 1937, at site 1.1 miles upstream at different datum. Oct. 1, 1937, to Sept. 30, 1958, at present site at datum 5.00 ft higher.

AVERAGE DISCHARGE (including diversion through Poe powerhouse).--60 years, 2,956 cfs (2,142,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 56,000 cfs Jan. 23 (gage height, 31.24 ft); minimum daily, 48 cfs June 30.

Period of record (prior to diversion to Poe powerhouse): Maximum discharge, 72,400 cfs Dec. 23, 1955 (gage height, 35.60 ft, present datum), from rating curve extended above 34,000 cfs; minimum daily, 235 cfs Oct. 31, 1932.

1958 to current year: Maximum discharge, 73,000 cfs Dec. 22, 1964 (gage height, 35.80 ft), from rating curve extended above 34,000 cfs; minimum daily, 33 cfs June 25, 1961.

REMARKS.--Records good. Flow regulated by Lake Almanor (see sta 11399000), Bucks Lake (see sta 11403500), Mountain Meadows Reservoir, Butt Valley Reservoir, and five forebays (combined capacity, 1,239,000 acre-ft). Diversion through Poe powerhouse began on May 29, 1958. See schematic diagram of North Fork Feather River basin. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

COOPERATION.--Gage-height record and seven discharge measurements furnished by Pacific Gas and Electric Co. in connection with a Federal Power Commission project.

REVISIONS (WATER YEARS).--WSP 931: 1938(M), 1940. WSP 1515: 1935.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	54	57	83	1,850	2,500	96	60	50	51	60	63
2	53	55	56	79	1,240	2,530	100	59	49	53	61	62
3	54	53	56	76	858	1,530	68	57	50	53	62	61
4	56	55	58	76	613	2,210	67	58	49	57	63	62
5	54	79	56	71	387	2,190	68	88	49	56	62	62
6	54	60	56	73	271	1,600	68	58	50	53	62	62
7	55	62	56	71	232	473	66	57	49	53	62	62
8	58	61	60	81	197	1,530	65	57	51	53	61	63
9	53	59	58	1,720	163	1,830	65	58	53	53	61	62
10	52	58	70	6,170	128	1,770	65	58	53	51	62	63
11	53	56	96	3,310	109	1,640	65	56	52	52	62	62
12	53	56	1,250	2,910	203	1,590	65	57	50	53	63	62
13	52	56	779	9,370	639	1,520	65	55	50	53	62	62
14	53	56	78	23,800	639	1,120	70	54	51	53	62	62
15	65	55	69	14,700	270	1,700	65	53	51	54	62	62
16	66	56	65	19,300	791	1,580	65	54	51	56	62	63
17	56	54	60	19,600	3,190	931	64	53	51	54	61	62
18	55	54	61	12,500	1,860	890	63	54	51	54	61	63
19	56	55	3,010	8,300	1,620	743	66	53	50	56	61	63
20	52	55	5,940	7,140	1,510	975	63	54	50	56	61	63
21	54	57	13,700	19,100	1,150	484	62	53	50	55	61	63
22	54	56	4,160	25,600	959	329	62	53	50	56	62	63
23	53	56	1,560	31,500	1,120	153	61	53	51	56	62	62
24	55	55	6,990	39,400	1,110	264	60	53	51	56	61	62
25	54	55	5,410	21,500	804	334	60	52	51	57	62	61
26	53	58	2,480	13,400	171	444	63	52	50	57	62	67
27	53	57	613	15,600	95	148	62	52	50	58	61	64
28	54	57	145	11,300	156	158	61	52	51	58	61	64
29	55	58	101	7,100	-----	216	58	51	50	58	61	65
30	54	58	92	4,950	-----	83	58	50	48	57	61	64
31	54	-----	123	3,040	-----	78	-----	50	-----	58	63	-----
TOTAL	1,696	1,716	47,365	321,920	22,335	33,543	1,986	1,724	1,512	1,700	1,910	1,881
MEAN	54.7	57.2	1,528	10,380	798	1,082	66.2	55.6	50.4	54.8	61.6	62.7
MAX	66	79	13,700	39,400	3,190	2,530	100	88	53	58	63	67
MIN	52	53	56	71	95	78	58	50	48	51	60	61
AC-FT	3,360	3,400	93,950	638,500	44,300	66,530	3,940	3,420	3,000	3,370	3,790	3,730
MEAN a	2,940	3,154	5,247	13,720	5,085	5,315	3,005	2,690	1,368	1,683	2,532	2,501
ACFT a	180,800	187,700	322,600	843,800	282,400	326,800	178,800	165,600	81,420	103,500	155,700	148,800
CAL YR 1969	TOTAL 508,102		MEAN 1,392		MAX 41,300		MIN 50		ACFT 1,008,000		MEAN a 4,847	
WTR YR 1970	TOTAL 439,288		MEAN 1,204		MAX 39,400		MIN 48		ACFT 871,300		MEAN a 4,113	

a Adjusted for diversion through Poe powerhouse.

## 11405300 WEST BRANCH FEATHER RIVER NEAR PARADISE, CALIF.

LOCATION.--Lat 39°47'12", long 121°33'42", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.6, T.22 N., R.4 E., Butte County, on right bank 0.6 mile upstream from Griffin Gulch, and 4.0 miles northeast of Paradise. Prior to June 1 on left bank.

DRAINAGE AREA.--110 sq mi.

PERIOD OF RECORD.--October 1957 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,370 ft (from topographic map). Prior to June 1, 1970, on left bank at same datum.

AVERAGE DISCHARGE.--13 years, 317 cfs (229,700 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 21,200 cfs Jan. 23 (gage height, 23.40 ft); minimum daily, 1.0 cfs July 31, Aug. 1, Sept. 2, 13.

Period of record: Maximum discharge, 26,300 cfs Dec. 22, 1964 (gage height, 26.2 ft, from floodmarks), from rating curve extended above 14,000 cfs; minimum, 0.3 cfs Aug. 31, Sept. 1, 2, 1960, Sept. 8, 1962.

REMARKS.--Records good. Dewey, Miners, and Hendricks Canals divert from headwaters of West Branch Feather River into Butte Creek basin for power development at DeSahla and Centerville plants of Pacific Gas and Electric Co. Upper Miocene Canal diverts about 50 cfs to Lime Saddle powerplant. Flow regulated by Round Valley Reservoir (usable capacity, 5,000 acre-ft) and Philbrook Reservoir (capacity, 5,010 acre-ft). Records of water temperatures for the water year 1970 are published in Part 2 of this report.

REVISIONS.--WRD Calif. 1968: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	1.7	1.4	291	975	2,200	218	106	90	7.7	1.0	1.1
2	1.1	1.7	1.4	248	865	1,100	211	118	76	5.8	1.1	1.0
3	1.1	2.1	1.4	214	775	865	205	132	86	3.7	1.1	1.1
4	1.1	30	1.4	200	744	788	198	148	92	2.7	1.1	1.1
5	1.1	292	1.3	172	666	670	198	160	78	2.1	1.1	1.1
6	1.1	108	1.3	161	618	598	198	152	80	1.9	1.1	1.1
7	1.1	98	1.3	153	570	582	182	125	70	1.9	1.1	1.3
8	1.6	48	1.7	207	538	820	170	132	55	1.9	1.1	1.3
9	1.7	22	1.9	1,520	549	650	172	144	67	1.9	1.1	1.3
10	1.5	11	27	1,840	528	590	172	172	99	1.8	1.1	1.3
11	1.4	7.3	234	985	504	518	193	184	66	1.8	1.1	1.3
12	1.2	8.7	1,660	1,350	706	479	167	166	45	1.6	1.1	1.1
13	1.2	7.3	1,170	4,980	814	465	166	146	39	1.6	1.1	1.0
14	1.3	5.2	414	8,570	670	493	166	140	43	1.6	1.1	1.1
15	7.3	3.5	282	3,330	618	479	154	156	42	1.6	1.1	1.3
16	117	3.3	151	6,130	793	441	147	180	32	1.5	1.1	1.3
17	39	3.3	98	5,310	982	435	145	259	34	1.6	1.1	1.3
18	12	1.9	75	2,810	722	390	147	268	21	1.4	1.1	1.3
19	3.1	1.7	2,630	2,200	638	360	159	228	17	1.4	1.1	1.3
20	2.1	1.6	3,080	2,220	570	345	142	188	14	1.4	1.1	1.3
21	1.9	1.6	6,800	8,140	524	330	134	162	12	1.4	1.1	1.3
22	1.8	1.6	1,530	7,080	496	325	127	168	11	1.4	1.3	1.4
23	1.8	1.5	1,510	10,800	465	322	119	170	8.8	1.1	1.5	1.4
24	1.8	1.5	2,850	9,120	441	308	108	166	7.7	1.1	1.5	1.3
25	1.8	1.5	1,970	3,890	426	310	109	182	7.4	1.3	1.5	1.3
26	1.8	1.5	1,090	2,650	420	298	115	186	7.4	1.4	1.3	1.1
27	1.8	1.5	784	3,990	414	271	116	178	7.4	1.4	1.3	1.1
28	1.8	1.5	598	2,200	757	258	102	158	11	1.3	1.3	1.1
29	1.7	1.4	486	1,660	-----	252	101	138	23	1.3	1.3	1.1
30	1.7	1.4	402	1,360	-----	242	104	128	10	1.3	1.3	1.1
31	2.2	-----	332	1,130	-----	228	-----	116	-----	1.0	1.3	-----
TOTAL	218.3	673.3	28,186.1	94,911	17,788	16,412	4,645	5,056	1,251.7	60.9	36.6	36.2
MEAN	7.04	22.4	909	3,062	635	529	155	163	41.7	1.96	1.18	1.21
MAX	117	292	6,800	10,800	982	2,200	218	268	99	7.7	1.5	1.4
MIN	1.1	1.4	1.3	153	414	228	101	106	7.4	1.0	1.0	1.0
AC-FT	433	1,340	55,910	188,300	35,280	32,550	9,210	10,030	2,480	121	73	72
CAL YR 1969	TOTAL	204,581.0	MEAN	560	MAX	11,400	MIN	1.1	ACFT	405,800		
WAT YR 1970	TOTAL	169,275.1	MEAN	464	MAX	10,800	MIN	1.0	ACFT	335,800		

## PEAK DISCHARGE (BASE, 2,000 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-12	2200	9.08	2,560	1-16	1000	14.59	8,230
12-19	1500	12.18	5,630	1-22	0100	16.20	10,200
12-21	1115	17.85	12,700	1-23	2330	23.40	21,200
12-24	0330	10.61	4,060	1-27	0400	12.63	5,830
1-9	2100	10.93	4,380	3-1	0600	10.18	3,480
1-14	0900	17.45	12,000				

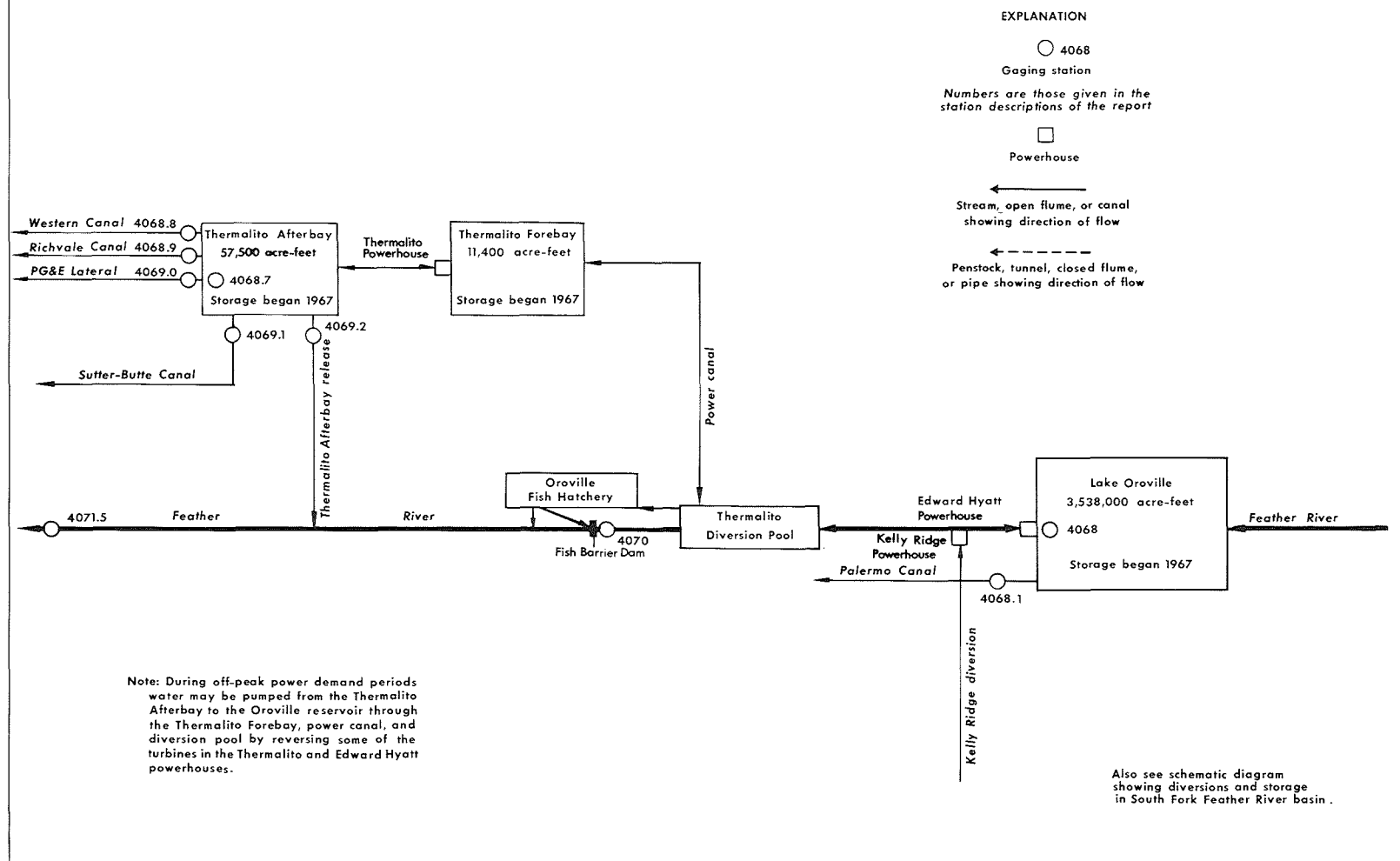


FIGURE 13.--Schematic diagram showing diversions and storage from Feather River at Lake Oroville.

## 11406800 LAKE OROVILLE NEAR OROVILLE, CALIF.

LOCATION.--Lat 39°32'00", long 121°28'25", in NE¼SW¼ sec.1, T.19 N., R.4 E., Butte County, near intake structure at left end of Oroville Dam on Feather River, 1.0 mile downstream from North Fork Feather River, and 4.2 miles east of Oroville.

DRAINAGE AREA.--3,607 sq mi (revised).

PERIOD OF RECORD.--November 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 0.47 ft above mean sea level (levels by California Department of Water Resources).

EXTREMES.--Current year: Maximum contents, 3,095,000 acre-ft May 31 (gage height, 870.62 ft); minimum, 2,542,000 acre-ft Sept. 30 (gage height, 829.44 ft).

Period of record: Maximum contents, 3,503,200 acre-ft June 22, 1969 (gage height, 897.82 ft); minimum since initial storage began, 1,643,000 acre-ft Sept. 3, 1968 (gage height, 746.27 ft).

REMARKS.--Reservoir is formed by an earthfill dam with concrete chute type sidehill spillway completed May 13, 1968; storage began Nov. 14, 1967. Usable capacity, 2,686,000 acre-ft between elevations 640.0 ft (minimum power pool) and 900.0 ft (normal maximum pool). Dead storage, 852,200 acre-ft. Total capacity at normal maximum pool 3,538,000 acre-ft. Water is released to Edward Hyatt powerhouse through penstock in left abutment of dam and to Palermo Canal through concrete tunnel also in left abutment of dam. The turbines in the Edward Hyatt powerplant are reversible and during periods of low power demand water is pumped at times from the river back into Lake Oroville. Records, including extremes, represent total contents at 2400 hours. See schematic diagram showing diversions and storage from Feather River at Lake Oroville.

COOPERATION.--Records furnished by California Department of Water Resources and reviewed by Geological Survey in connection with a Federal Power Commission project. Contents rounded to Geological Survey standards.

## CAPACITY TABLE (GAGE HEIGHT, IN FEET, AND CONTENTS, IN ACRE-FEET)

730	1,498,000	790	2,081,000	850	2,808,000
740	1,586,000	800	2,192,000	860	2,945,000
750	1,678,000	810	2,307,000	870	3,086,000
760	1,773,000	820	2,426,000	880	3,232,000
770	1,872,000	830	2,549,000	890	3,382,000
780	1,974,000	840	2,676,000	900	3,538,000

## CONTENTS, IN THOUSANDS OF ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2,775	2,771	2,793	2,902	2,795	2,815	2,944	3,004	3,093	2,983	2,866	2,674
2	2,771	2,778	2,790	2,884	2,789	2,819	2,950	3,012	3,092	2,973	2,871	2,662
3	2,776	2,777	2,788	2,875	2,790	2,817	2,953	3,019	3,088	2,970	2,863	2,653
4	2,767	2,775	2,784	2,868	2,795	2,815	2,963	3,017	3,084	2,973	2,853	2,646
5	2,771	2,777	2,781	2,864	2,799	2,812	2,974	3,013	3,079	2,976	2,845	2,640
6	2,767	2,777	2,787	2,861	2,801	2,809	2,978	3,014	3,084	2,968	2,836	2,638
7	2,763	2,776	2,793	2,858	2,805	2,804	2,981	3,014	3,088	2,961	2,829	2,641
8	2,760	2,784	2,789	2,856	2,808	2,804	2,985	3,014	3,082	2,954	2,833	2,631
9	2,758	2,792	2,782	2,867	2,810	2,801	2,987	3,023	3,079	2,946	2,837	2,624
10	2,758	2,790	2,781	2,895	2,811	2,799	2,990	3,033	3,075	2,937	2,826	2,618
11	2,764	2,789	2,776	2,911	2,812	2,795	3,000	3,034	3,073	2,939	2,817	2,611
12	2,771	2,787	2,784	2,919	2,815	2,790	3,008	3,036	3,070	2,940	2,808	2,605
13	2,767	2,786	2,802	2,946	2,824	2,788	3,008	3,038	3,074	2,936	2,799	2,610
14	2,764	2,785	2,814	3,001	2,829	2,787	3,010	3,039	3,078	2,931	2,788	2,604
15	2,764	2,791	2,809	2,959	2,825	2,795	3,013	3,039	3,077	2,925	2,788	2,597
16	2,766	2,798	2,804	2,959	2,824	2,799	3,015	3,048	3,074	2,918	2,792	2,592
17	2,765	2,797	2,797	2,947	2,829	2,803	3,016	3,058	3,069	2,911	2,780	2,588
18	2,769	2,793	2,788	2,895	2,828	2,805	3,025	3,061	3,064	2,915	2,771	2,585
19	2,775	2,789	2,806	2,833	2,826	2,806	3,033	3,062	3,054	2,920	2,762	2,591
20	2,773	2,787	2,849	2,793	2,822	2,818	3,030	3,064	3,058	2,913	2,752	2,597
21	2,771	2,784	2,940	2,879	2,815	2,833	3,027	3,066	3,060	2,906	2,742	2,592
22	2,768	2,790	2,961	2,956	2,808	2,849	3,024	3,064	3,052	2,901	2,740	2,586
23	2,766	2,798	2,984	3,002	2,800	2,859	3,020	3,072	3,042	2,895	2,746	2,580
24	2,764	2,792	3,029	3,070	2,793	2,868	3,013	3,080	3,032	2,893	2,736	2,584
25	2,772	2,788	3,038	3,046	2,787	2,878	3,018	3,081	3,020	2,898	2,725	2,587
26	2,778	2,785	3,030	2,990	2,788	2,888	3,025	3,082	3,010	2,901	2,716	2,572
27	2,775	2,791	3,012	2,958	2,787	2,896	3,020	3,084	3,008	2,894	2,705	2,571
28	2,773	2,787	2,990	2,915	2,790	2,908	3,016	3,084	3,010	2,888	2,693	2,562
29	2,770	2,792	2,965	2,862	-----	2,922	3,011	3,084	3,001	2,881	2,692	2,552
30	2,767	2,798	2,940	2,820	-----	2,930	3,007	3,090	2,992	2,875	2,697	2,542
31	2,764	-----	2,920	2,803	-----	2,938	-----	3,095	-----	2,867	2,686	-----
MAX	2,778	2,798	3,038	3,070	2,829	2,938	3,033	3,095	3,093	2,983	2,871	2,674
MIN	2,758	2,771	2,776	2,793	2,787	2,787	2,944	3,004	2,992	2,867	2,686	2,542
(a)	846.70	849.24	858.18	849.61	848.59	859.49	864.44	870.62	863.38	854.34	840.73	829.44
(b)	-17	+34	+122	-117	-13	+148	+69	+88	-103	-125	-181	-144
(c)	5,440	2,800	1,090	1,110	1,610	3,240	4,500	7,530	8,830	12,560	12,120	10,310
CAL YR 1969	MAX 3,503	MIN 2,074	b +854									
WAT YR 1970	MAX 3,095	MIN 2,542	b -239									

a Elevation, in feet, at end of month.

b Change in contents, in thousands of acre-feet.

c Evaporation, in acre-feet.

## SACRAMENTO RIVER BASIN

11406810 PALERMO CANAL NEAR OROVILLE, CALIF.

LOCATION.--Lat 39°31'59", long 121°28'55", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.1, T.19 N., R.4 E., Butte County, on right bank 50 ft downstream from Oroville Dam and 4.4 miles east of Oroville.

PERIOD OF RECORD.--April 1965 to current year. Daily discharge of diversion from Kelly Ridge penstock for period April 1965 to October 1968 when Kelly Ridge penstock supplied the entire flow of Palermo Canal are in files of California District office of Geological Survey.

GAGE.--Water-stage recorder and Parshall flume. Altitude of gage is 550 ft (from topographic map). April 1965 to October 1968, water-stage recorder and Parshall flume at site of diversion from Kelly Ridge penstock 0.4 mile downstream at different datum.

AVERAGE DISCHARGE.--5 years, 12.7 cfs (9,200 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 28 cfs several days in July to September 1967; no flow for several days in 1967, 1970.

REMARKS.--Canal diverts from left end of Oroville Dam. Water is used for irrigation near Oroville. During period of construction of Oroville Dam, water was released from Kelly Ridge penstock to meet irrigation requirements.

COOPERATION.--Records collected by California Department of Water Resources under general supervision of Geological Survey in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	9.9	4.8	4.8	0	4.0	8.1	21	22	21	21	21
2	20	9.9	4.5	4.8	0	4.0	11	21	22	21	21	21
3	20	9.9	4.6	4.6	0	4.0	11	21	22	21	21	21
4	20	9.9	4.6	4.6	0	4.0	11	21	22	21	21	21
5	20	9.9	4.6	4.6	1.7	4.0	11	21	22	21	21	21
6	20	4.9	4.6	4.6	3.4	4.0	14	21	22	21	21	21
7	20	2.2	4.6	4.6	3.4	4.0	16	21	22	21	21	21
8	20	2.2	4.6	4.6	3.4	4.1	20	21	22	21	21	21
9	20	2.2	4.6	4.6	3.4	4.1	23	21	21	21	21	21
10	20	3.6	4.6	4.6	3.4	3.8	23	21	22	21	21	21
11	20	4.5	4.6	4.6	3.4	3.6	23	21	22	21	21	21
12	20	4.5	4.6	4.6	3.7	3.6	23	21	22	21	21	21
13	19	4.5	4.6	4.6	3.7	3.6	23	21	22	21	21	21
14	18	4.5	4.8	3.1	3.7	3.6	23	21	22	21	21	21
15	14	4.5	4.8	0	3.7	3.6	23	22	22	21	21	21
16	11	4.6	4.8	0	3.7	3.7	21	22	22	21	21	21
17	11	4.6	4.8	0	3.7	3.8	20	22	22	21	21	21
18	11	4.6	4.8	0	3.7	3.8	20	22	22	21	21	21
19	11	4.6	4.8	0	3.7	3.8	20	22	22	21	21	21
20	11	4.6	4.8	0	3.7	3.8	20	22	22	21	21	21
21	12	4.6	4.8	0	3.9	3.9	20	22	22	21	21	21
22	10	4.6	4.8	0	3.9	3.9	20	22	22	21	21	21
23	9.9	4.6	5.0	0	3.9	4.0	20	22	22	21	21	21
24	9.9	4.6	5.0	0	3.9	4.1	20	22	22	21	21	21
25	9.9	4.8	4.8	0	3.9	4.1	20	22	22	21	21	21
26	9.9	4.8	4.8	0	4.1	4.1	20	22	22	21	21	21
27	9.9	4.8	4.8	0	4.1	4.1	22	22	22	21	21	21
28	9.9	4.6	4.8	0	4.1	4.1	23	21	22	21	21	21
29	9.9	4.8	4.8	0	-----	4.1	23	22	22	21	21	21
30	9.9	4.8	4.8	0	-----	4.1	21	22	22	21	21	21
31	9.9	-----	4.8	0	-----	4.1	-----	22	-----	21	21	-----
TOTAL	457.1	157.1	146.7	63.3	87.2	121.5	573.1	667	659	651	651	630
MEAN	14.7	5.24	4.73	2.04	3.11	3.92	19.1	21.5	22.0	21.0	21.0	21.0
MAX	20	9.9	5.0	4.8	4.1	4.1	23	22	22	21	21	21
MIN	9.9	2.2	4.5	0	0	3.6	8.1	21	21	21	21	21
AC-FT	907	312	291	126	173	241	1,140	1,320	1,310	1,290	1,290	1,250

CAL YR 1969 TOTAL 4,307.1 MEAN 11.8 MAX 20 MIN .50 ACFT 8,540  
 WAT YR 1970 TOTAL 4,864.0 MEAN 13.3 MAX 23 MIN 0 ACFT 9,650



## 11406870 THERMALITO AFTERBAY NEAR OROVILLE, CALIF.

LOCATION.--Lat 39°27'30", long 121°38'17", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.33, T.19 N., R.3 E., Butte County, at dam 195 ft north-east of centerline of outlet structure and 5.7 miles southwest of Oroville.

PERIOD OF RECORD.--October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 0.47 ft above mean sea level (levels by California Department of Water Resources). Auxiliary water-stage recorder 90 ft southwest of centerline of Western Canal outlet, and 7.2 miles west of Oroville.

EXTREMES.--Current year: Maximum contents, 55,670 acre-ft Sept. 4 (gage height, 136.18 ft); minimum, 16,330 acre-ft Sept. 27 (gage height, 124.49 ft).

Period of record: Maximum contents, 57,300 acre-ft May 24, 1969 (gage height, 136.56 ft); minimum since initial operation began, 5,590 acre-ft Mar. 1, 1968 (gage height, 119.09 ft).

REMARKS.--Reservoir is formed by an earthfill dam completed in 1967; diversion from the reservoir began Oct. 12, 1967. Usable capacity, 61,134 acre-ft (revised) between gage heights 120.0 and 139.0 ft, extreme operating levels. Normal operating range is 123 to 136.5 ft. Water is released to four canals and to the Feather River from the reservoir (see sta 11406880, 11406890, 11406900, 11406910, 11406920). Total maximum release to the four canals is approximately 4,000 cfs. Water is pumped, at times, from Thermalito afterbay back into Thermalito forebay during off-peak periods to be re-released through Thermalito powerplant for power generation during peak demand periods. Records, including extremes, represent total contents at 2400 hours. See schematic diagram showing diversions and storage from Feather River at Lake Oroville.

## CAPACITY TABLE (GAGE HEIGHT, IN FEET, AND CONTENTS, IN ACRE-FEET)

120.0	7,054	128.0	25,832
122.0	10,792	130.0	32,150
124.0	15,157	134.0	46,719
126.0	20,171	139.0	68,198

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26,560	33,560	31,060	35,620	27,470	36,040	27,600	44,530	26,190	50,580	51,230	45,850
2	29,480	28,190	34,040	36,890	28,780	36,540	26,620	36,960	28,690	54,780	42,160	51,360
3	34,380	29,860	36,680	32,580	30,060	36,470	28,220	29,260	31,980	54,480	44,650	54,530
4	28,030	29,740	39,890	28,620	31,690	37,750	24,240	32,450	36,120	47,710	48,230	55,670
5	21,750	32,350	43,840	28,060	33,290	38,900	18,500	35,760	38,870	40,960	50,990	54,820
6	24,470	34,380	37,680	31,490	34,520	39,490	20,650	38,000	31,720	44,140	54,320	51,400
7	28,220	37,960	30,900	34,590	34,280	39,120	23,780	40,890	24,850	47,150	55,160	42,840
8	31,390	32,680	34,690	38,140	33,630	38,980	29,960	42,660	27,350	50,090	45,150	46,880
9	33,220	27,320	38,830	42,920	33,830	38,760	34,240	36,260	29,740	52,640	34,310	48,950
10	32,950	29,960	42,160	40,180	34,690	38,820	34,410	29,800	32,150	54,740	37,180	50,910
11	26,580	33,160	48,430	29,580	34,930	35,830	28,660	31,720	32,220	47,790	40,260	53,640
12	19,900	35,830	52,600	25,000	34,760	34,760	22,750	33,560	32,320	40,960	43,530	52,930
13	23,490	38,250	42,120	26,800	35,620	33,900	24,820	35,280	25,710	44,030	46,920	43,380
14	27,290	40,960	31,320	27,600	32,990	32,420	30,900	37,140	19,090	46,880	50,010	44,260
15	30,510	35,480	33,760	29,860	31,950	24,710	32,480	40,590	17,940	48,830	42,160	46,800
16	33,460	29,220	38,720	29,990	32,850	24,590	33,940	34,930	19,140	52,640	30,770	47,150
17	36,960	30,440	43,380	31,000	33,490	24,820	34,860	29,040	21,030	54,650	33,190	47,510
18	31,000	33,630	48,310	32,620	33,290	24,210	28,090	30,020	22,950	48,910	36,470	46,170
19	25,060	37,250	54,060	34,000	33,490	25,000	21,090	31,230	29,800	42,050	40,070	37,180
20	28,160	41,190	48,950	34,860	34,520	26,130	21,860	32,550	23,260	45,000	44,070	27,720
21	31,160	44,030	38,500	37,320	34,790	23,920	24,760	33,870	16,540	48,350	48,790	28,220
22	33,760	37,680	44,220	38,470	34,650	20,170	27,840	38,580	21,910	50,460	43,760	30,120
23	36,180	31,360	54,480	42,430	35,560	23,090	31,100	32,750	26,830	53,640	33,290	32,350
24	37,180	36,010	54,570	44,690	36,180	26,620	37,030	26,890	32,780	54,060	37,420	24,530
25	31,190	41,300	51,480	42,920	37,750	29,640	28,970	28,340	40,370	47,080	41,040	16,840
26	25,120	45,540	48,590	37,890	37,750	32,850	21,140	29,610	44,690	40,180	44,030	23,980
27	27,910	39,780	45,850	32,820	38,030	35,210	25,570	31,230	42,310	42,840	48,710	16,330
28	31,190	45,820	43,220	27,350	37,750	32,580	30,700	32,780	35,350	46,090	53,730	18,390
29	34,040	40,220	41,040	25,830	-----	28,030	35,870	34,450	39,850	48,790	47,710	21,360
30	37,180	34,310	38,650	26,250	-----	28,160	40,300	28,560	44,650	51,890	36,400	25,240
31	39,270	-----	37,250	26,800	-----	27,840	-----	23,660	-----	55,590	40,930	-----
MAX	39,270	45,820	54,570	44,690	38,030	39,490	40,300	44,530	44,690	55,590	55,160	55,670
MIN	19,900	27,320	30,900	25,000	27,470	20,170	18,500	23,660	16,540	40,180	30,770	16,330
(a)	132.04	130.64	131.48	128.32	131.62	128.66	132.32	127.26	133.47	136.16	132.49	127.80
(b)	+16,860	-4,960	+2,940	-10,450	+10,950	-9,910	+12,460	-16,640	+20,990	+10,940	-14,660	-15,690
(c)	2,000	939	603	438	478	1,110	1,560	2,880	2,900	4,500	3,890	3,360
CAL YR 1969	MAX 57,300	MIN 13,000	b +20,010									
WAT YR 1970	MAX 55,670	MIN 16,330	b +2,830									

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

c Evaporation, in acre-feet.

LOCATION.--Lat 39°30'19", long 121°41'06", in SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.18, T.19 N., R.3 E., Butte County, on left bank 500 ft downstream from Thermalito Afterbay Dam, and 7.3 miles west of Oroville.

GAGE.--Water-stage recorder. Datum of gage is 0.47 ft above mean sea level (levels by California Department of Water Resources).

REMARKS.--Water is diverted from Thermalito afterbay and is used for irrigation. See schematic diagram showing diversions and storage from Feather River at Lake Oroville.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	263	248	245				43	688	451	523	502	292
2	255	246	248				62	669	467	512	497	276
3	258	246	248				62	703	489	518	505	276
4	262	242	245				59	687	515	515	511	270
5	242	240	248				54	666	522	513	507	258
6	235	241	245				55	624	526	508	504	248
7	260	180	248				62	577	517	513	507	253
8	252	147	184				65	515	517	500	509	262
9	242	152	160				90	503	514	493	496	220
10	250	191	148				106	512	515	494	504	199
11	250	210	52				165	498	543	488	509	194
12	237	208	0				201	432	533	483	498	200
13	230	205	0				201	405	528	492	484	194
14	257	205	0				207	405	524	492	488	192
15	257	205	0				204	405	533	488	494	152
16	219	205	0				267	400	492	506	491	132
17	197	205	0				301	402	507	511	495	133
18	200	208	0				364	400	507	515	491	74
19	196	208	0				456	409	517	503	477	52
20	193	208	0				502	411	513	512	467	50
21	200	228	0				588	406	514	502	468	55
22	235	245	0				680	411	510	503	431	55
23	252	245	0				766	410	507	509	403	48
24	254	251	0				803	408	505	503	406	54
25	248	253	0				788	426	507	511	409	117
26	255	248	0				780	450	518	505	387	155
27	250	248	0				719	454	528	501	347	159
28	257	253	0				707	467	530	505	346	157
29	254	251	0		-----		694	456	529	502	346	175
30	254	253	0		-----		707	449	524	508	323	246
31	254	-----	0		-----		-----	449	-----	506	321	-----
TOTAL	7,468	6,675	2,271	0	0	0	10,758	15,097	15,402	15,634	14,123	5,148
MEAN	241	223	73.3	0	0	0	359	487	513	504	456	172
MAX	263	253	248	0	0	0	803	703	543	523	511	292
MIN	193	147	0	0	0	0	43	400	451	483	321	48
AC-FT	14,810	13,240	4,500	0	0	0	21,340	29,940	30,550	31,010	28,010	10,210
CAL YR 1969	TOTAL	98,028	MEAN	269	MAX	906	MIN	0	ACFT	194,400		
WAT YR 1970	TOTAL	92,576	MEAN	254	MAX	803	MIN	0	ACFT	183,600		

## 11406890 RICHVALE CANAL AT INTAKE, NEAR OROVILLE, CALIF.

LOCATION.--Lat 39°30'19", long 121°41'06", in SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.18, T 19 N., R.3 E., Butte County, on right bank 500 ft downstream from axis of Thermalito Afterbay Dam and 7.3 miles west of Oroville.

PERIOD OF RECORD.--April 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 0.47 ft above mean sea level (levels by California Department of Water Resources).

EXTREMES.--Period of record: Maximum daily discharge, 377 cfs May 12, 13, 1969; no flow for several months each year.

REMARKS.--Canal diverts from Thermalito afterbay; water is used for irrigation. The canal is part of the Oroville project. See schematic diagram showing diversions and storage from Feather River at Lake Oroville.

COOPERATION.--Records collected by California Department of Water Resources under general supervision of Geological Survey in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12						0	247	207	206	220	120
2	12						0	250	204	209	225	121
3	12						0	253	206	210	227	120
4	13						0	255	209	210	227	121
5	12						0	255	214	211	223	122
6	12						0	223	212	203	221	120
7	12						0	209	211	199	220	120
8	12						0	213	213	198	221	119
9	13						0	211	213	199	224	119
10	6.0						0	209	211	197	222	119
11	0						0	207	213	197	212	119
12	0						94	209	214	197	207	120
13	0						153	215	215	197	213	120
14	0						154	214	216	204	216	120
15	0						184	215	213	212	211	120
16	0						234	216	212	211	211	95
17	0						252	217	211	209	212	83
18	0						263	215	215	209	211	83
19	0						252	214	214	210	210	84
20	0						251	213	208	211	209	83
21	0						250	215	207	212	209	82
22	0						250	215	207	210	160	84
23	0						250	216	209	208	124	84
24	0						251	217	212	207	122	85
25	0						250	211	208	207	120	54
26	0						250	210	205	208	121	31
27	0						249	208	205	209	121	31
28	0						247	208	206	218	120	29
29	0				-----		246	207	206	223	120	27
30	0				-----		247	206	206	221	122	27
31	0	-----			-----		-----	207	-----	220	121	-----
TOTAL	116.0	0	0	0	0	0	4,327	6,780	6,302	6,442	5,802	2,762
MEAN	3.74	0	0	0	0	0	144	219	210	208	187	92.1
MAX	13	0	0	0	0	0	263	255	216	223	227	122
MIN	0	0	0	0	0	0	0	206	204	197	120	27
AC-FT	230	0	0	0	0	0	8,580	13,450	12,500	12,780	11,510	5,480

CAL YR 1969 TOTAL 34,537.0 MEAN 94.6 MAX 377 MIN 0 ACFT 68,500  
WAT YR 1970 TOTAL 32,531.0 MEAN 89.1 MAX 263 MIN 0 ACFT 64,530



LOCATION.--Lat 39°27'02", long 121°39'26", in NW corner of Boga Fernandez Grant, T.18 N., R.3 E., Butte County, on left bank 675 ft downstream from Thermalito Afterbay Dam and 6.8 miles southwest of Oroville.

GAGE --Water-stage recorder. Datum of gage is 109.97 ft above mean sea level (levels by California Department of Water Resources). Prior to May 1, 1970, at datum 9.50 ft lower.

REMARKS.--Water is diverted from Thermalito afterbay and is used for irrigation. See schematic diagram showing diversions and storage from Feather River at Lake Oroville.

COOPERATION --Records collected by California Department of Water Resources under general supervision of Geological Survey in connection with a Federal Power Commission project.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	432	109	2.4			0	437	1,640	1,230	1,350	1,450	1,260
2	405	5.8	0			0	556	1,600	1,240	1,340	1,450	1,280
3	397	45	0			0	662	1,600	1,260	1,340	1,430	1,290
4	397	64	0			0	632	1,550	1,320	1,340	1,420	1,290
5	397	59	0			0	608	1,530	1,360	1,340	1,400	1,290
6	401	56	0			0	612	1,520	1,370	1,340	1,390	1,290
7	397	56	0			0	639	1,490	1,350	1,350	1,380	1,260
8	401	56	0			0	678	1,420	1,340	1,390	1,400	1,250
9	397	56	0			0	673	1,400	1,340	1,420	1,410	1,220
10	397	56	0			0	647	1,400	1,340	1,430	1,370	1,140
11	397	56	0			0	631	1,340	1,310	1,440	1,350	1,090
12	397	56	0			0	643	1,260	1,290	1,430	1,350	1,080
13	401	56	0			0	758	1,240	1,290	1,430	1,360	1,080
14	401	58	0			0	968	1,230	1,290	1,440	1,350	982
15	401	40	0			0	1,070	1,250	1,270	1,430	1,350	811
16	401	25	0			0	1,090	1,260	1,300	1,420	1,350	744
17	401	12	0			0	1,120	1,260	1,310	1,420	1,350	630
18	401	5.0	0			0	1,240	1,280	1,320	1,410	1,350	598
19	397	5.4	0			0	1,350	1,250	1,330	1,410	1,350	599
20	401	5.4	0			47	1,370	1,250	1,320	1,410	1,350	598
21	372	5.4	0			103	1,380	1,260	1,330	1,410	1,340	598
22	361	5.0	0			103	1,450	1,220	1,320	1,410	1,340	570
23	315	4.7	0			103	1,530	1,220	1,310	1,400	1,340	559
24	298	4.7	0			102	1,620	1,210	1,340	1,410	1,320	560
25	298	5.0	0			102	1,730	1,190	1,360	1,460	1,320	559
26	298	5.4	0			102	1,760	1,190	1,370	1,450	1,320	560
27	298	5.8	0			152	1,760	1,190	1,360	1,440	1,290	558
28	298	5.8	0			222	1,660	1,220	1,360	1,450	1,300	559
29	298	5.8	0		-----	266	1,630	1,240	1,370	1,450	1,290	559
30	298	5.8	0		-----	357	1,640	1,240	1,360	1,450	1,290	559
31	250	-----	0		-----	406	-----	1,240	-----	1,450	1,270	-----
TOTAL	11,403	935.0	2.4	0	0	2,065	32,544	41,190	39,660	43,660	42,030	26,423
MEAN	368	31.2	.077	0	0	66.6	1,085	1,329	1,322	1,408	1,356	881
MAX	432	109	2.4	0	0	406	1,760	1,640	1,370	1,460	1,450	1,290
MIN	250	4.7	0	0	0	0	437	1,190	1,230	1,340	1,270	558
AC-FT	22,620	1,850	4.8	0	0	4,100	64,550	81,700	78,670	86,600	83,370	52,410
CAL YR 1969	TOTAL	244,962.3	MEAN	671	MAX	1,840	MIN	0	ACFT	485,900		
WAT YR 1970	TOTAL	239,912.4	MEAN	657	MAX	1,760						

## 11406920 THERMALITO AFTERBAY RELEASE TO FEATHER RIVER, NEAR OROVILLE, CALIF.

LOCATION.--Lat 39°27'23", long 121°38'10", in NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.33, T.19 N., R.3 E., Butte County, on left bank of outlet channel 955 ft downstream from centerline of Thermalito Afterbay Dam, and 5.7 miles southwest of Oroville.

PERIOD OF RECORD.--November 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 113.47 ft above mean sea level (levels by California Department of Water Resources). Prior to May 1, 1970, datum was 100.47 ft above mean sea level.

EXTREMES.--Current year: Maximum discharge, 21,600 cfs Jan. 28 (gage height, 23.30 ft); minimum daily, 1,040 cfs May 29.

Period of record: Maximum discharge, 21,600 cfs Jan. 28, 1970 (gage height, 23.30 ft); no flow for many days in 1968.

REMARKS.--Flow regulated by gates at Thermalito afterbay outlet 955 ft upstream. See schematic diagram showing diversions and storage from Feather River at Lake Oroville. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

COOPERATION.--Records collected by California Department of Water Resources under general supervision of Geological Survey in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2,540	2,520	2,850	15,400	17,500	9,890	2,400	1,320	1,060	1,350	2,260	3,900
2	2,550	2,490	2,920	14,100	14,900	13,000	2,410	1,330	1,080	1,330	2,430	3,880
3	2,570	2,580	2,920	12,900	10,400	13,000	2,340	1,340	1,270	1,350	2,740	3,890
4	2,540	2,610	2,920	11,200	7,700	13,100	2,260	1,340	1,570	1,320	3,180	3,910
5	2,540	2,600	2,920	6,860	7,780	13,100	2,250	1,370	1,680	1,310	3,260	3,910
6	2,570	2,600	2,900	3,300	7,780	13,100	2,210	1,380	1,500	1,330	3,360	3,890
7	2,570	2,570	3,180	3,370	7,780	13,100	2,140	1,250	1,400	1,330	3,370	3,870
8	2,570	2,540	3,320	3,300	7,780	13,100	2,110	1,080	1,420	1,360	3,350	3,860
9	2,570	2,520	3,390	3,300	7,810	13,400	2,110	1,120	1,390	1,260	3,350	3,860
10	2,570	2,570	3,550	5,930	7,760	14,000	2,110	1,110	1,350	1,350	3,450	3,860
11	2,550	2,570	4,260	10,100	7,980	14,000	2,110	1,150	1,340	1,330	3,580	3,870
12	2,720	2,570	4,720	11,800	8,320	14,000	2,110	1,240	1,340	1,320	3,630	3,870
13	2,490	2,570	5,240	16,000	8,930	12,300	1,990	1,170	1,320	1,340	3,620	3,900
14	2,498	2,570	5,410	18,400	10,900	11,400	1,920	1,160	1,320	1,350	3,690	3,900
15	2,520	2,540	5,460	17,500	12,200	11,400	1,910	1,170	1,340	1,350	3,740	3,790
16	2,540	2,930	5,460	17,500	12,600	9,180	1,910	1,130	1,340	1,370	3,680	3,910
17	2,520	2,980	5,480	18,900	13,300	8,020	1,810	1,100	1,340	1,350	3,720	3,980
18	2,460	2,980	5,430	18,000	13,200	7,970	1,590	1,200	1,350	1,340	3,690	4,060
19	2,480	2,980	5,410	18,300	13,200	7,240	1,490	1,180	1,350	1,300	3,720	4,060
20	2,510	2,980	5,410	18,800	13,200	2,610	1,510	1,120	1,320	1,340	3,700	4,060
21	2,550	2,980	5,410	18,300	13,200	1,990	1,510	1,120	1,320	1,350	3,710	4,080
22	2,550	2,960	5,050	17,900	13,200	1,810	1,510	1,130	1,340	1,360	3,690	4,060
23	2,570	2,960	4,480	16,500	13,200	1,570	1,510	1,080	1,360	1,350	3,680	4,090
24	2,550	2,960	11,900	15,800	13,200	1,350	1,380	1,110	1,340	1,360	3,720	4,070
25	2,510	2,900	18,100	17,800	11,300	1,310	1,300	1,150	1,350	1,320	3,790	4,050
26	2,540	2,770	18,700	20,700	8,010	1,370	1,300	1,130	1,350	1,320	3,920	4,130
27	2,570	2,740	19,500	20,800	7,980	1,630	1,300	1,100	1,350	1,420	3,960	3,980
28	2,570	2,770	19,500	21,200	8,010	1,830	1,300	1,050	1,340	1,640	3,940	3,650
29	2,550	2,750	19,800	19,000	-----	2,050	1,300	1,040	1,370	1,840	3,940	3,160
30	2,550	2,740	20,700	18,200	-----	2,240	1,290	1,060	1,360	1,930	3,950	2,750
31	2,540	-----	17,500	18,100	-----	2,420	-----	1,060	-----	2,080	3,960	-----
TOTAL	78,920	81,800	243,790	449,260	299,120	246,480	54,390	36,290	40,560	43,650	109,780	116,250
MEAN	2,546	2,727	7,864	14,490	10,680	7,951	1,813	1,171	1,352	1,408	3,541	3,875
MAX	2,720	2,980	20,700	21,200	17,500	14,000	2,410	1,380	1,680	2,080	3,960	4,130
MIN	2,460	2,490	2,850	3,300	7,700	1,310	1,290	1,040	1,060	1,260	2,260	2,750
AC-FT	156,500	162,300	483,600	891,100	593,300	488,900	107,900	71,980	80,450	86,580	217,700	230,600
CAL YR 1969	TOTAL 2,147,309		MEAN 5,883		MAX 20,700		MIN 394		ACFT 4,259,000			
WAT YR 1970	TOTAL 1,800,290		MEAN 4,932		MAX 21,200		MIN 1,040		ACFT 3,571,000			

## 11407000 FEATHER RIVER AT OROVILLE, CALIF.

LOCATION.--Lat 39°31'13", long 121°32'48", in SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.8, T.19 N., R.4 E., Butte County, on right bank 300 ft upstream from fish barrier dam on Feather River and 0.6 mile northeast of Oroville business district.

DRAINAGE AREA.--3,624 sq mi.

PERIOD OF RECORD.--October 1901 to current year. October 1934 to September 1961 published as "near Oroville." Monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is 148.97 ft above mean sea level (levels by California Department of Water Resources). Jan. 1, 1902, to Dec. 15, 1912, nonrecording gages at several locations 0.2 mile downstream at various datums. Dec. 16, 1912, to Sept. 30, 1934, water-stage recorder at site 0.2 mile downstream at datum 139.53 ft above mean sea level. Oct. 1, 1934, to June 30, 1962, water-stage recorder at site 5.0 miles upstream at datum 182.02 ft above mean sea level. July 1, 1962, to Sept. 30, 1964, water-stage recorder at site 0.2 mile downstream at mean sea level datum.

AVERAGE DISCHARGE (adjusted for diversions into and out of, change in storage of, and evaporation from Lake Oroville, Thermalito forebay, and Thermalito afterbay).--69 years, 5,895 cfs (4,271,000 acre-ft per year).

EXTREMES (River only).--Current year: Maximum discharge, 56,300 cfs Jan. 25 (gage height, 15.33 ft); minimum daily, 294 cfs Feb. 8.

Period of record: Maximum discharge observed, 230,000 cfs Mar. 19, 1907 (elevation, 167.5 ft above mean sea level); minimum daily, 294 cfs Feb. 8, 1970. Maximum discharge since construction of Oroville Dam in 1967, 56,300 cfs Jan. 25, 1970 (gage height, 15.33 ft).

(Combined flow).--Current year: Maximum discharge, 56,400 cfs Jan. 25; minimum daily, 370 cfs Oct. 18.

Period of record (since construction of Oroville Dam).--Maximum discharge, 56,400 cfs Jan. 25, 1970; minimum daily, 353 cfs May 28, 1969.

Flood of February 1881 reached a stage of 25 ft from floodmarks, site and datum in use from Dec. 16, 1912, to Sept. 30, 1934.

REMARKS.--Flow regulated by Lake Oroville (see sta 11406800) and other powerplants and reservoirs above station. Several diversions above station for power and irrigation. Feather River Fish Hatchery diverts up to 120 cfs at Thermalito diversion dam 0.4 mile upstream from gage. Diverted flow returns to Feather River approximately 0.3 mile downstream from gage. Daily figures shown are combined figures of river flow and diversion to fish hatchery. See REMARKS for upstream stations and schematic diagrams showing diversions from Feather River at Lake Oroville and for South Fork Feather River basin. Records of chemical analyses, water temperatures, and suspended-sediment loads for the water year 1970 are published in Part 2 of this report.

COOPERATION.--Records collected by California Department of Water Resources under general supervision of Geological Survey in connection with a Federal Power Commission project.

REVISIONS (WATER YEARS).--WRD Calif. 1967: 1966.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	427	442	431	423	1,370	468	417	412	412	419	423	406
2	418	423	459	432	438	428	421	404	413	417	421	398
3	398	423	459	431	428	422	425	399	415	417	404	397
4	398	423	442	430	409	434	422	405	419	422	391	390
5	398	442	438	430	399	430	422	415	417	422	400	387
6	398	442	438	437	399	431	425	420	415	425	400	395
7	408	442	438	437	399	431	426	419	415	420	400	400
8	408	442	438	438	390	434	428	416	415	416	406	398
9	408	442	438	449	400	431	405	417	416	536	414	395
10	398	442	437	438	400	435	419	414	414	411	412	398
11	398	442	427	438	399	433	429	410	412	419	390	402
12	408	442	427	448	400	435	428	414	411	418	385	404
13	408	448	427	4,490	418	433	422	413	415	420	388	405
14	398	448	437	31,400	399	429	412	408	414	408	400	407
15	398	447	438	42,500	399	432	398	409	415	405	397	406
16	398	447	438	49,300	428	420	396	405	419	420	400	404
17	389	447	437	48,900	428	423	398	405	420	434	404	405
18	370	447	437	48,900	438	422	399	406	420	444	404	405
19	380	448	437	45,400	428	428	399	410	420	440	406	406
20	380	437	436	32,800	419	428	408	411	416	437	404	403
21	404	447	447	18,800	418	426	422	412	415	422	402	402
22	423	437	427	32,200	428	425	428	413	417	422	396	407
23	423	436	439	46,700	419	426	427	408	416	427	400	405
24	432	436	1,870	53,100	428	422	429	406	415	423	404	400
25	442	436	3,790	53,300	419	415	423	409	411	425	404	400
26	442	434	3,180	51,100	418	411	424	411	410	421	406	399
27	442	432	2,520	48,300	418	410	425	416	408	424	409	400
28	452	431	2,520	39,200	427	411	422	415	407	426	411	404
29	442	417	1,990	35,100	-----	411	421	413	414	422	407	408
30	452	408	1,220	26,300	-----	413	416	405	418	430	406	408
31	452	-----	690	7,430	-----	413	-----	409	-----	427	413	-----
TOTAL	12,792	13,130	27,852	720,451	12,563	13,210	12,536	12,729	12,444	13,219	12,507	12,044
MEAN	413	438	898	23,240	449	426	418	411	415	426	403	401
MAX	452	448	3,790	53,300	1,370	468	429	420	420	536	423	408
MIN	370	408	427	423	390	410	396	399	407	405	385	387
AC-FT	25,370	26,040	55,240	1,429M	24,920	26,200	24,870	25,250	24,680	26,220	24,810	23,890
MEAN a	3,908	4,130	11,190	35,880	11,370	10,970	5,530	5,212	2,892	2,638	3,264	3,208
AC-FT a	240,300	245,700	688,000	2,206M	631,400	674,500	328,900	320,500	172,100	162,200	200,700	190,900
CAL YR 1969	TOTAL 502,053	MEAN 1,375	MAX 37,400	MIN 353	ACFT 995,800	MEAN a 9,542	AC-FT a 6,908,000					
WAT YR 1970	TOTAL 875,477	MEAN 2,399	MAX 53,300	MIN 370	ACFT 1,737,000	MEAN a 8,372	AC-FT a 6,061,000					

a Adjusted for diversions in and out of, change in storage of, and evaporation from Lake Oroville, Thermalito forebay, and Thermalito afterbay.

## SACRAMENTO RIVER BASIN

## 11407150 FEATHER RIVER NEAR GRIDLEY, CALIF.

LOCATION.--Lat 39°22'00", long 121°38'46", in SW¼ sec.33, T.18 N., R.3 E., Butte County, on right bank 300 ft upstream from highway bridge and 2.7 miles east of Gridley.

DRAINAGE AREA.--3,676 sq mi.

PERIOD OF RECORD.--October 1964 to current year. January 1944 to September 1964 are published in reports by California Department of Water Resources.

GAGE.--Water-stage recorder. Gage is 50.00 ft above datum of Corps of Engineers which is 2.91 ft below mean sea level. Prior to Mar. 13, 1966, water-stage recorder on left bank at datum 2.91 ft below mean sea level.

AVERAGE DISCHARGE.--6 years, 5,501 cfs (3,985,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 72,900 cfs Jan. 27 (gage height, 42.81 ft); minimum daily, 1,510 cfs May 30.

Period of record: Maximum discharge, 151,000 cfs Dec. 23, 1964 (gage height, 50.43 ft, present datum); minimum daily, 117 cfs June 27, 1966. Maximum discharge since construction of Oroville Dam in 1967, 72,900 cfs Jan. 27, 1970 (gage height, 42.81 ft).

Flood of Dec. 23, 1955, reached a stage of 52.25 ft (present datum), discharge unknown.

REMARKS.--Flow regulated by Lake Oroville since November 1967 (see sta 11406800) and Thermalito afterbay release to the Feather River since December 1968 (see sta 11406920). See schematic diagram showing diversions and storage from Feather River at Lake Oroville. Records of water temperatures and suspended-sediment loads for the water year 1970 are published in Part 2 of this report.

COOPERATION.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3,060	2,980	3,270	14,800	20,500	10,600	2,990	1,860	1,530	1,730	2,500	4,330
2	3,030	2,920	3,430	14,000	16,100	13,500	2,980	1,870	1,540	1,690	2,670	4,290
3	3,040	2,990	3,420	12,800	12,000	13,500	2,920	1,870	1,700	1,670	2,960	4,330
4	3,010	3,050	3,410	11,600	9,470	13,600	2,860	1,870	1,970	1,660	3,460	4,340
5	3,010	3,090	3,410	8,580	9,020	13,600	2,870	1,890	2,110	1,660	3,560	4,340
6	3,030	3,070	3,400	4,230	8,890	13,600	2,810	1,920	1,940	1,640	3,690	4,330
7	3,040	3,030	3,640	4,190	8,800	13,600	2,740	1,850	1,820	1,630	3,700	4,330
8	3,040	3,000	3,840	4,160	8,770	13,700	2,700	1,620	1,850	1,620	3,680	4,300
9	3,040	2,960	3,910	4,170	8,740	14,000	2,680	1,650	1,830	1,610	3,690	4,310
10	3,030	3,010	4,060	5,900	8,690	14,400	2,670	1,630	1,790	1,640	3,750	4,310
11	2,980	3,010	4,720	9,950	8,810	14,400	2,660	1,630	1,750	1,640	3,950	4,330
12	3,160	3,000	5,220	11,500	9,120	14,400	2,670	1,700	1,720	1,620	3,970	4,340
13	3,030	3,000	5,700	16,500	9,610	12,800	2,640	1,670	1,730	1,620	3,930	4,360
14	2,920	3,000	5,960	43,600	11,100	12,100	2,530	1,630	1,740	1,650	4,010	4,340
15	3,000	2,990	6,000	57,900	12,400	12,300	2,490	1,660	1,750	1,620	4,140	4,320
16	2,970	3,350	6,030	65,600	12,600	10,200	2,470	1,640	1,760	1,650	4,030	4,340
17	2,950	3,430	6,030	69,500	13,300	9,080	2,400	1,590	1,750	1,650	4,050	4,410
18	2,900	3,470	6,050	68,300	13,200	9,220	2,210	1,680	1,760	1,670	4,030	4,530
19	2,860	3,460	6,170	66,300	13,200	9,300	2,050	1,680	1,750	1,620	4,040	4,520
20	2,910	3,450	6,220	57,400	13,200	5,670	2,060	1,620	1,740	1,650	4,030	4,520
21	2,980	3,460	6,290	40,000	13,300	2,970	2,090	1,600	1,740	1,650	4,010	4,520
22	2,980	3,460	6,040	47,100	13,300	2,650	2,080	1,620	1,740	1,660	3,990	4,520
23	3,010	3,450	5,510	59,900	13,400	2,420	2,070	1,570	1,760	1,630	4,000	4,560
24	3,020	3,470	11,700	67,900	13,200	2,160	1,980	1,580	1,760	1,660	4,020	4,480
25	2,990	3,400	22,400	70,600	12,500	2,010	1,880	1,630	1,760	1,630	4,110	4,480
26	2,980	3,240	22,300	71,800	9,300	2,020	1,860	1,640	1,760	1,620	4,290	4,560
27	3,000	3,230	22,200	70,800	9,260	2,230	1,840	1,580	1,760	1,700	4,350	4,410
28	3,010	3,250	22,100	62,900	9,310	2,410	1,840	1,550	1,760	1,890	4,340	4,080
29	3,010	3,220	22,100	54,600	-----	2,590	1,840	1,520	1,760	2,090	4,390	3,560
30	3,020	3,200	21,400	47,500	-----	2,770	1,850	1,510	1,760	2,200	4,380	3,110
31	2,980	-----	18,300	29,600	-----	2,980	-----	1,520	-----	2,290	4,370	-----
TOTAL	92,990	95,640	274,230	1,173,7M	321,090	270,780	71,730	51,850	53,090	52,960	120,090	129,500
MEAN	3,000	3,188	8,846	37,860	11,470	8,735	2,391	1,673	1,770	1,708	3,874	4,317
MAX	3,160	3,470	22,400	71,800	20,500	14,400	2,990	1,920	2,110	2,290	4,390	4,560
MIN	2,860	2,920	3,270	4,160	8,690	2,010	1,840	1,510	1,530	1,610	2,500	3,110
AC-FT	184,400	189,700	543,900	2,328M	636,900	537,100	142,300	102,800	105,300	105,000	238,200	256,900
CAL YR 1969	TOTAL 2,698,080		MEAN 7,392		MAX 50,300		MIN 836		ACFT 5,352,000			
WAT YR 1970	TOTAL 2,707,630		MEAN 7,418		MAX 71,800		MIN 1,510		ACFT 5,371,000			



## 11407300 NORTH HONCUT CREEK NEAR BANGOR, CALIF.

LOCATION.--Lat 39°20'32", long 121°29'25", in SW $\frac{1}{4}$  sec.11, T.17 N., R.4 E., Butte County, on left bank 0.2 mile upstream from unnamed tributary and 5.7 miles southwest of Bangor.

DRAINAGE AREA.--47.1 sq mi.

PERIOD OF RECORD.--October 1960 to September 1962, July 1963 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 125 ft (from topographic map). Prior to September 1962, at site 50 ft upstream at same datum.

AVERAGE DISCHARGE.--9 years, 50.1 cfs (36,300 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 6,930 cfs Jan. 14 (gage height, 11.16 ft); minimum daily, 0.40 cfs July 29, 30, Aug. 9, 10.

Period of record: Maximum discharge, 10,700 cfs Dec. 26, 1964 (gage height, 11.57 ft), from rating curve extended above 4,600 cfs; no flow for many days in 1961, 1962, 1966, 1968.

REMARKS.--Small diversions above station for irrigation. Slight regulation occurs from Lake Wyandotte (capacity, 1,460 acre-ft).

COOPERATION.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	4.3	2.4	23	64	1,430	14	9.0	3.8	3.4	1.3	1.9
2	2.4	4.8	2.4	20	54	282	13	7.6	3.2	3.1	.90	1.6
3	2.4	4.3	2.4	18	45	149	13	7.0	2.8	2.7	.70	1.3
4	2.4	4.8	2.4	16	40	242	16	7.0	2.2	2.4	.60	1.5
5	2.7	20	2.4	16	32	223	16	6.7	1.9	2.0	.70	2.2
6	2.4	23	2.4	15	24	137	16	7.4	1.8	1.9	.80	2.5
7	2.4	15	2.5	14	21	115	16	8.9	1.9	2.1	.80	2.4
8	2.6	12	3.1	15	18	555	15	9.2	2.2	1.8	.60	2.1
9	2.8	7.8	3.9	245	16	195	16	9.8	4.3	1.5	.40	2.0
10	3.1	5.4	5.4	382	14	307	16	9.6	5.9	1.3	.40	1.6
11	3.0	4.3	8.5	130	12	169	18	9.2	5.3	1.2	.50	1.3
12	3.1	3.9	13	309	18	131	17	8.8	4.5	1.2	.80	1.1
13	3.2	3.8	37	899	1,270	108	20	8.9	4.2	1.3	1.0	.90
14	3.5	3.7	22	2,650	790	91	24	8.2	5.2	1.0	1.3	1.0
15	6.4	3.9	12	380	190	74	21	7.3	5.7	1.3	1.3	1.2
16	22	3.5	8.2	1,620	281	62	18	6.8	5.9	1.5	1.4	1.3
17	9.1	3.3	6.9	394	573	53	18	6.3	4.9	1.6	1.4	1.2
18	5.2	3.1	6.1	191	182	46	17	5.7	4.2	1.7	1.5	.90
19	4.5	3.0	250	486	131	40	17	5.8	3.6	1.4	1.6	.90
20	3.9	3.0	627	684	105	35	15	6.0	2.8	1.3	1.7	1.4
21	3.6	2.9	806	2,820	89	32	14	6.7	2.2	1.2	1.9	1.9
22	4.0	2.8	177	724	75	29	13	5.8	2.1	1.3	2.2	1.7
23	4.1	2.7	829	446	65	27	13	5.5	2.0	1.2	2.5	1.8
24	4.1	2.7	2,190	1,090	58	25	13	4.7	2.3	.80	3.1	2.3
25	4.3	2.6	384	229	51	23	13	4.3	2.2	.80	3.4	2.2
26	4.6	2.6	139	149	44	21	13	4.5	2.3	.80	3.7	2.4
27	4.6	2.6	82	737	40	20	13	4.9	2.3	.60	3.8	2.9
28	4.6	2.6	53	194	52	18	12	4.9	2.7	.50	3.7	2.5
29	4.9	2.6	38	125	-----	17	11	4.9	3.7	.40	2.5	2.4
30	4.1	2.6	31	97	-----	16	9.8	4.9	3.9	.40	1.8	2.4
31	4.4	-----	25	77	-----	15	-----	4.1	-----	1.0	1.8	-----
TOTAL	136.9	163.6	5,774.0	15,195	4,354	4,687	460.8	210.4	102.0	44.70	50.10	52.80
MEAN	4.42	5.45	186	490	156	151	15.4	6.79	3.40	1.44	1.62	1.76
MAX	22	23	2,190	2,820	1,270	1,430	24	9.8	5.9	3.4	3.8	2.9
MIN	2.4	2.6	2.4	14	12	15	9.8	4.1	1.8	.40	.40	.90
AC-FT	272	325	11,450	30,140	8,640	9,300	914	417	202	89	99	105
CAL YR 1969	TOTAL	34,057.30	MEAN	93.3	MAX	3,830	MIN	.30	AC-FT	67,550		
WTR YR 1970	TOTAL	31,231.30	MEAN	85.6	MAX	2,820	MIN	.40	AC-FT	61,950		

## SACRAMENTO RIVER BASIN

11407500 SOUTH HONCUT CREEK NEAR BANGOR, CALIF.

LOCATION.--Lat 39°22'04", long 121°22'16", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.35, T 18 N., R.5 E., Butte County, on right bank 2.3 miles southeast of Bangor, 3.3 miles upstream from Tennessee Creek, and 16.3 miles southeast of Oroville.

DRAINAGE AREA.--30.6 sq mi.

PERIOD OF RECORD.--October 1950 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 620 ft (from topographic map).

AVERAGE DISCHARGE.--20 years, 36.5 cfs (26,440 acre-ft per year); median of yearly mean discharges, 31 cfs (22,500 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 3,890 cfs Jan. 14 (gage height, 9.37 ft); no flow many days.  
Period of record: Maximum discharge, 17,600 cfs Dec. 26, 1964 (gage height, 19.25 ft), from rating curve extended above 2,200 cfs on basis of slope-area measurements at gage heights 11.15 and 19.25 ft; no flow at times in most years.

REMARKS.--Records good. Some small diversions upstream for irrigation.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.09	.50	.88	12	63	725	19	6.7	1.4	.88	.02	0
2	.15	.49	.88	10	53	183	19	6.2	1.3	.60	.01	0
3	.18	.52	.87	8.8	47	115	15	5.6	1.3	.58	.01	0
4	.24	.54	.87	8.2	43	159	14	5.3	1.2	.51	.01	0
5	.28	7.1	.87	7.2	39	127	12	5.1	1.1	.45	.01	0
6	.29	4.2	.87	7.2	36	95	12	5.2	1.1	.41	0	0
7	.20	2.6	.90	7.7	34	94	12	5.2	.79	.42	0	0
8	.34	2.3	1.4	8.0	32	360	12	5.2	.97	.36	0	0
9	1.2	1.5	1.9	196	30	145	12	5.5	1.9	.35	0	0
10	1.4	1.2	4.0	167	29	166	12	5.3	2.4	1.1	0	0
11	1.2	1.0	7.6	78	28	112	11	4.9	6.0	1.5	0	0
12	1.1	.94	6.7	149	70	94	11	5.0	2.7	.25	0	0
13	.93	.91	18	496	800	81	13	4.6	1.7	.24	0	0
14	1.3	.90	3.4	1,260	450	69	19	4.2	2.4	.20	0	0
15	2.9	.91	2.3	227	120	61	16	3.7	1.9	.20	0	0
16	5.9	.99	1.8	1,030	180	53	13	3.4	1.3	.21	0	.07
17	2.5	.96	1.6	256	350	47	12	3.2	1.1	.23	0	.10
18	1.7	.97	1.6	137	120	43	11	3.0	1.0	.19	0	.09
19	1.3	.88	124	430	80	40	11	2.9	.91	.15	0	.11
20	.96	.87	246	323	65	36	11	3.0	.74	.13	0	.13
21	.70	.85	449	1,700	54	33	11	3.0	.66	.11	0	.11
22	.59	.83	63	420	47	30	11	2.8	.53	.11	0	.08
23	.55	.83	555	270	42	28	9.8	2.7	.46	.14	0	.06
24	.58	.83	1,030	700	39	26	9.3	2.4	.40	.32	0	.05
25	.54	.85	182	150	37	24	8.8	2.1	.39	.30	0	.03
26	.53	.85	74	.90	34	23	8.9	2.1	.46	.19	0	.03
27	.54	.86	41	450	33	22	9.4	2.1	.49	.04	0	.03
28	.56	.91	29	180	81	21	9.1	2.2	.80	.04	0	.04
29	.52	.92	22	113	-----	21	8.2	4.2	1.3	.05	0	.04
30	.54	.92	17	93	-----	20	7.6	4.9	1.0	.03	0	.03
31	.52	-----	14	75	-----	19	-----	1.5	-----	.02	0	-----
TOTAL	30.33	38.93	2,902.44	9,059.1	3,036	3,072	360.1	123.2	39.70	10.31	0.06	1.00
MEAN	.98	1.30	93.6	292	108	99.1	12.0	3.97	1.32	.33	.002	.033
MAX	5.9	7.1	1,030	1,700	800	725	19	6.7	6.0	1.5	.02	.13
MIN	.09	.49	.87	7.2	28	19	7.6	1.5	.39	.02	0	0
AC-FT	60	77	5,760	17,970	6,020	6,090	714	244	79	20	.1	2.0
CAL YR 1969	TOTAL 23,094.65		MEAN 63.3		MAX 2,020		MIN .05		AC-FT 45,810			
WTR YR 1970	TOTAL 18,673.17		MEAN 51.2		MAX 1,700		MIN 0		AC-FT 37,040			

## PEAK DISCHARGE (BASE, 1,400 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1045	7.46	1,670	1-21	1830	8.85	3,240
12-23	2200	8.25	2,510	1-24	unknown	-	unknown
1-14	1015	9.37	3,890	1-27	unknown	-	unknown
1-16	0615	9.02	3,440	2-13	unknown	8.03	2,300
1-19	2000	7.73	1,960	3- 1	1000	7.91	2,180

## 11407700 FEATHER RIVER AT YUBA CITY, CALIF.

LOCATION.--Lat 39°08'20", long 121°36'17", in NE $\frac{1}{4}$  sec.23, T.15 N., R.3 E., Yuba County, on left bank at 5th Street railroad bridge in Yuba City, 0.7 mile above confluence with Yuba River, and at mile 28.0 above mouth.

DRAINAGE AREA.--3,974 sq mi.

PERIOD OF RECORD.--October 1964 to current year. November 1943 to September 1963 (prior to July 1, 1944, stage only) published in reports of California Department of Water Resources.

GAGE.--Water-stage recorder. Gage is set to datum of Corps of Engineers.

AVERAGE DISCHARGE.--6 years, 5,836 cfs (4,228,000 acre-ft per year).

EXTREMES.--Current year: Maximum daily discharge, 74,500 cfs Jan. 17; minimum daily, 1,360 cfs May 30.  
Period of record: Maximum discharge, 172,000 cfs Dec. 23, 1964 (gage height, 76.42 ft); minimum daily, 166 cfs June 30, 1966.

REMARKS.--Flow regulated by powerplants and reservoirs. There are many diversions above the station for irrigation. Records of water temperatures and suspended-sediment loads for the water year 1970 are published in Part 2 of this report. Discharge figures computed as differences between Feather River below Shanghai Bend and Yuba River near Marysville (see sta 11421000, 11421700).

COOPERATION.--Gage-height record and 16 discharge measurements furnished by California Department of Water Resources.

REVISIONS (WATER YEARS).--WRD Calif. 1967: 1965.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3,370	3,310	3,550	16,900	30,000	8,430	3,680	1,920	1,980	1,990	2,720	4,150
2	3,260	3,240	3,700	15,700	23,000	18,000	3,380	2,040	1,940	1,940	2,850	4,320
3	3,250	3,250	3,690	13,800	16,900	16,200	3,310	1,890	1,560	1,880	3,100	4,350
4	3,260	3,300	3,730	13,100	14,200	14,400	3,210	1,980	1,850	1,890	3,400	4,370
5	3,200	3,340	3,830	10,700	11,300	15,700	3,120	2,010	2,210	1,890	3,700	4,360
6	3,160	3,380	3,850	5,540	9,940	15,500	3,090	2,050	2,140	1,850	3,870	4,370
7	3,180	3,370	3,860	4,570	11,200	14,500	2,960	2,430	2,010	1,820	3,940	4,350
8	3,170	3,360	4,130	4,430	10,400	14,600	2,920	2,610	2,010	1,810	3,940	4,060
9	3,170	3,300	4,240	4,510	10,000	16,100	2,870	2,020	2,160	1,840	3,940	4,170
10	3,160	3,290	4,320	5,610	10,000	15,200	2,900	1,800	1,760	1,900	4,010	4,270
11	3,130	3,340	4,650	9,260	9,590	16,500	2,900	1,780	1,990	1,830	4,100	4,240
12	3,130	3,340	5,230	11,300	9,510	15,800	2,840	1,910	1,970	1,840	4,280	4,300
13	3,280	3,350	5,750	12,400	9,580	15,200	2,840	1,990	1,880	1,870	4,320	4,250
14	3,020	3,370	6,270	17,700	13,800	13,500	2,750	1,870	1,870	1,860	4,320	4,270
15	3,020	3,370	6,360	52,700	16,400	13,000	2,660	1,950	1,880	1,890	4,470	4,190
16	3,200	3,490	6,340	63,400	14,400	12,500	2,590	1,940	1,810	1,900	4,490	4,140
17	3,180	3,720	6,240	74,500	13,800	9,490	2,580	1,860	1,770	1,920	4,490	4,140
18	3,190	3,740	6,160	72,300	16,000	9,550	2,470	2,330	1,780	1,940	4,480	4,120
19	3,140	3,750	6,240	66,700	15,300	8,760	2,270	1,940	1,820	1,920	4,480	4,150
20	3,200	3,750	6,650	62,400	15,000	6,960	2,200	2,190	1,800	1,800	4,510	4,080
21	3,240	3,750	7,430	35,600	14,300	4,070	2,200	2,000	1,790	1,930	4,240	4,580
22	3,260	3,760	8,480	35,800	14,500	3,730	2,190	2,020	1,810	2,020	4,410	4,320
23	3,280	3,760	6,630	60,700	14,400	3,300	2,200	2,000	1,790	2,030	4,390	4,200
24	3,280	3,750	5,100	53,100	13,800	3,160	2,220	1,930	1,770	2,020	4,330	4,210
25	3,260	3,750	22,300	69,400	14,700	2,930	2,120	1,940	1,780	2,040	4,240	4,160
26	3,260	3,610	24,700	68,600	11,000	3,100	2,050	1,990	1,920	2,060	4,420	4,170
27	3,260	3,560	23,500	64,000	9,450	3,140	2,090	2,130	1,940	2,110	4,470	4,230
28	3,290	3,550	22,400	65,900	9,320	2,990	1,410	1,870	1,890	2,160	4,540	4,060
29	3,300	3,570	21,900	51,600	-----	3,070	1,950	1,890	1,940	2,360	4,520	3,760
30	3,280	3,550	21,700	48,000	-----	3,040	1,860	1,360	1,950	2,510	4,510	2,930
31	3,310	-----	21,200	39,400	-----	3,300	-----	1,610	-----	2,580	4,890	-----
TOTAL	99,690	104,970	284,130	1,129,640	381,790	305,720	77,830	61,250	56,770	61,400	128,370	125,270
MEAN	3,216	3,499	9,165	36,440	13,640	9,862	2,594	1,976	1,892	1,981	4,141	4,176
MAX	3,370	3,760	24,700	74,500	30,000	18,000	3,680	2,610	2,210	2,580	4,890	4,580
MIN	3,020	3,240	3,550	4,430	9,320	2,930	1,410	1,360	1,560	1,800	2,720	2,930
AC-FT	197,700	208,200	563,600	2,241M	757,300	606,400	154,400	121,500	112,600	121,800	254,600	248,500
CAL YR 1969	TOTAL 2,834,820		MEAN 7,767		MAX 48,100		MIN 1,120		AC-FT 5,623,000			
WTR YR 1970	TOTAL 2,816,810		MEAN 7,717		MAX 74,500		MIN 1,360		AC-FT 5,587,000			

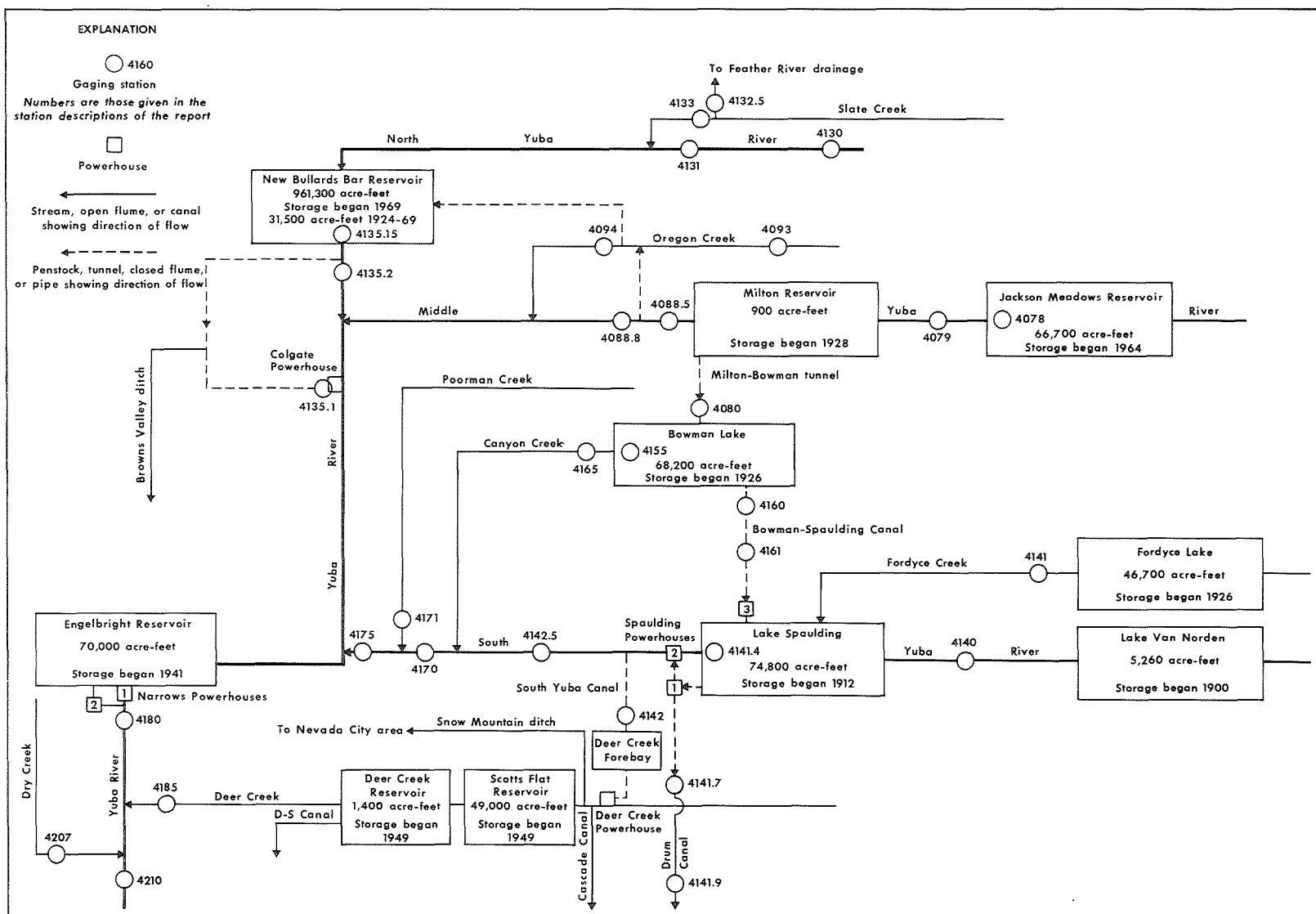


FIGURE 14.--Schematic diagram showing diversions and storage in Yuba River basin.

## 11407800 JACKSON MEADOWS RESERVOIR NEAR SIERRA CITY, CALIF.

LOCATION.--Lat 39°30'40", long 120°33'15", in NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.18, T.19 N., R.13 E., Sierra County, Tahoe National Forest, on right bank at Jackson Meadows Dam on Middle Yuba River, 0.7 mile downstream from Pass Creek, and 5.7 miles southeast of Sierra City.

DRAINAGE AREA.--37.6 sq mi (revised).

PERIOD OF RECORD.--November 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Nevada Irrigation District).

EXTREMES.--Water year 1969: Maximum contents, 71,000 acre-ft June 13-16 (elevation, 6,037.7 ft); minimum, 20,300 acre-ft Oct. 21 to Nov. 1 (elevation, 5,978.7 ft).

Water year 1970: Maximum contents, 71,000 acre-ft May 17, 18 (elevation, 6,037.7 ft); minimum, 21,400 acre-ft Dec. 2-8 (elevation, 5,980.7 ft).

Period of record: Maximum contents, 71,000 acre-ft June 13-16, 1969, May 17, 18, 1970 (elevation, 6,037.7 ft); minimum since initial season of normal operation, 20,300 acre-ft Oct. 21 to Nov. 1, 1968 (elevation, 5,978.7 ft).

REMARKS.--Reservoir is formed by an earthfill dam. Storage began Nov. 9, 1964. Usable capacity, 66,700 acre-ft between elevations 5,933.0 ft (bottom of intake tower) and 6,036.0 ft (top of spillway Tainter gates). Dead storage, 2,500 acre-ft. Records, including extremes, represent total contents at 2400 hours.

REVISIONS.--Revised figures of contents, in acre-feet, for the water year 1969, superseding those published in WRD Calif. 1969, are given herein.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

5,960	10,600	6,010	43,900
5,970	15,400	6,020	53,200
5,980	21,000	6,030	63,000
5,990	27,600	6,040	73,500
6,000	35,300		

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30,500	20,300	22,400	24,000	35,000	39,000	42,600	55,400	60,600	70,000	69,400	57,900
2	30,000	20,400	22,400	24,000	35,300	39,200	43,000	55,400	62,300	70,000	69,400	57,400
3	29,500	20,500	22,400	24,000	35,500	39,300	43,300	55,300	64,100	70,000	69,400	56,900
4	28,900	20,700	22,400	24,000	35,700	39,400	43,600	55,200	65,900	70,000	69,400	56,400
5	28,300	20,700	22,400	24,000	35,900	39,500	44,000	55,400	67,500	70,000	69,400	56,000
6	27,800	20,700	22,400	24,100	36,100	39,500	44,200	55,700	69,000	70,000	69,400	55,600
7	27,200	20,800	22,500	24,200	36,200	39,600	44,500	55,900	70,200	70,000	69,400	55,000
8	26,600	20,800	22,500	24,200	36,300	39,600	44,800	56,100	70,700	70,000	69,400	54,500
9	26,100	20,800	22,600	24,200	36,400	39,700	44,900	56,300	70,800	70,000	69,400	54,000
10	25,500	20,800	22,700	24,200	36,600	39,800	45,200	56,400	70,800	70,000	69,300	53,500
11	25,000	21,000	22,800	24,400	36,800	39,900	45,500	56,500	70,800	69,900	69,300	53,000
12	24,500	21,200	22,800	24,400	36,800	39,900	45,800	56,500	70,900	69,900	68,900	52,400
13	24,100	21,300	22,900	24,700	37,000	40,000	46,300	56,400	71,000	69,900	68,000	51,800
14	23,600	21,300	22,900	24,800	37,200	40,100	46,700	56,300	71,000	69,800	67,500	51,400
15	23,100	21,400	23,100	24,900	37,400	40,200	47,000	56,100	71,000	69,800	66,100	50,800
16	22,500	21,400	23,100	25,000	37,500	40,200	47,400	56,200	71,000	69,700	65,600	50,300
17	22,000	21,400	23,100	25,000	37,600	40,200	47,800	56,400	70,900	69,700	65,000	49,800
18	21,500	21,600	23,200	25,100	37,700	40,300	48,300	56,400	70,900	69,600	64,600	49,200
19	21,000	21,800	23,200	25,900	37,800	40,400	48,900	56,300	70,900	69,600	64,100	48,700
20	20,500	21,800	23,300	28,000	37,900	40,500	49,500	56,200	70,800	69,600	63,700	48,200
21	20,300	21,800	23,300	29,800	38,000	40,600	50,300	56,200	70,700	69,600	63,200	47,700
22	20,300	21,900	23,300	30,400	38,100	40,700	51,300	56,400	70,600	69,600	62,700	47,100
23	20,300	22,000	23,400	30,900	38,300	40,700	52,400	56,500	70,500	69,500	62,300	46,700
24	20,300	22,100	23,600	31,300	38,400	40,800	53,100	56,400	70,500	69,500	61,700	46,100
25	20,300	22,100	23,700	32,000	38,700	40,900	53,700	56,400	70,400	69,500	61,200	45,600
26	20,300	22,100	23,700	33,100	38,800	40,900	54,000	56,400	70,300	69,500	60,800	45,000
27	20,300	22,200	23,800	33,600	38,900	41,100	54,500	56,400	70,200	69,500	60,300	44,500
28	20,300	22,100	23,800	34,000	39,000	41,300	54,900	56,300	70,200	69,500	59,800	43,900
29	20,300	22,200	23,800	34,400	-----	41,500	55,100	56,300	70,000	69,400	59,300	43,400
30	20,300	22,300	23,900	34,600	-----	41,800	55,300	57,000	70,000	69,400	58,800	42,900
31	20,300	-----	23,900	34,900	-----	42,200	-----	58,900	-----	69,400	58,300	-----
MAX	30,500	22,300	23,900	34,900	39,000	42,200	55,300	58,900	71,000	70,000	69,400	57,900
MIN	20,300	20,300	22,400	24,000	35,000	39,000	42,600	55,200	60,600	69,400	58,300	42,900
(a)	5,978.7	5,982.1	5,984.6	5,999.4	6,004.3	6,008.0	6,022.2	6,025.9	6,036.8	6,036.2	6,025.3	6,008.8
(b)	-10,700	+2,000	+1,600	+11,000	+4,100	+3,200	+13,100	+3,600	+11,100	-800	-11,100	-15,400
CAL YR 1968	b	-8,600		MAX 69,900	MIN 20,300							
WTR YR 1969	b	+11,900		MAX 71,000	MIN 20,300							

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

## SACRAMENTO RIVER BASIN

11407800 JACKSON MEADOWS RESERVOIR NEAR SIERRA CITY, CALIF.--Continued

CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42,300	32,500	21,700	30,100	54,900	54,600	57,500	65,200	70,600	69,600	69,200	63,300
2	41,700	32,500	21,400	30,200	54,900	54,500	57,800	65,600	70,600	69,600	69,100	62,700
3	41,200	32,500	21,400	30,400	54,800	54,500	58,000	66,100	70,600	69,600	69,100	62,100
4	40,500	32,500	21,400	30,400	54,700	54,500	58,300	66,600	70,600	69,600	69,100	61,500
5	40,200	32,600	21,400	30,500	54,700	54,500	58,500	67,200	70,500	69,600	69,100	61,000
6	39,600	32,700	21,400	30,500	54,700	54,500	58,800	67,800	70,500	69,500	69,000	60,500
7	39,000	32,700	21,400	30,700	54,700	54,500	59,100	68,500	70,400	69,500	69,000	60,000
8	38,400	32,700	21,400	30,700	54,700	54,500	59,400	69,000	70,400	69,500	69,000	59,500
9	37,900	32,700	21,500	31,200	54,600	54,500	59,800	69,500	70,300	69,500	69,000	59,000
10	37,300	32,400	21,500	31,500	54,600	54,500	60,200	70,000	70,300	69,500	69,000	58,500
11	36,800	32,000	21,600	31,700	54,600	54,500	60,600	70,200	70,300	69,500	68,900	57,900
12	36,300	31,500	21,600	32,000	54,700	54,500	61,000	70,200	70,200	69,500	68,900	57,500
13	35,800	31,000	21,600	32,300	54,700	54,500	61,300	70,300	70,200	69,500	68,900	56,900
14	35,300	30,400	21,600	32,600	54,700	54,600	61,500	70,400	70,000	69,500	68,900	56,400
15	34,900	30,000	21,600	33,200	54,600	54,600	61,800	70,600	70,000	69,500	68,900	55,700
16	34,700	29,500	21,700	36,300	54,700	54,600	62,000	70,900	70,000	69,400	68,800	55,300
17	34,300	29,000	21,700	37,800	54,600	54,600	62,200	71,000	70,000	69,400	68,800	54,900
18	33,700	28,500	21,700	38,500	54,600	54,600	62,600	71,000	69,900	69,400	68,800	54,600
19	33,200	28,100	22,100	39,500	54,600	54,700	62,800	70,900	69,900	69,400	68,700	54,400
20	32,800	27,500	23,400	40,700	54,500	54,800	63,000	70,800	69,900	69,400	68,700	54,300
21	32,500	26,900	25,400	46,100	54,500	55,100	63,200	70,800	69,900	69,400	68,700	54,200
22	32,500	26,400	25,800	50,500	54,500	55,300	63,400	70,800	69,900	69,300	68,700	54,200
23	32,500	25,900	26,700	52,900	54,500	55,500	63,500	70,800	69,800	69,300	68,600	53,900
24	32,500	25,400	27,900	54,700	54,500	55,800	63,700	70,800	69,800	69,300	68,300	53,400
25	32,500	24,800	28,700	55,200	54,500	56,100	63,900	70,900	69,700	69,300	67,400	52,900
26	32,500	24,300	29,100	55,300	54,500	56,300	64,200	70,900	69,700	69,300	66,700	52,400
27	32,500	23,800	29,400	55,400	54,500	56,400	64,400	70,800	69,600	69,300	66,100	51,800
28	32,500	23,300	29,500	55,300	54,500	56,700	64,600	70,700	69,600	69,200	65,600	51,400
29	32,500	22,800	29,800	55,100	-----	56,900	64,800	70,600	69,600	69,200	64,900	50,300
30	32,500	22,200	29,900	55,000	-----	57,100	65,000	70,600	69,600	69,200	64,500	50,300
31	32,500	-----	30,100	55,000	-----	57,300	-----	70,600	-----	69,200	63,900	-----
MAX	42,300	32,700	30,100	55,400	54,900	57,300	65,000	71,000	70,600	69,600	69,200	63,300
MIN	32,500	22,200	21,400	30,100	54,500	54,500	57,500	65,200	69,600	69,200	63,900	50,300
(a)	5,996.5	5,981.9	5,993.3	6,021.9	6,121.4	6,024.3	6,032.0	6,037.3	6,036.4	6,036.0	6,030.9	6,016.9
(b)	-10,400	-10,300	+7,900	+24,900	-500	+2,800	+7,700	+5,600	-1,000	-400	-5,300	-13,600
CAL YR 1969	MAX 71,000		MIN 21,400		b +6,200							
WTR YR 1970	MAX 71,000		MIN 21,400		b +7,400							

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

## 11407900 MIDDLE YUBA RIVER BELOW JACKSON MEADOWS DAM, NEAR SIERRA CITY, CALIF.

LOCATION.--Lat 39°30'58", long 120°33'40", in SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.18, T.19 N., R.13 E., Sierra County, Tahoe National Forest, on right bank 0.6 mile downstream from Jackson Meadows Dam, and 5.2 miles southeast of Sierra City.

DRAINAGE AREA.--38.3 sq mi.

PERIOD OF RECORD.--October 1964 to current year. If record for Milton-Bowman tunnel near Graniteville is added to record published as Middle Yuba River at Milton, a record equivalent to this site can be obtained for the period 1928-64.

GAGE.--Water-stage recorder. Datum of gage is 5,717.20 ft above mean sea level (levels by Nevada Irrigation District).

AVERAGE DISCHARGE (adjusted for storage in Jackson Meadows Reservoir).--6 years, 125 cfs (90,560 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 596 cfs May 18, 19 (gage height, 4.51 ft); minimum daily, 3.8 cfs for several days.

Period of record: Maximum discharge, 2,300 cfs Sept. 1, 1965 (gage height, 6.60 ft), from rating curve extended above 1,100 cfs on basis of computation of flow over dam at gage height, 10.57 ft; minimum daily, 0.1 cfs Oct. 1, 2, 1964.

Maximum stage known since at least 1925, 10.57 ft Jan. 31, 1963, from floodmarks (discharge, 10,000 cfs, by computation of flow over dam, adjusted for diversion and inflow).

REMARKS.--Records good. Flow regulated by Jackson Meadows Reservoir since November 1964 (see sta 11407800).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	270	3.8	284	6.2	174	98	8.5	9.6	286	31	6.3	286
2	274	3.8	131	5.1	156	95	8.5	9.6	282	28	5.8	300
3	274	3.8	3.8	4.6	142	89	8.5	11	277	27	5.8	259
4	274	3.8	3.8	4.6	136	86	8.5	11	272	24	5.3	222
5	274	3.8	3.8	4.6	133	85	8.5	11	259	22	5.3	226
6	274	3.8	3.8	4.6	123	81	8.5	9.6	242	21	5.8	226
7	274	3.8	3.8	4.2	121	81	8.5	9.6	218	18	5.3	222
8	274	3.8	3.8	5.1	119	90	8.5	9.6	206	17	5.3	222
9	274	3.8	3.8	7.9	114	90	8.5	19	206	16	5.3	222
10	274	107	3.8	7.3	112	85	8.5	73	206	16	5.3	222
11	274	288	3.8	6.2	111	81	7.6	158	186	14	5.3	222
12	274	292	4.0	6.8	116	79	6.8	193	161	14	5.3	192
13	270	292	3.8	8.5	124	81	6.8	196	154	11	5.3	221
14	270	292	3.8	18	121	100	6.8	224	150	11	4.8	246
15	270	292	3.8	10	114	112	6.8	268	137	11	4.8	206
16	270	292	3.8	60	111	116	6.8	375	125	11	4.8	175
17	267	288	3.8	27	118	116	6.8	505	116	9.9	4.8	147
18	267	292	3.8	16	109	109	7.6	584	98	9.9	4.4	105
19	267	292	7.0	14	100	55	7.6	566	88	8.6	4.4	61
20	267	288	19	19	96	8.5	6.8	495	83	8.6	4.4	39
21	125	288	33	82	94	8.5	6.8	440	79	8.6	4.4	25
22	4.4	288	10	51	92	9.4	7.6	425	75	8.0	4.4	17
23	4.2	288	12	32	88	9.4	7.6	440	67	8.0	4.4	108
24	4.0	284	48	48	86	10	7.6	440	63	7.4	177	250
25	3.8	288	29	225	84	10	7.6	445	56	7.4	360	246
26	3.8	288	13	337	84	10	7.6	465	52	7.4	259	246
27	3.8	284	10	444	82	10	7.6	460	47	6.8	259	246
28	3.8	281	7.6	354	85	10	7.6	410	41	6.8	246	250
29	3.8	281	7.6	274	-----	10	8.5	360	37	6.8	238	264
30	3.8	284	7.3	230	-----	9.4	9.4	320	33	6.3	234	272
31	3.8	-----	7.3	197	-----	8.5	-----	300	-----	6.3	234	-----
TOTAL	5,596.2	5,903.2	686.8	2,513.7	3,145	1,842.7	233.3	8,242.0	4,302	408.8	2,124.0	5,945
MEAN	181	197	22.2	81.1	112	59.4	7.78	266	143	13.2	68.5	198
MAX	274	292	284	444	174	116	9.4	584	286	31	360	300
MIN	3.8	3.8	3.8	4.2	82	8.5	6.8	9.6	33	6.3	4.4	17
AC-FT	11,100	11,710	1,360	4,990	6,240	3,660	463	16,350	8,530	811	4,210	11,790
CAL YR 1969	TOTAL 60,774.9		MEAN 167	MAX 974	MIN 3.8	AC-FT 120,500		MEAN a 175	AC-FT a 126,700			
WAT YR 1970	TOTAL 40,942.7		MEAN 112	MAX 584	MIN 3.8	AC-FT 81,210		MEAN a 122	AC-FT a 88,610			

a Adjusted for change in contents in Jackson Meadows Reservoir.

## SACRAMENTO RIVER BASIN

## 11408000 MILTON-BOWMAN TUNNEL OUTLET NEAR GRANITEVILLE, CALIF.

LOCATION.--Lat 39°27'36", long 120°36'40", in NW¼NE¼ sec.3, T.18 N., R.12 E., Nevada County, on right bank 100 ft downstream from tunnel outlet near upper end of Bowman Lake and 6.9 miles east of Graniteville.

PERIOD OF RECORD.--May 1928 to September 1930, February 1931 to current year. Monthly discharge only for some periods, published in WSP 1315-A. Prior to October 1962, published as Milton-Bowman tunnel at outlet.

GAGE.--Water-stage recorder and Parshall flume. Altitude of gage is 5,600 ft (from topographic map). Prior to Sept. 22, 1964, at present site at datum 0.56 ft higher.

AVERAGE DISCHARGE.--42 years, 71.1 cfs (51,510 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 492 cfs Feb. 11, 1941; minimum daily, 0.4 cfs Oct. 7, 1944.

REMARKS.--Records good. Tunnel diverts from Middle Yuba River at Milton, in sec.12, T 19 N., R.12 E., and discharges into Bowman Lake. Practically the entire flow of Middle Yuba River is diverted during low and medium flows. Middle Yuba River flow is regulated by Jackson Meadows Reservoir (see sta 11407800) since November 1964. See schematic diagram of Yuba River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	249	5.0	246	17	212	107	18	19	120	40	4.6	291
2	254	5.3	164	16	198	108	18	21	120	36	4.6	325
3	252	5.5	11	15	175	97	18	23	120	33	4.3	295
4	253	5.5	7.1	14	158	90	18	22	119	30	4.1	259
5	252	6.8	6.5	13	147	89	19	28	118	28	4.1	259
6	251	7.8	6.5	13	137	82	20	28	117	24	4.1	247
7	252	7.1	6.3	12	130	80	20	27	195	22	4.1	254
8	257	6.5	6.3	13	126	89	20	26	191	20	4.1	253
9	254	6.3	6.5	28	122	86	22	29	150	18	3.8	256
10	254	38	6.5	36	119	83	22	72	137	16	3.8	279
11	252	238	6.8	22	117	78	23	140	136	15	3.8	261
12	252	245	7.1	24	126	74	22	186	135	14	4.1	233
13	251	250	8.9	35	141	76	21	196	156	13	4.1	238
14	251	250	7.3	89	140	90	20	204	177	12	3.8	288
15	256	250	6.8	48	127	107	19	216	132	9.8	3.8	247
16	261	249	6.5	222	120	110	19	220	121	8.4	3.8	219
17	254	247	6.3	127	136	111	18	223	126	7.3	3.4	186
18	248	250	6.3	74	120	106	18	287	127	6.5	1.9	142
19	246	250	15	63	107	77	19	349	115	6.0	1.9	83
20	245	249	57	81	98	21	18	281	109	5.5	1.9	52
21	163	248	125	276	95	19	17	284	105	5.5	1.9	34
22	13	247	47	228	90	18	17	293	101	5.5	1.9	24
23	8.4	246	36	106	86	19	16	295	90	5.0	1.9	81
24	7.3	244	153	136	84	20	16	295	82	5.0	108	246
25	6.8	245	112	240	82	20	16	295	74	4.8	330	246
26	6.3	246	56	338	82	20	18	296	68	4.8	361	246
27	6.3	245	35	336	82	19	18	192	65	4.6	308	246
28	6.5	244	27	226	86	20	16	91	58	4.6	296	245
29	6.0	244	23	223	-----	20	16	90	52	4.6	271	251
30	5.5	244	21	221	-----	19	18	89	44	4.6	265	256
31	5.5	-----	19	219	-----	18	-----	100	-----	4.6	261	-----
TOTAL	5,278.6	5,024.8	1,248.7	3,511	3,443	1,973	560	4,917	3,460	418.1	2,279.8	6,542
MEAN	170	167	40.3	113	123	63.6	18.7	159	115	13.5	73.5	218
MAX	261	250	246	338	212	111	23	349	195	40	361	325
MIN	5.5	5.0	6.3	12	82	18	16	19	44	4.6	1.9	24
AC-FT	10,470	9,970	2,480	6,960	6,830	3,910	1,110	9,750	6,860	829	4,520	12,980
CAL YR 1969	TOTAL	45,649.1	MEAN	125	MAX	432	MIN	5.0	ACFT	90,540		
WAT YR 1970	TOTAL	38,656.0	MEAN	106	MAX	361	MIN	1.9	ACFT	76,670		



## 11408850 MIDDLE YUBA RIVER NEAR CAMPTONVILLE, CALIF.

LOCATION.--Lat 39°25'01", long 120°57'06", in SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.15, T.18 N., R.9 E., Sierra County, Tahoe National Forest, on right bank 0.6 mile downstream from Kanaka Creek, and 5.8 miles southeast of Camptonville.

DRAINAGE AREA.--136 sq mi.

PERIOD OF RECORD.--August 1967 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,170 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 12,300 cfs Jan. 21 (gage height, 14.80 ft); minimum daily, 26 cfs Sept. 23-25.

Period of record: Maximum discharge, 12,300 cfs Jan. 21, 1970 (gage height, 14.80 ft); minimum daily, 24 cfs Sept. 29, 30, 1968.

REMARKS.--Records good. Natural flow of stream affected by Jackson Meadows Reservoir since November 1964 (see sta 11407800), Milton-Bowman tunnel (see sta 11408000) which diverts above station to Bowman Lake (see sta 11415500), and other small diversions above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	39	38	266	760	680	250	215	389	65	37	34
2	32	39	38	235	660	554	248	225	380	61	36	34
3	32	39	37	208	590	468	241	235	371	58	36	33
4	33	39	37	197	546	437	233	252	356	56	36	33
5	33	97	36	178	503	416	231	272	338	52	35	34
6	33	137	36	168	464	398	233	298	310	51	35	33
7	33	106	36	164	434	389	235	280	278	49	35	32
8	41	94	45	176	410	522	231	272	161	48	35	30
9	45	74	45	520	389	472	231	290	163	47	35	30
10	38	65	57	1,050	371	461	235	300	233	47	34	29
11	36	59	123	653	362	431	262	275	209	47	34	28
12	35	57	105	695	434	410	248	258	167	46	33	27
13	35	56	178	1,580	503	413	243	245	146	45	34	27
14	39	55	105	3,340	482	472	250	250	139	44	33	28
15	90	53	78	2,160	444	489	233	272	125	43	33	28
16	190	61	67	5,880	484	450	235	383	118	42	33	27
17	129	60	60	3,970	715	437	221	550	113	43	33	27
18	85	55	58	2,530	550	401	213	640	106	43	34	27
19	57	51	266	2,000	486	377	243	482	101	43	42	27
20	50	50	1,180	2,310	440	353	227	510	98	42	41	27
21	47	48	2,530	7,040	410	338	213	437	95	42	35	27
22	45	47	1,080	6,710	389	323	205	389	91	42	33	27
23	44	46	1,130	3,400	368	320	199	386	82	41	33	26
24	43	45	2,060	4,290	350	320	191	392	77	41	33	26
25	42	43	2,460	2,450	335	320	187	386	76	41	33	26
26	42	43	1,310	1,710	323	315	207	398	77	42	33	28
27	41	42	780	2,950	318	302	207	413	78	39	34	29
28	41	42	610	1,840	503	290	197	566	74	39	35	28
29	40	41	477	1,370	-----	288	193	506	73	38	35	28
30	40	40	369	1,050	-----	278	199	461	69	38	35	28
31	39	-----	309	855	-----	265	-----	431	-----	38	35	-----
TOTAL	1,563	1,723	15,740	61,945	13,023	12,389	6,741	11,269	5,093	1,413	1,078	868
MEAN	50.4	57.4	508	1,998	465	400	225	364	170	45.6	34.8	28.9
MAX	190	137	2,530	7,040	760	680	262	640	389	65	42	34
MIN	32	39	36	164	318	265	187	215	69	38	33	26
AC-FT	3,100	3,420	31,220	122,900	25,830	24,570	13,370	22,350	10,100	2,800	2,140	1,720
CAL YR 1969	TOTAL 200,566		MEAN 549	MAX 8,470	MIN 32	ACFT 397,800						
WAT YR 1970	TOTAL 132,845		MEAN 364	MAX 7,040	MIN 26	ACFT 263,500						

## SACRAMENTO RIVER BASIN

1140880 MIDDLE YUBA RIVER BELOW OUR HOUSE DAM, CALIF.

LOCATION.--Lat 39°24'42", long 120°59'49", in SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.20, T.18 N., R.9 E., Sierra County, Tahoe National Forest, on right bank 400 ft downstream from Our House Dam and 4.0 miles southeast of Camptonville.

DRAINAGE AREA.--145 sq mi.

PERIOD OF RECORD.--October 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,967.51 ft above mean sea level.

EXTREMES.--Current year: Maximum discharge, 12,500 cfs Jan. 21 (gage height, 10.70 ft); minimum daily, 29 cfs Oct. 3, Sept. 13, 30.

Period of record: Maximum discharge, 12,500 cfs Jan. 21, 1970 (gage height, 10.70 ft); minimum daily, 26 cfs Oct. 23, 1969.

REMARKS.--Records good. Natural flow of stream affected by Jackson Meadows Reservoir since November 1964 (see sta 11407800), Milton-Bowman tunnel (see sta 11408000) which diverts above station to Bowman Lake (see sta 11415500), Lohman Ridge tunnel since October 1968 which diverts 400 ft upstream to Oregon Creek and thence to Bullards Bar Reservoir via Camptonville tunnel. Other small diversions above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	31	31	39	615	42	34	31	32	36	30	30
2	30	31	31	38	518	36	35	32	32	36	30	30
3	29	31	31	38	433	35	34	31	32	36	30	31
4	30	31	31	37	241	35	34	32	32	36	30	31
5	30	32	31	37	35	35	34	32	32	36	30	31
6	30	32	31	36	35	35	34	32	32	32	30	31
7	30	32	31	36	35	35	34	32	32	31	30	31
8	30	32	31	36	34	36	34	31	32	31	30	30
9	30	31	32	171	34	36	34	32	32	31	30	30
10	30	31	32	700	34	36	34	32	32	31	30	30
11	30	31	33	383	34	35	34	32	32	31	30	30
12	30	31	33	409	35	35	35	31	31	31	30	30
13	30	31	33	1,150	35	35	34	32	31	31	30	29
14	30	31	33	3,330	35	35	34	32	31	31	30	30
15	31	31	32	2,070	35	36	34	32	31	31	30	30
16	34	31	32	5,270	36	36	34	32	31	31	30	30
17	34	31	32	4,160	56	36	34	33	31	31	30	30
18	33	31	32	2,440	35	35	34	34	31	31	30	30
19	32	31	33	1,920	35	35	34	33	31	31	31	30
20	32	31	416	2,200	35	35	34	33	31	31	31	30
21	32	31	2,160	6,580	35	35	34	33	31	31	31	30
22	32	31	552	6,850	35	35	34	40	31	31	30	30
23	32	31	539	3,560	35	35	34	32	39	31	30	30
24	32	31	3,720	4,350	35	35	34	32	37	31	30	30
25	32	31	2,130	2,490	35	35	34	32	37	31	30	30
26	32	31	950	1,640	35	35	34	32	37	31	30	30
27	32	31	564	2,700	35	35	34	32	37	31	30	30
28	32	31	372	1,770	35	35	34	33	37	31	30	30
29	31	31	261	1,320	-----	35	33	33	37	31	30	30
30	31	31	178	952	-----	35	31	33	37	30	30	29
31	31	-----	87	751	-----	35	-----	33	-----	30	30	-----
TOTAL	964	934	12,534	57,463	2,665	1,099	1,018	1,006	991	985	933	903
MEAN	31.1	31.1	404	1,854	95.2	35.5	33.9	32.5	33.0	31.8	30.1	30.1
MAX	34	32	3,720	6,850	615	42	35	40	39	36	31	31
MIN	29	31	31	36	34	35	31	31	31	30	30	29
AC-FT	1,910	1,850	24,860	114,000	5,290	2,180	2,020	2,000	1,970	1,950	1,850	1,790
(a)	1,420	1,820	8,640	17,900	22,430	24,180	12,330	21,980	8,870	1,050	450	60

CAL YR 1969 TOTAL 182,312 MEAN 499 MAX 8,650 MIN 29 ACFT 361,600  
 WAT YR 1970 TOTAL 81,495 MEAN 223 MAX 6,850 MIN 29 ACFT 161,600

a Diversion, in acre-feet, to Lohman Ridge tunnel.

## 11409300 OREGON CREEK AT CAMPTONVILLE, CALIF.

LOCATION.--Lat 39°26'46", long 121°02'43", in SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.11, T.18 N., R.8 E., Yuba County, Tahoe National Forest, on right bank 25 ft downstream from County bridge, 0.5 mile southeast of Camptonville, and 5.5 miles upstream from mouth.

DRAINAGE AREA.--23.0 sq mi.

PERIOD OF RECORD.--August 1967 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,230 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 3,130 cfs Jan. 21 (gage height, 10.07 ft); minimum daily, 1.7 cfs Sept. 14, 17-19.

Period of record: Maximum discharge, 3,130 cfs Jan. 21, 1970 (gage height, 10.07 ft); minimum daily, 1.7 cfs Sept. 14, 17-19, 1970.

REMARKS.--Records good. No regulation or diversion above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	4.2	5.1	76	185	252	40	25	10	6.8	2.7	2.0
2	2.4	4.3	5.1	65	156	198	38	24	10	6.2	2.7	1.9
3	2.5	4.4	5.1	58	135	156	37	23	10	5.8	2.7	1.9
4	2.5	4.4	5.0	53	120	136	35	23	10	5.5	2.6	2.0
5	2.6	22	4.9	47	106	121	33	23	9.8	5.1	2.6	2.2
6	2.7	30	5.0	44	97	108	32	22	9.8	4.9	2.4	2.4
7	2.7	19	4.9	41	89	104	31	22	9.6	4.5	2.4	2.3
8	3.9	17	7.0	44	82	195	30	22	9.6	4.5	2.4	2.1
9	5.1	12	7.2	93	75	158	29	22	9.4	4.5	2.4	2.1
10	3.3	9.9	11	216	70	151	28	24	9.2	4.4	2.3	2.1
11	2.9	8.5	31	175	67	137	29	23	9.0	4.4	2.1	2.1
12	2.8	7.7	38	202	76	124	27	23	8.8	4.4	2.1	2.2
13	2.9	7.2	56	574	97	116	28	22	8.8	4.2	2.0	2.1
14	3.7	6.8	25	1,290	103	113	31	21	8.6	4.0	2.0	1.7
15	14	6.7	19	785	94	108	28	20	8.4	3.8	2.0	1.8
16	27	7.5	15	1,640	131	103	30	20	8.4	3.6	2.0	1.8
17	15	6.7	13	1,040	239	98	29	19	8.2	3.6	2.0	1.7
18	10	6.5	13	668	163	90	27	18	8.0	3.6	2.0	1.7
19	7.3	6.3	83	587	137	84	33	18	8.0	3.4	2.0	1.7
20	5.9	6.2	290	623	119	78	29	17	7.8	3.4	2.0	1.8
21	5.1	6.1	632	1,860	106	72	27	17	7.6	3.3	2.0	1.9
22	4.7	6.0	286	1,690	96	67	26	16	7.6	3.3	2.0	1.9
23	4.5	5.8	414	930	89	63	26	15	7.4	3.1	2.0	1.8
24	4.5	5.7	1,280	1,060	83	60	25	14	7.4	3.1	2.0	1.9
25	4.4	5.5	679	642	78	58	24	14	7.2	3.1	2.0	1.8
26	4.4	5.5	376	448	73	56	26	13	7.2	3.0	2.0	1.8
27	4.4	5.3	244	716	70	53	27	13	7.0	3.0	2.1	2.0
28	4.4	5.3	176	460	79	50	26	13	7.0	2.8	2.1	2.1
29	4.4	5.1	135	346	-----	47	25	12	7.0	2.8	2.1	2.0
30	4.3	5.1	106	272	-----	45	25	12	6.8	2.7	2.0	2.0
31	4.2	-----	89	224	-----	43	-----	11	-----	2.7	2.0	-----
TOTAL	170.9	252.7	5,060.3	16,969	3,015	3,244	881	581	253.6	123.5	67.7	58.8
MEAN	5.51	8.42	163	547	108	105	29.4	18.7	8.45	3.98	2.18	1.96
MAX	27	30	1,280	1,860	239	252	40	25	10	6.8	2.7	2.4
MIN	2.4	4.2	4.9	41	67	43	24	11	6.8	2.7	2.0	1.7
AC-FT	339	501	10,040	33,666	5,980	6,430	1,750	1,150	503	245	134	117
CAL YR 1969	TOTAL 40,497.0	MEAN 111	MAX 2,190	MIN 2.2	ACFT 80,330							
WAT YR 1970	TOTAL 30,677.5	MEAN 84.0	MAX 1,860	MIN 1.7	ACFT 60,850							

## PEAK DISCHARGE (BASE, 500 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1330	7.20	1,180	1-21	2030	10.07	3,130
12-24	0445	8.13	1,690	1-24	0115	7.69	1,420
1-14	1200	8.59	1,980	1-27	0445	6.81	975
1-16	0745	9.71	2,840				

NOTE.--No gage-height record June 1 to July 1.

## SACRAMENTO RIVER BASIN

## 11409400 OREGON CREEK BELOW LOG CABIN DAM, NEAR CAMPTONVILLE, CALIF.

LOCATION.--Lat 39°26'18", long 121°03'28", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.11, T.18 N., R.8 E., Yuba County, Tahoe National Forest, on right bank 200 ft upstream from High Point Ravine and 1.2 miles southwest of Camptonville.

DRAINAGE AREA.--29.1 sq mi.

PERIOD OF RECORD.--August 1968 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,911.56 ft above mean sea level (levels by Yuba County Water Agency).

EXTREMES.--Current year: Maximum discharge, 4,180 cfs Jan. 21 (gage height, 7.02 ft); maximum gage height, 7.51 ft Jan. 16; minimum daily discharge, 1.5 cfs Sept. 23.

Period of record: Maximum discharge, 4,180 cfs Jan. 21, 1970 (gage height, 7.02 ft); maximum gage height, 7.51 ft Jan. 16, 1970; minimum daily discharge, 1.5 cfs Sept. 23, 1970.

REMARKS.--Records good. Camptonville tunnel (maximum capacity, about 831 cfs) 1,100 ft upstream, diverts to New Bullards Bar Reservoir (see sta 11413515); diversion began October 1968. See schematic diagram of Yuba River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.6	6.0	7.2	9.0	1.6	6.1	13	12	12	10	10	7.0
2	6.6	6.0	7.2	9.0	1.5	13	13	12	12	10	10	7.1
3	6.6	6.0	7.2	9.0	1.6	13	13	12	12	10	10	6.7
4	6.6	6.0	7.2	9.0	82	13	13	12	12	10	10	6.6
5	6.6	6.9	7.2	8.7	106	13	13	12	12	10	10	6.5
6	6.6	7.7	7.2	8.6	11	13	13	12	12	9.8	9.8	6.5
7	6.3	7.3	7.2	8.6	11	13	13	12	12	10	9.7	6.3
8	6.6	7.2	7.3	8.7	11	14	13	12	12	9.7	9.7	6.3
9	7.1	6.9	7.6	22	11	13	13	12	12	9.7	9.2	5.7
10	6.8	6.9	7.7	64	11	13	13	12	12	9.7	9.0	4.8
11	6.6	6.6	8.4	17	11	13	13	12	11	10	8.7	4.5
12	6.6	6.6	8.7	30	11	13	13	12	11	10	8.6	4.2
13	6.6	6.6	8.9	442	11	13	13	12	11	10	8.4	4.1
14	6.6	6.6	8.5	1,520	11	13	13	12	11	10	7.8	3.8
15	7.5	6.6	8.2	964	11	13	13	12	11	9.9	7.7	3.2
16	9.0	7.0	9.2	1,980	12	13	13	12	11	9.7	7.3	2.9
17	8.1	7.2	8.2	1,120	24	13	13	13	11	9.7	7.1	2.8
18	7.7	6.9	8.2	864	12	13	13	13	11	9.7	7.2	2.7
19	7.5	6.9	9.7	814	12	12	13	13	11	9.7	7.6	2.7
20	7.4	6.9	252	854	12	12	13	13	11	9.7	8.0	2.7
21	7.2	6.9	962	2,250	13	12	13	13	10	9.7	7.8	2.7
22	6.8	6.9	581	1,660	12	12	13	17	10	9.7	7.1	2.4
23	6.3	6.9	728	644	12	12	13	12	10	9.7	6.5	1.5
24	6.3	6.9	1,650	817	12	12	13	12	10	9.7	6.0	3.9
25	6.4	6.9	906	413	12	12	13	12	10	9.7	5.4	4.7
26	6.3	7.2	530	225	12	12	12	12	10	9.6	5.5	4.3
27	6.1	7.2	322	509	12	13	13	12	10	9.6	6.5	4.2
28	6.1	7.2	225	256	12	13	19	13	10	9.7	8.3	4.3
29	6.0	7.2	177	119	-----	13	12	13	10	10	8.0	4.5
30	6.0	7.2	147	41	-----	13	12	12	10	10	7.6	3.8
31	6.0	-----	85	3.8	-----	13	-----	12	-----	11	7.3	-----
TOTAL	209.5	205.3	6,715.0	15,699.4	471.8	444	393	384	330	305.7	251.8	133.4
MEAN	6.76	6.84	217	506	16.9	14.3	13.1	12.4	11.0	9.86	8.12	4.45
MAX	9.0	7.7	1,650	2,250	106	61	19	17	12	11	10	7.1
MIN	6.0	6.0	7.2	3.8	1.6	12	12	12	10	9.6	5.4	1.5
AC-FT	416	407	13,320	31,140	936	881	780	762	655	606	499	265
(a)	1,430	2,050	8,020	29,340	29,050	31,430	13,760	22,670	8,850	754	121	0

CAL YR 1969 TOTAL 50,901.5 MEAN 139 MAX 2,840 MIN 6.0 ACFT 101,000  
WAT YR 1970 TOTAL 25,542.9 MEAN 70.0 MAX 2,250 MIN 1.5 ACFT 50,660

a Camptonville tunnel diversion, in acre-feet, to Bullards Bar Reservoir.

## 11413000 NORTH YUBA RIVER BELOW GOODYEARS BAR, CALIF.

LOCATION.--Lat 39°31'30", long 120°56'13", in SW $\frac{1}{4}$  sec.11, T.19 N., R.9 E., Sierra County, Tahoe National Forest, on right bank 200 ft downstream from St. Catherine Creek, 3.1 miles southwest of Goodyears Bar, and 6.4 miles southwest of Downieville.

DRAINAGE AREA.--250 sq mi.

PERIOD OF RECORD.--October 1930 to current year. Prior to October 1949, published as North Fork Yuba River below Goodyears Bar. Monthly and yearly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is 2,435 ft above mean sea level (river-profile survey).

AVERAGE DISCHARGE.--40 years, 748 cfs (541,900 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 19,200 cfs Jan. 22 (gage height, 16.38 ft); minimum daily, 128 cfs Sept. 25, 29, 30.

Period of record: Maximum discharge, 40,000 cfs Feb. 1, 1963 (gage height, 23.8 ft, from floodmarks), from rating curve extended above 8,500 cfs on basis of one float measurement at 17,900 cfs and slope-area measurements at gage heights 19.15 and 23.8 ft; minimum, 69 cfs Aug. 26, 1931.

REMARKS.--Records excellent. Several small diversions above station for irrigation and mining. See schematic diagram of Yuba River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	165	180	173	707	1,920	1,580	774	688	1,160	368	184	140
2	165	179	173	639	1,730	1,310	787	760	1,170	349	182	139
3	164	178	173	587	1,600	1,140	785	894	1,150	335	180	138
4	165	177	171	562	1,500	1,070	775	1,040	1,120	323	177	139
5	166	288	168	513	1,390	1,000	800	1,190	1,090	312	174	153
6	166	320	171	492	1,290	952	855	1,250	1,040	300	172	150
7	166	282	170	484	1,230	945	869	1,120	960	290	170	145
8	185	257	183	516	1,180	1,120	861	1,110	896	283	168	141
9	193	233	187	1,130	1,130	1,070	856	1,230	961	277	166	138
10	175	226	217	1,960	1,090	1,040	930	1,190	984	272	163	135
11	171	227	320	1,260	1,070	977	1,010	1,020	814	267	161	133
12	169	236	366	1,350	1,220	940	918	961	762	261	158	132
13	168	239	515	2,910	1,280	983	908	939	728	254	157	132
14	181	235	328	6,100	1,210	1,180	861	1,020	731	249	155	134
15	293	226	269	3,670	1,160	1,200	787	1,200	668	240	154	135
16	685	242	246	10,200	1,240	1,110	770	1,470	635	235	153	135
17	539	225	232	8,050	1,550	1,100	728	1,720	612	230	153	133
18	302	208	229	4,720	1,300	1,020	708	1,810	588	226	153	132
19	242	207	1,180	3,870	1,170	966	751	1,660	575	219	152	133
20	224	202	3,250	4,390	1,090	929	685	1,500	559	217	150	134
21	222	199	6,790	12,100	1,030	911	658	1,420	553	213	149	135
22	222	194	2,450	14,400	982	910	636	1,460	529	209	147	132
23	211	189	1,930	8,760	945	933	610	1,510	498	209	146	131
24	203	188	6,210	10,000	918	964	598	1,520	472	206	145	130
25	198	186	4,410	5,520	891	991	609	1,570	447	203	143	128
26	194	184	2,520	4,040	883	963	705	1,590	447	199	142	129
27	191	182	1,690	4,920	880	909	654	1,540	450	196	143	129
28	190	177	1,240	3,560	982	887	613	1,380	432	193	142	129
29	186	176	1,030	2,890	-----	889	598	1,280	428	190	143	128
30	184	175	887	2,490	-----	863	633	1,220	393	186	142	128
31	182	-----	781	2,160	-----	809	-----	1,180	-----	186	140	-----
TOTAL	6,867	6,417	38,659	124,950	33,861	31,661	22,732	39,442	21,852	7,697	4,864	4,050
MEAN	222	214	1,247	4,031	1,209	1,021	758	1,272	728	248	157	135
MAX	685	320	6,790	14,400	1,920	1,580	1,010	1,810	1,170	368	184	153
MIN	164	175	168	484	880	809	598	688	393	186	140	128
AC-FT	13,620	12,730	76,680	247,800	67,160	62,800	45,090	78,230	43,340	15,270	9,650	8,030
CAL YR 1969	TOTAL	445,457		MEAN	1,220	MAX	12,200	MIN	164	AC-FT	883,600	
WTR YR 1970	TOTAL	343,052		MEAN	940	MAX	14,400	MIN	128	AC-FT	680,400	

## PEAK DISCHARGE (BASE, 3,200 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1315	13.48	12,400	1-22	0100	16.38	19,200
12-24	0630	11.31	7,900	1-24	0115	14.52	14,700
1-14	1215	11.82	8,850	1-27	0630	10.23	6,140
1-16	1200	13.98	13,500				

## SACRAMENTO RIVER BASIN

## 11413100 NORTH YUBA RIVER ABOVE SLATE CREEK NEAR STRAWBERRY VALLEY, CALIF.

LOCATION.--Lat 39°31'29", long 121°05'26", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.9, T.19 N., R.8 E., Yuba County, Tahoe National Forest, on left bank 500 ft upstream from Slate Creek and 2.8 miles southeast of Strawberry Valley.

DRAINAGE AREA.--351 sq mi.

PERIOD OF RECORD.--July 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,953.44 ft above mean sea level.

EXTREMES.--Current year: Maximum discharge, 35,800 cfs Jan. 22 (gage height, 19.91 ft, 20.7 ft, from floodmarks); minimum daily, 148 cfs Sept. 29, 30.

Period of record: Maximum discharge, 35,800 cfs Jan. 22, 1970 (gage height, 19.91 ft, 20.7 ft, from floodmarks); minimum daily, 138 cfs Sept. 29, 1968.

Flood of Dec. 22, 1964, reached a stage of 29.8 ft, from floodmarks (discharge, 63,400 cfs from slope-area measurement).

REMARKS.--Records good. Several small diversions above station for irrigation and mining.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	182	207	206	1,060	2,770	3,320	1,090	1,020	1,350	417	215	158
2	183	205	206	950	2,410	2,420	1,090	1,100	1,360	393	217	158
3	180	205	205	867	2,220	1,960	1,080	1,240	1,330	366	215	157
4	181	204	204	827	2,050	1,800	1,060	1,450	1,300	347	210	156
5	183	365	199	724	1,930	1,660	1,080	1,610	1,240	339	205	170
6	183	499	200	712	1,800	1,590	1,140	1,730	1,200	323	204	175
7	183	400	201	767	1,710	1,560	1,170	1,540	1,100	311	201	170
8	200	400	217	749	1,650	1,930	1,150	1,520	1,020	303	196	165
9	228	321	231	1,890	1,580	1,790	1,140	1,650	1,080	299	195	160
10	198	293	276	3,770	1,530	1,720	1,220	1,630	1,150	293	192	156
11	190	284	535	2,200	1,490	1,590	1,350	1,410	954	289	189	153
12	188	290	749	2,420	1,730	1,510	1,220	1,330	871	282	185	152
13	188	297	1,110	6,330	1,870	1,550	1,220	1,290	829	278	185	150
14	201	289	720	13,400	1,810	1,820	1,160	1,360	859	272	183	153
15	312	276	526	7,390	1,720	1,900	1,080	1,560	779	262	180	158
16	855	291	422	18,500	1,850	1,750	1,070	1,830	738	256	180	158
17	785	285	373	15,600	2,540	1,720	1,020	2,120	710	254	178	156
18	430	255	345	9,140	1,960	1,580	1,000	2,240	680	250	176	154
19	312	248	974	6,940	1,760	1,480	1,060	2,070	661	244	175	154
20	275	242	1,870	8,170	1,630	1,420	990	1,870	644	241	173	156
21	269	237	8,460	20,800	1,530	1,360	951	1,740	630	241	171	158
22	262	232	4,050	24,000	1,470	1,350	916	1,780	605	235	170	155
23	250	226	3,080	13,500	1,420	1,370	889	1,810	565	236	168	153
24	241	219	11,400	17,200	1,380	1,370	870	1,810	534	231	167	155
25	234	223	8,050	9,560	1,340	1,420	878	1,830	501	232	163	150
26	231	221	4,340	6,600	1,330	1,380	997	1,850	494	228	163	149
27	223	217	2,670	8,860	1,330	1,300	959	1,800	510	225	163	149
28	220	214	1,930	5,880	1,530	1,260	903	1,620	481	222	160	149
29	217	209	1,580	4,580	-----	1,250	889	1,500	488	222	161	148
30	211	208	1,350	3,820	-----	1,200	937	1,430	442	217	160	148
31	208	-----	1,170	3,200	-----	1,140	-----	1,390	-----	217	158	-----
TOTAL	8,203	8,062	57,849	220,346	49,340	50,470	31,579	50,130	25,105	8,525	5,658	4,683
MEAN	265	269	1,866	7,108	1,762	1,628	1,053	1,617	837	275	183	156
MAX	855	499	11,400	24,000	2,770	3,320	1,350	2,240	1,360	417	217	175
MIN	180	204	199	707	1,330	1,140	870	1,020	442	217	158	148
AC-FT	16,270	15,990	114,700	437,100	97,870	100,100	62,640	99,430	49,800	16,910	11,220	9,290
CAL YR 1969	TOTAL 637,456		MEAN 1,746		MAX 19,000		MIN 180		AC-FT 1,264,000			
WTR YR 1970	TOTAL 519,950		MEAN 1,425		MAX 24,000		MIN 148		AC-FT 1,031,000			

## PEAK DISCHARGE (BASE, 4,500 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1415	15.65	20,900	1-16	1000	16.77	24,800
12-24	0630	13.98	14,700	1-22	0100	19.91	35,800
1- 9	2345	10.77	5,690	1-24	0200	17.12	26,100
1-14	1215	15.29	19,600	1-27	0630	12.96	11,300

## 11413250 SLATE CREEK TUNNEL NEAR STRAWBERRY VALLEY, CALIF.

LOCATION.--Lat 39°36'57", long 121°03'03", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.2, T.20 N., R.8 E., Plumas County, Plumas National Forest, on right bank 30 ft upstream from diversion dam on Slate Creek, 0.3 mile upstream from Fency Ravine, and 4.5 miles northeast of town of Strawberry Valley.

PERIOD OF RECORD.--October 1966 to current year. Records of daily discharge for December 1961 to September 1966 are in files of Geological Survey. Monthly diversion used to adjust Slate Creek below diversion dam near Strawberry Valley since February 1962.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level.

EXTREMES.--Period of record: Maximum daily discharge, 863 cfs Apr. 6, 1963; no flow many days in each year.

REMARKS.--Records good except those for period of no gage-height record, which are poor. Tunnel diverts water from Slate Creek to Sly Creek Reservoir (see sta 11395400) for power development. See schematic diagram of South Fork Feather River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.59	3.1	3.8	181	0	0	145	118	80	18	0	3.0
2	.83	3.1	4.4	158	0	7.3	151	125	78	16	0	3.0
3	.59	3.1	4.6	138	0	0	145	145	76	15	0	2.0
4	.36	3.1	3.6	124	163	0	139	158	70	15	0	2.0
5	.59	53	4.1	109	268	0	140	165	65	15	0	2.0
6	.83	41	5.5	94	242	0	144	167	59	13	0	1.0
7	.59	43	3.8	98	233	0	144	149	54	12	0	0
8	3.5	43	7.4	124	225	0	138	145	52	11	0	2.0
9	4.8	19	7.6	448	216	15	138	173	60	11	0	2.0
10	2.1	15	7.4	832	198	29	148	173	72	11	0	0
11	1.3	13	51	734	201	0	159	154	54	10	0	0
12	.94	11	238	768	290	0	140	145	46	10	0	0
13	1.1	8.8	246	834	302	7.8	140	146	46	9.4	0	0
14	3.8	8.8	97	719	264	282	131	150	62	9.2	0	0
15	40	8.5	62	670	258	369	119	164	47	8.1	0	0
16	85	8.5	56	442	275	158	118	182	42	7.9	0	0
17	69	7.0	41	187	153	0	110	192	39	7.4	0	0
18	20	6.5	41	153	0	0	108	186	35	7.1	0	0
19	13	6.0	545	79	0	0	121	165	34	6.9	0	0
20	9.2	5.5	648	0	0	0	108	148	33	6.9	2.0	0
21	7.4	5.0	197	0	0	0	99	134	30	6.0	3.0	0
22	6.2	4.8	322	0	0	0	92	132	29	6.0	4.0	0
23	5.5	4.8	666	0	0	1.0	87	134	26	5.5	4.0	0
24	5.3	4.8	836	0	0	2.0	82	130	25	5.3	4.0	0
25	4.8	4.8	786	0	135	0	84	130	21	5.0	4.0	0
26	4.6	4.8	723	0	86	0	104	128	21	4.6	3.0	0
27	4.0	4.5	674	0	0	60	94	120	22	4.2	3.0	0
28	3.8	4.0	420	0	0	193	87	107	22	2.0	3.0	0
29	3.7	3.8	313	0	-----	186	93	96	24	0	3.0	0
30	3.5	3.8	252	0	-----	175	108	89	19	0	3.0	0
31	3.3	-----	209	0	-----	160	-----	84	-----	0	3.0	-----
TOTAL	310.22	355.1	7,475.2	6,892	3,509	1,645.1	3,616	4,434	1,343	258.5	39.0	17.0
MEAN	10.0	11.8	241	222	125	53.1	121	143	44.8	8.34	1.26	.57
MAX	85	53	836	834	302	369	159	192	80	18	4.0	3.0
MIN	.36	3.1	3.6	0	0	0	82	84	19	0	0	0
AC-FT	615	704	14,830	13,670	6,960	3,260	7,170	8,790	2,660	513	77	34

CAL YR 1969 TOTAL 30,066.89 MEAN 82.4 MAX 836 MIN 0 ACFT 59,640

WAT YR 1970 TOTAL 29,894.12 MEAN 81.9 MAX 836 MIN 0 ACFT 59,290

NOTE.--No gage-height record Aug. 18 to Sept. 30.

## 11413300 SLATE CREEK BELOW DIVERSION DAM, NEAR STRAWBERRY VALLEY, CALIF.

LOCATION.--Lat 39°36'52", long 121°03'04", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.2, T.20 N., R.8 E., Plumas County, Plumas National Forest, on right bank 300 ft downstream from diversion dam, 0.2 mile upstream from Feney Ravine, and 4.5 miles northeast of town of Strawberry Valley.

DRAINAGE AREA.--49.4 sq mi.

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,570 ft (from topographic map).

AVERAGE DISCHARGE (adjusted for diversion to Slate Creek tunnel).--10 years, 211 cfs (152,900 acre-ft per year).

EXTREMES (Creek only).--Current year: Maximum discharge, 7,460 cfs Jan. 21 (gage height, 13.00 ft); minimum daily, 3.4 cfs Sept. 12.

Period of record: Maximum discharge, 13,100 cfs Dec. 22, 1964 (gage height, 16.42 ft), from rating curve extended above 5,500 cfs on basis of computed flow over dam at gage heights 12.75 and 15.90 ft; minimum, 0.3 cfs Mar. 4, 5, 1962.

(Combined flow).--Current year: Maximum discharge, 7,460 cfs Jan. 21; minimum daily, 3.4 cfs Sept. 12.

Period of record: Maximum discharge, 13,900 cfs Dec. 22, 1964; minimum daily, 2.3 cfs Nov. 23, 1961.

REMARKS.--Records good except those for period Jan. 21 to Apr. 21, which are fair. Slate Creek tunnel (see sta 11413250) diverts at diversion dam 300 ft upstream up to 900 cfs from Slate Creek Reservoir (capacity, 223 acre-ft) to Sly Creek Reservoir (see sta 11395400). Diversion began in February 1962. See schematic diagram of South Fork Feather River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.6	9.2	9.2	10	436	688	15	11	9.8	9.2	11	5.7
2	8.6	9.2	9.2	10	392	450	14	11	9.8	9.0	11	6.9
3	8.6	9.2	9.2	10	372	395	14	11	9.8	8.5	11	6.9
4	8.6	9.2	9.2	10	181	330	14	10	9.8	8.1	12	7.3
5	8.6	9.8	9.2	10	9.8	300	14	10	9.8	8.1	11	9.0
6	8.6	9.2	9.2	21	9.8	284	14	10	9.8	8.1	11	9.8
7	8.6	9.2	9.2	10	9.8	280	14	9.8	9.8	8.1	11	9.4
8	9.2	9.2	9.2	12	9.8	318	14	9.8	9.8	8.1	11	7.7
9	8.6	9.2	9.2	225	9.8	276	14	9.8	9.8	8.1	11	7.7
10	8.6	9.2	9.2	390	12	262	14	9.8	9.8	8.1	11	8.5
11	8.6	9.2	9.8	12	9.2	234	14	9.8	9.8	8.1	13	5.7
12	8.6	9.2	10	157	13	225	14	9.8	9.8	8.1	14	3.4
13	9.2	9.2	9.8	1,260	9.8	224	14	9.8	9.8	8.1	12	4.6
14	9.2	9.2	9.2	3,090	9.8	113	14	9.8	9.8	8.1	11	8.5
15	9.2	9.2	9.2	1,210	9.8	10	14	9.8	9.8	8.1	10	7.3
16	9.2	9.2	9.2	4,250	9.8	150	14	9.8	9.8	8.1	9.8	6.9
17	9.2	9.2	9.2	3,150	230	275	14	9.8	9.8	8.1	10	6.9
18	9.2	9.2	9.2	1,670	302	217	14	9.8	9.8	8.1	11	5.7
19	9.2	9.2	181	1,290	274	245	14	9.8	9.8	8.1	11	6.1
20	9.2	9.2	769	1,450	241	243	14	9.8	9.8	8.1	12	6.5
21	9.2	9.2	2,670	4,500	246	250	14	9.8	9.8	8.1	18	6.5
22	9.2	9.2	529	4,380	240	248	14	9.8	9.8	8.1	35	9.4
23	9.2	9.2	149	3,230	232	231	14	9.8	9.8	8.1	38	9.4
24	9.2	9.2	1,890	3,880	210	264	14	9.8	9.8	8.1	19	8.5
25	9.2	9.2	1,250	1,790	96	250	14	9.8	9.8	8.1	14	8.5
26	9.2	9.2	294	1,120	124	223	14	9.8	9.8	8.1	10	8.5
27	9.2	9.2	17	1,480	240	173	14	9.8	9.8	8.1	8.1	8.1
28	9.2	9.2	11	940	331	14	14	9.8	9.8	13	7.3	7.7
29	9.2	9.2	13	712	-----	13	14	9.8	9.8	11	5.7	6.1
30	9.2	9.2	11	564	-----	13	12	9.8	9.8	11	5.4	5.0
31	9.2	-----	10	497	-----	13	-----	9.8	-----	11	6.5	-----
TOTAL	278.6	276.6	7,961.6	41,340	4,269.4	7,211	419	308.0	294.0	267.1	391.8	218.2
MEAN	8.99	9.22	257	1,334	152	233	14.0	9.94	9.80	8.62	12.6	7.27
MAX	9.2	9.8	2,670	4,500	436	688	15	11	9.8	13	38	9.8
MIN	8.6	9.2	9.2	10	9.2	10	12	9.8	9.8	8.1	5.4	3.4
AC-FT	553	549	15,790	82,000	8,470	14,300	831	611	583	530	777	433
MEAN a	19.0	21.0	498	1,556	278	286	134	153	54.4	16.9	13.9	7.85
AC-FT a	1,170	1,250	30,620	95,670	15,430	17,560	8,000	9,400	3,240	1,040	854	467

CAL YR 1969 TOTAL 91,031.2 MEAN 249 MAX 6,510 MIN 7.6 ACFT 180,600 MEAN a 332 AC-FT a 240,200  
WAT YR 1970 TOTAL 63,235.3 MEAN 173 MAX 4,500 MIN 3.4 ACFT 125,400 MEAN a 255 AC-FT a 184,700

a Adjusted for diversion to Slate Creek tunnel.



11413510 NEW COLGATE POWERPLANT NEAR FRENCH CORRAL, CALIF.  
(Formerly published as Colgate powerplant near French Corral)

LOCATION.--Lat 39°19'51", long 121°11'23", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.16, T.17 N., R.7 E., Yuba County, at powerplant on right bank of Yuba River, 0.3 mile upstream from Dobbins Creek, and 2.3 miles northwest of French Corral.

PERIOD OF RECORD.--October 1966 to current year. Records of daily discharge for October 1960 to September 1966 are available in files of Geological Survey. Prior to October 1969, published as "Colgate powerplant."

GAGE.--Recorded output from powerplant turbines.

EXTREMES.--Period of record: Maximum daily discharge, 3,260 cfs Mar. 2, May 5, 1970; no flow for several days in each year.

REMARKS.--Water is diverted from North Yuba River at New Bullards Bar Dam (see sta 11413515). Colgate powerplant was rebuilt during the 1970 water year with an increased capacity. Browns Valley ditch diverts up to 10 cfs at times from the head of the penstock for use in irrigation. No water was diverted during the 1970 water year.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0		0	1,520	2,980	0	3,250	3,220	841	1,020	2,430
2	0	0		0	1,140	3,260	0	3,080	1,920	916	1,160	3,000
3	0	0		0	1,980	2,780	0	3,170	1,730	1,060	1,150	2,260
4	0	101		0	1,880	1,440	0	3,160	1,250	713	2,080	2,440
5	0	87		0	1,950	1,490	0	3,260	952	0	1,730	2,170
6	0	0		0	1,850	1,640	0	3,220	1,350	59	1,810	2,300
7	0	148		0	1,740	2,740	0	2,660	724	603	1,720	2,200
8	0	0		0	1,550	2,140	0	719	289	1,330	1,690	1,930
9	0	0		0	1,690	2,510	0	658	272	643	1,130	2,590
10	0	0		0	2,380	2,650	0	1,200	2,250	825	671	2,490
11	0	0		0	1,220	2,210	0	3,200	2,430	617	1,990	1,050
12	0	0		0	1,360	1,990	0	3,240	1,470	0	2,110	463
13	0	0		0	1,360	2,090	0	3,210	619	209	1,370	353
14	0	0		0	1,700	3,000	0	3,240	474	800	1,810	957
15	0	0		0	1,090	3,000	0	3,210	1,760	946	1,190	2,420
16	0	0		0	686	2,630	0	3,230	1,620	951	1,420	1,740
17	0	0		0	755	2,960	0	3,150	1,540	1,140	1,270	2,380
18	0	0		0	1,160	2,560	0	855	1,590	474	1,850	2,570
19	0	0		0	1,630	3,000	0	547	1,480	241	1,640	1,910
20	0	0		0	1,090	3,000	0	2,610	861	744	1,700	2,710
21	0	0		0	1,730	2,950	0	2,720	687	1,610	2,360	2,090
22	0	0		0	1,590	2,850	0	2,660	846	1,890	1,450	2,550
23	0	0		0	1,550	3,010	1,250	1,000	540	1,510	1,660	2,620
24	0	0		0	2,180	2,960	1,500	0	536	1,940	1,780	2,540
25	0	0		0	2,310	3,000	1,500	1,190	1,880	790	2,870	2,400
26	0	0		507	3,250	1,870	1,620	2,780	1,340	1,040	2,590	1,140
27	0	0		1,210	3,250	0	2,940	1,810	913	1,370	2,630	30
28	0	0		1,540	3,250	0	2,870	39	0	2,290	2,790	1,130
29	56	0		1,000	-----	812	2,870	225	0	1,450	1,690	1,730
30	217	0		1,710	-----	1,500	2,940	2,900	1,300	2,250	1,740	3,160
31	440	-----		1,680	-----	1,440	-----	1,890	-----	1,740	1,020	-----
TOTAL	713	336	0	7,647	48,841	70,462	17,490	68,083	35,843	30,992	53,091	59,753
MEAN	23.0	11.2	0	247	1,744	2,273	583	2,196	1,195	1,000	1,713	1,992
MAX	440	148	0	1,710	3,250	3,260	2,940	3,260	3,220	2,290	2,870	3,160
MIN	0	0	0	0	686	0	0	0	0	0	671	30
AC-FT	1,410	666	0	15,170	96,880	139,800	34,690	135,000	71,090	61,470	105,300	118,500
CAL YR 1969	TOTAL	48,971.00	MEAN	134	MAX	549	MIN	0	AC-FT	97,130		
WTR YR 1970	TOTAL	393,251.00	MEAN	1,077	MAX	3,260	MIN	0	AC-FT	780,000		

## 11413515 NEW BULLARDS BAR RESERVOIR NEAR NORTH SAN JUAN, CALIF.

LOCATION.--Lat 39°23'34", long 121°08'25", in SE¼NW¼ sec.25, T.18 N., R.7 E., Yuba County, Plumas National Forest, in center of dam on North Yuba River 2.2 miles upstream from Middle Yuba River and 2.4 miles northwest of North San Juan.

DRAINAGE AREA.--489 sq mi.

PERIOD OF RECORD.--February 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Yuba County Water Agency).

EXTREMES.--Current year: Maximum contents, 951,600 acre-ft Apr. 22 (elevation, 1,953.0 ft); minimum, 551,220 acre-ft Oct. 1 (elevation, 1,853.5 ft).

Period of record: Maximum contents, 951,600 acre-ft Apr. 22, 1970 (elevation, 1,953.0 ft); minimum since initial season of normal operation, 551,220 acre-ft Oct. 1, 1969 (elevation, 1,853.5 ft).

REMARKS.--Reservoir is formed by concrete-arch dam with a concrete sidehill spillway. Spill controlled by three 30- by 53-feet radial gates. Storage began in January 1969. Usable capacity, 727,380 acre-ft between elevations 1,732.0 ft (minimum power pool) and 1,955.0 ft (normal gross pool). Dead storage, 233,920 acre-ft. Total capacity at normal gross pool (1,955.0 ft), 961,300 acre-ft. Water is released to Colgate powerplant through a tunnel at the dam. Water is diverted into the reservoir from Middle Yuba River via Lohman Ridge tunnel to Oregon Creek then via Camptonville tunnel. Records represent total contents.

COOPERATION.--Records collected by Yuba County Water Agency under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

1,600.0	64,900	1,750.0	270,110
1,630.0	90,570	1,800.0	389,980
1,660.0	122,990	1,850.0	539,750
1,690.0	162,980	1,900.0	721,130
1,720.0	211,770	1,955.0	961,300

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	551,220	566,400	572,450	745,170	886,340	887,700	887,380	931,900	925,530	923,340	884,070	792,010
2	551,320	566,580	567,020	748,010	890,610	891,560	891,520	928,660	925,350	922,550	882,450	786,630
3	551,320	566,580	570,470	750,450	887,750	893,200	894,660	925,440	925,490	921,620	880,730	782,610
4	551,390	566,920	571,090	752,890	889,150	892,610	896,710	922,730	926,510	920,410	877,210	778,270
5	551,550	567,600	571,120	755,420	890,600	888,880	899,000	920,130	927,960	921,760	874,290	774,400
6	551,550	568,960	571,290	757,380	887,160	890,240	901,290	918,040	928,430	922,640	871,370	770,420
7	551,720	569,920	571,420	759,020	887,550	890,700	904,820	916,550	929,790	922,360	868,410	766,620
8	552,160	571,010	572,110	761,560	889,150	893,480	909,200	918,830	931,850	920,590	865,560	763,290
9	552,730	572,040	572,730	763,540	890,020	894,930	912,240	921,380	934,060	920,030	863,730	758,610
10	553,060	572,620	573,340	771,790	889,240	892,240	915,210	922,920	932,700	919,380	862,880	754,190
11	553,560	573,750	574,650	780,110	890,190	890,060	918,360	920,360	930,630	918,780	859,540	752,640
12	554,070	573,990	576,400	788,480	888,650	887,610	922,080	917,430	930,770	919,480	855,900	751,780
13	553,560	575,470	577,540	799,280	887,700	884,660	925,200	914,370	931,660	919,900	853,600	751,260
14	553,730	576,230	578,940	825,080	888,470	884,120	928,670	911,460	932,600	919,110	850,510	749,630
15	540,580	576,920	582,850	861,850	887,750	883,890	931,800	908,740	931,480	917,990	848,520	745,290
16	556,320	577,740	583,480	885,750	887,200	883,760	934,620	906,660	930,210	916,750	846,280	742,290
17	558,440	578,500	584,350	917,340	889,240	883,530	937,640	905,650	928,890	915,900	844,080	738,060
18	556,880	579,090	585,830	916,410	887,160	883,800	940,610	909,660	927,540	914,980	841,060	733,560
19	561,820	579,670	586,120	916,510	886,290	882,850	943,580	913,870	926,420	915,070	838,340	730,000
20	561,280	580,300	596,000	918,690	888,650	881,500	946,660	913,630	926,280	914,420	835,550	725,100
21	561,820	580,990	618,000	920,040	889,520	879,920	949,230	912,930	926,290	911,880	831,280	721,480
22	562,530	581,510	645,590	914,980	889,420	878,560	951,600	912,250	926,280	908,780	828,850	716,770
23	563,110	582,020	653,260	914,420	890,640	876,900	951,560	914,510	926,560	906,340	826,030	711,920
24	563,520	582,610	676,060	893,520	888,060	875,230	950,800	919,110	926,890	903,020	823,220	707,410
25	563,860	582,990	699,730	878,200	887,160	874,240	950,130	921,150	925,490	902,120	817,970	703,030
26	564,360	581,960	718,750	877,930	885,160	874,650	948,900	920,690	923,200	900,560	813,420	701,040
27	565,010	579,600	730,680	890,880	883,440	878,920	946,050	921,570	922,690	898,720	808,710	701,320
28	565,010	577,950	741,130	904,040	881,990	882,630	942,690	925,810	924,040	894,840	803,720	699,560
29	565,830	573,410	735,090	909,380	-----	884,570	939,050	929,600	925,160	892,520	800,800	696,500
30	565,900	572,730	739,150	896,210	-----	885,030	935,470	928,150	923,950	888,700	797,790	690,540
31	565,960	-----	742,180	889,610	-----	885,300	-----	928,060	-----	885,800	796,270	-----
MAX	565,960	582,990	742,180	920,040	890,640	894,930	951,600	931,900	934,060	923,340	884,070	792,010
MIN	540,580	566,400	567,020	745,170	881,990	874,240	887,380	905,650	922,690	885,800	796,270	690,540
(a)	1,857.8	1,859.8	1,905.3	1,939.6	1,938.0	1,938.7	1,949.6	1,948.0	1,947.1	1,938.8	1,918.3	1,892.2
(b)	+14,860	+6,770	+169,450	+147,430	-7,620	+3,310	+50,170	-7,410	-4,110	-38,150	-89,530	-105,730
CAL YR 1969	b -		MAX -		MIN -							
WTR YR 1970	b +139,440		MAX 951,600		MIN 551,220							

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

## SACRAMENTO RIVER BASIN

891

11413520 NORTH YUBA RIVER BELOW NEW BULLARDS BAR DAM NEAR NORTH SAN JUAN, CALIF.

LOCATION.--Lat 39°22'48", long 121°08'19", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.36, T.18 N., R.7 E., Yuba County, Plumas National Forest, on right bank 1.1 miles downstream from New Bullards Bar Dam, and 2 miles northwest of North San Juan.

DRAINAGE AREA.--490 sq mi.

PERIOD OF RECORD.--August 1966 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,280 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 56,200 cfs Jan. 22 (gage height, 35.29 ft), from rating curve extended as explained below; minimum daily, 1.3 cfs June 25-27.

Period of record: Maximum discharge, 56,200 cfs Jan. 22, 1970 (gage height, 35.29 ft), from rating curve extended above 40,000 cfs on basis of computation of flow over old Colgate Dam referenced to floodmarks at 49.8 ft; minimum daily, 0.42 cfs Nov. 5, 1966.

REMARKS.--Records fair except those for periods of no-gage height record, which are poor. Flow regulated by New Bullards Bar Reservoir (see sta 11413515) since 1969. Colgate powerplant (see sta 11413510) diverts 0.9 mile upstream. Water is diverted out of basin through Slate Creek tunnel (see sta 11413250). See schematic diagram of Yuba River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	4.2	1,260	3.9	1,790	15	2.7	3.6	2.0	1.5	5.7	3.1
2	54	4.3	740	3.8	1,290	23	2.6	3.5	3.6	1.5	4.2	3.1
3	53	4.9	73	3.7	1,530	1,510	2.5	3.4	3.8	1.5	3.6	3.1
4	42	4.9	70	3.7	6.7	2,920	2.5	3.4	2.9	1.4	3.5	3.1
5	42	6.1	67	3.7	1,190	1,330	2.6	3.3	2.9	1.5	3.5	3.0
6	44	4.7	71	19	1,650	488	2.6	3.3	2.6	1.5	3.5	3.0
7	43	5.0	73	4.0	12	8.4	2.6	3.3	2.1	1.5	3.5	3.0
8	27	5.1	76	3.2	10	8.0	2.6	3.3	1.9	2.5	3.4	3.0
9	78	4.7	77	3.2	263	870	2.6	3.3	2.0	4.2	3.3	3.0
10	30	4.6	63	3.9	680	2,060	2.6	3.3	2.0	5.2	3.3	2.9
11	31	4.8	46	3.5	1,450	2,020	2.6	3.3	2.0	5.7	3.1	2.9
12	28	4.8	71	3.9	2,020	2,050	2.7	3.3	1.8	5.8	3.1	2.9
13	25	4.4	76	9.0	2,020	1,180	2.7	3.3	1.7	5.9	3.1	2.9
14	30	3.5	72	21	2,020	6.1	3.0	3.3	1.8	5.9	3.1	2.9
15	31	5.3	82	9.9	2,020	3.3	3.0	3.3	1.8	5.9	3.1	2.9
16	37	5.7	95	4,050	1,650	2.5	3.0	3.3	1.6	5.9	4.4	2.9
17	29	3.5	97	31,000	3,780	2.2	3.0	3.3	1.7	6.1	5.5	2.9
18	22	3.9	71	18,300	3,240	2.2	3.1	3.3	1.6	6.1	5.7	2.9
19	23	2.9	75	15,600	1,800	2.6	3.6	3.3	1.6	6.1	5.8	2.9
20	27	2.6	97	17,100	744	2.7	3.5	3.3	1.5	6.1	5.7	2.9
21	30	2.4	91	36,200	728	2.7	3.5	3.3	1.5	6.1	5.4	2.8
22	29	2.3	92	42,100	728	2.7	3.5	3.3	1.5	6.1	4.6	2.8
23	30	2.1	109	26,100	728	2.7	3.5	3.3	1.4	6.3	4.1	2.8
24	32	180	92	34,500	1,560	2.7	3.7	3.3	1.4	6.3	3.7	2.8
25	23	630	12	16,500	325	2.7	3.7	22	1.3	6.3	3.5	2.8
26	24	1,260	9.0	5,520	6.7	2.7	3.7	7.8	1.3	6.8	3.4	2.8
27	26	1,260	9.7	6,320	7.0	2.6	3.7	3.9	1.3	7.6	3.3	2.8
28	24	1,260	3.4	1,030	9.5	2.4	3.8	2.8	1.6	7.8	3.1	2.8
29	24	1,260	7.8	9,890	-----	2.7	3.8	5.1	1.8	8.0	3.1	2.8
30	14	1,260	4.3	10,400	-----	3.3	3.8	3.6	1.7	8.0	3.1	2.8
31	3.0	-----	3.7	3,980	-----	3.0	-----	2.5	-----	7.9	3.1	-----
TOTAL	1,029.9	7,207.0	3,758.9	278,689.4	33,257.9	14,594.2	92.8	127.6	57.6	159.0	120.5	87.3
MEAN	33.2	240	121	8,990	1,188	471	3.09	4.12	1.92	5.13	3.89	2.91
MAX	78	1,260	1,260	42,100	3,780	2,920	3.8	22	3.8	8.0	5.8	3.1
MIN	3.0	2.1	3.7	3.2	6.7	2.2	2.5	2.5	1.3	1.4	3.1	2.8
AC-FT	2,040	14,300	7,460	552,800	65,970	28,950	184	253	114	315	239	173

CAL YR 1969 TOTAL 467,446.8 MEAN 1,231 MAX 17,700 MIN 2.1 AC-FT 927,200  
 AT YR 1970 TOTAL 339,182.1 MEAN 929 MAX 42,100 MIN 1.3 AC-FT 672,800

## SACRAMENTO RIVER BASIN

11413600 SWEETLAND CREEK NEAR NORTH SAN JUAN, CALIF.

LOCATION.--Lat 39°20'18", long 121°06'58", in NE $\frac{1}{4}$  sec.18, T.17 N., R.8 E., Nevada County, on left bank at culvert on State Highway 49, 2.2 miles southwest of North San Juan.

DRAINAGE AREA.--2.68 sq mi.

PERIOD OF RECORD.--Water years 1963-68 (annual maximum), October 1968 to current year.

GAGE.--Water-stage recorder, crest-stage gages, float operated rain gage, and culvert control. Prior to October 1968, crest-stage gage only. Altitude of gage is 1,860 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 318 cfs Jan. 21 (gage height, 5.53 ft); no flow for several months.  
Period of record: Maximum discharge, 600 cfs Dec. 22, 1964 (gage height, 7.04 ft); no flow for several months each year.

REMARKS.--Records good. No known diversion above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		0	.06	.87	6.9	36	1.5	.62	.02			
2		0	.06	.78	6.6	13	1.5	.54	.02			
3		0	.06	.78	6.2	8.4	1.5	.47	.02			
4		0	.06	.70	6.2	11	1.5	.47	.01			
5		.12	.06	.62	5.8	8.4	1.4	.47	0			
6		.12	.06	.62	5.5	6.6	1.4	.40	0			
7		.06	.06	.62	5.2	8.2	1.4	.47	0			
8		.06	.15	1.2	4.4	51	1.2	.47	0			
9		.05	.15	8.5	4.1	18	1.2	.54	.04			
10		.05	.19	9.4	3.4	31	1.2	.54	.05			
11		.04	.28	5.5	2.6	15	1.2	.47	.04			
12		.04	.34	11	3.9	11	1.2	.47	.03			
13		.04	.40	34	9.0	9.0	1.2	.40	.03			
14		.04	.23	83	7.8	7.2	2.0	.34	.03			
15		.04	.19	23	6.2	6.6	1.6	.23	.03			
16		.05	.15	80	14	5.8	1.4	.19	.02			
17		.05	.12	28	21	5.2	1.4	.15	.01			
18		.05	.15	12	12	4.4	1.0	.12	.01			
19		.05	1.1	30	7.8	3.8	1.0	.12	0			
20		.05	6.4	29	6.2	3.4	.96	.12	0			
21		.05	33	185	5.2	3.4	.96	.10	0			
22		.05	4.4	71	4.4	3.2	.96	.10	0			
23		.05	54	40	3.8	2.9	.87	.08	0			
24		.05	78	57	3.4	2.6	.87	.05	0			
25		.06	18	18	2.9	2.4	.78	.05	0			
26		.06	5.5	16	2.6	2.2	.87	.05	0			
27		.06	2.6	56	2.4	1.9	.96	.05	0			
28		.06	1.8	18	4.7	1.9	.87	.05	0			
29		.06	1.4	12	-----	1.9	.78	.04	0			
30		.06	1.2	9.0	-----	1.8	.70	.04	0			
31		-----	1.0	7.8	-----	1.5	-----	.03	-----			
TOTAL	0	1.47	211.17	849.39	174.2	288.7	35.38	8.24	.36	0	0	0
MEAN	0	.049	6.81	27.4	6.22	9.31	1.18	.27	.012	0	0	0
MAX	0	.12	78	185	21	51	2.0	.62	.05	0	0	0
MIN	0	0	.06	.62	2.4	1.5	.70	.03	0	0	0	0
AC-FT	0	2.9	419	1,680	346	573	70	16	.7	0	0	0
(a)	2.34	2.57	12.18	16.85	4.38	4.45	.68	0	.56	0	0	0

CAL YR 1969 TOTAL 2,167.08 MEAN 5.94 MAX 160 MIN 0 ACFT 4,300  
WAT YR 1970 TOTAL 1,568.91 MEAN 4.30 MAX 185 MIN 0 ACFT 3,110

a Precipitation, in inches.

## 11414000 SOUTH YUBA RIVER NEAR CISCO, CALIF.

LOCATION.--Lat 39°19'12", long 120°33'38", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.19, T.17 N., R.13 E., Nevada County, Tahoe National Forest, on right bank 0.7 mile downstream from Rattlesnake Creek, 1.3 miles west of Cisco Grove, and 1.5 miles northwest of Cisco.

DRAINAGE AREA.--51.8 sq mi.

PERIOD OF RECORD.--April 1942 to current year. Prior to October 1949, published as South Fork Yuba River near Cisco.

GAGE.--Water-stage recorder. Altitude of gage is 5,520 ft (from river-profile map). Prior to October 1945, water-stage recorder at site 200 ft upstream at same datum.

AVERAGE DISCHARGE.--28 years, 199 cfs (144,200 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 6,230 cfs Jan. 21 (gage height, 11.92 ft); minimum daily, 8.5 cfs Dec. 5, 7.

Period of record: Maximum discharge, 18,400 cfs Jan. 31, 1963 (gage height, 19.6 ft, from floodmarks in gage house, 20.6 ft from outside floodmarks), from rating curve extended above 4,600 cfs on basis of slope-area measurement at gage height 15.8 ft; minimum daily, 0.1 cfs Nov. 5-7, 1954.

REMARKS.--Records good. Low flow regulated by Lake Van Norden (capacity, 4,320 acre-ft, 5,260 acre-ft with flashboards).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	37	10	91	187	156	189	300	614	58	15	23
2	48	37	10	81	170	145	230	461	614	52	17	23
3	46	36	9.5	75	166	116	260	670	566	49	17	21
4	46	36	9.0	69	169	106	273	745	530	46	17	22
5	45	41	8.5	68	167	103	348	850	469	43	17	23
6	44	44	9.0	64	152	104	424	770	406	40	17	22
7	42	42	8.5	64	147	116	424	610	378	38	17	22
8	39	41	9.0	70	162	115	403	554	329	36	17	22
9	37	43	9.5	275	167	102	426	654	514	35	17	22
10	38	44	9.5	299	158	98	530	622	382	33	32	22
11	33	47	10	138	160	88	517	374	281	32	26	22
12	32	53	12	176	210	91	455	302	228	31	25	21
13	31	54	36	212	189	142	407	357	205	30	25	21
14	32	46	35	494	162	310	295	610	218	28	24	21
15	55	42	28	221	147	301	219	825	189	27	24	21
16	127	66	23	2,500	132	242	161	1,080	175	26	25	21
17	84	42	20	1,200	134	250	147	1,180	167	25	24	21
18	56	31	21	542	123	180	150	1,120	181	24	25	44
19	49	28	326	657	112	148	180	945	193	23	24	46
20	48	26	1,560	1,060	107	142	166	775	180	22	24	46
21	52	26	2,490	3,930	106	165	150	745	164	21	23	53
22	51	23	461	4,140	108	206	145	845	153	21	23	52
23	47	19	321	1,750	109	273	137	875	133	21	23	51
24	43	16	1,400	1,440	111	345	133	860	100	19	23	50
25	43	15	1,020	622	115	364	181	905	89	19	23	50
26	41	15	350	440	129	323	252	925	82	18	23	49
27	40	14	200	569	139	264	181	800	104	17	23	48
28	39	13	136	349	165	263	148	654	84	17	23	46
29	39	12	123	280	-----	309	140	618	85	16	23	45
30	38	11	110	245	-----	268	194	646	65	16	23	43
31	37	-----	99	208	-----	205	-----	634	-----	15	23	-----
TOTAL	1,450	1,000	8,873.5	22,329	4,103	6,040	7,865	22,311	7,878	898	682	993
MEAN	46.8	33.3	286	720	147	195	262	720	263	29.0	22.0	33.1
MAX	127	66	2,490	4,140	210	364	530	1,180	614	58	32	53
MIN	31	11	8.5	64	106	88	133	300	65	15	15	21
AC-FT	2,880	1,980	17,600	44,290	8,140	11,980	15,600	44,250	15,630	1,780	1,350	1,970
CAL YR 1969	TOTAL	110,951.5	MEAN	304	MAX	2,490	MIN	8.5	AC-FT	220,100		
WTR YR 1970	TOTAL	84,422.5	MEAN	231	MAX	4,140	MIN	8.5	AC-FT	167,500		

PEAK DISCHARGE (BASE, 1,500 CFS)							
DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1215	10.87	5,070	1-21	2130	11.92	6,230
12-24	0500	6.79	1,680	5-17	2100	6.85	1,720
1-16	1100	9.59	3,830				



## 11414140 LAKE SPAULDING NEAR EMIGRANT GAP, CALIF.

LOCATION.--Lat 39°19'35", long 120°38'32", in SE 1/4 sec. 20, T.17 N., R.12 E., Nevada County, on left abutment of Spaulding Dam on South Yuba River, 2.5 miles northeast of Emigrant Gap.

DRAINAGE AREA.--118 sq mi.

PERIOD OF RECORD.--October 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,809.6 ft above mean sea level (levels by Pacific Gas and Electric Co.). Prior to July 1968, nonrecording gage at same site and datum.

EXTREMES.--Current year: Maximum contents, 74,425 acre-ft July 11 (gage height, 204.5 ft); minimum 9,980 acre-ft Dec. 17 (gage height, 71.17 ft).

Period of record: Maximum contents, 75,100 acre-ft July 13, 1967 (gage height, 205.5 ft); minimum 4,970 acre-ft Mar. 21, 1969 (gage height, 51.9 ft).

REMARKS.--Lake is formed by three concrete-arch dams with spillway on the middle arc. Storage began in 1913. Capacity, 74,773 acre-ft between gage heights 0.6 ft (bottom of outlet) and 205.0 ft (tip of radial gates). Released water flows through Spaulding powerhouses Nos. 1 and 2. Flow through powerhouse No. 1 is transported out of Yuba River basin by Drum Canal to Bear River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co. under general supervision of Geological Survey, in connection with a Federal Power Commission project. Contents not rounded to Geological Survey standards.

CAPACITY TABLE (GAGE HEIGHT, IN FEET, AND CONTENTS, IN ACRE-FEET)

11	329	50	4,578
15	427	70	9,632
20	566	100	19,541
25	874	150	41,545
30	1,352	200	71,329
40	2,742	206	75,473

CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57,900	28,788	15,320	35,506	62,297	40,057	20,211	15,219	58,326	70,450	69,044	59,368
2	56,811	27,885	14,917	34,694	61,730	39,348	19,587	15,489	59,738	70,518	68,844	58,999
3	55,852	27,502	14,485	33,891	60,854	38,345	19,173	16,067	61,042	70,788	68,778	58,693
4	54,843	26,577	14,155	32,912	59,923	37,404	18,847	17,141	62,171	71,262	68,711	58,387
5	53,842	26,117	13,926	32,222	59,122	36,717	18,739	18,415	63,120	71,670	68,643	58,021
6	53,025	25,664	14,221	31,357	58,143	35,699	18,811	19,246	63,821	72,284	68,444	58,021
7	52,100	25,337	14,287	30,459	57,294	34,837	19,028	19,806	64,526	72,695	68,378	57,718
8	51,239	24,851	13,893	29,530	56,451	34,032	19,246	20,211	64,913	73,246	68,179	57,415
9	50,217	24,408	13,375	30,192	55,673	33,098	19,624	21,218	65,624	73,592	67,981	56,992
10	49,202	23,889	12,830	30,906	54,843	32,267	19,916	22,362	66,209	74,008	67,849	56,511
11	48,253	23,572	12,220	30,593	54,018	31,357	20,284	22,827	66,470	74,425	67,585	56,211
12	47,257	23,022	11,683	30,682	53,667	30,414	20,433	22,944	66,405	74,355	67,322	56,631
13	46,272	22,556	11,372	31,402	53,142	29,750	20,470	22,905	66,274	74,146	66,993	57,839
14	45,296	22,055	10,911	33,891	52,446	29,530	20,358	23,493	66,470	73,730	66,862	58,815
15	44,705	21,596	10,337	34,174	51,640	29,311	20,100	24,689	66,470	73,246	66,535	59,861
16	44,705	21,256	10,187	45,242	50,784	28,875	19,733	26,911	66,535	72,833	66,470	60,979
17	43,798	20,730	9,980	49,427	50,047	28,270	19,355	29,136	66,535	72,216	66,144	61,793
18	43,058	20,174	10,128	50,443	49,090	27,629	19,064	32,959	66,862	71,738	65,819	62,234
19	42,116	19,624	11,966	51,755	48,308	26,911	18,883	35,554	67,388	71,126	65,300	62,486
20	41,286	18,992	18,094	54,135	47,257	26,117	18,559	37,404	68,179	70,653	64,784	62,930
21	40,414	18,451	27,885	69,377	46,163	25,460	18,344	38,996	68,778	70,450	64,205	63,375
22	39,398	17,916	28,572	68,047	45,242	24,851	17,952	40,669	69,377	70,383	63,630	63,757
23	38,395	17,386	29,355	67,849	44,331	24,448	17,597	42,953	69,778	70,316	63,057	64,270
24	37,305	16,861	35,362	66,601	43,269	24,368	17,176	45,081	69,979	70,181	62,360	64,655
25	36,425	16,239	39,046	65,494	42,796	24,248	16,792	47,533	70,181	70,047	61,856	64,977
26	34,932	15,897	39,348	65,042	41,752	23,889	16,618	50,047	70,316	69,912	61,167	64,398
27	33,985	15,897	38,996	65,559	40,772	23,533	16,273	52,215	70,383	69,778	60,668	63,757
28	32,959	15,624	38,445	64,977	40,006	22,788	15,862	53,375	70,518	69,644	60,543	63,057
29	31,947	15,590	37,849	64,526	-----	22,362	15,455	54,430	70,585	69,444	60,233	62,423
30	30,906	15,624	37,011	63,694	-----	21,825	15,253	55,733	70,585	69,310	59,985	61,793
31	29,882	-----	36,376	62,930	-----	21,331	-----	56,992	-----	69,110	59,676	-----
MAX	57,900	28,788	39,348	69,377	62,297	40,057	20,470	56,992	70,585	74,425	69,044	64,977
MIN	29,882	15,590	9,980	29,530	40,006	21,331	15,253	15,219	58,326	69,110	59,676	56,211
(a)	125.70	88.90	139.70	187.20	147.00	104.80	87.80	177.60	198.90	196.70	182.00	185.40
(b)	-29,018	-14,258	+20,752	+26,554	-22,924	-18,675	-6,078	+41,739	+13,593	-1,475	-9,434	+2,117
CAL YR 1969	MAX 74,600	MIN 4,970	b +26,796									
WAT YR 1970	MAX 74,425	MIN 9,980	b +2,893									

a Gage height, in feet, at end of month.

b Change in contents, in acre-feet.

## SACRAMENTO RIVER BASIN

## 11414170 DRUM CANAL AT INTAKE NEAR EMIGRANT GAP, CALIF.

LOCATION.--Lat 39°19'28", long 120°38'37", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.20, T.17 N., R.12 E., Nevada County, in Tahoe National Forest, in Spaulding No. 1 powerhouse and 2.4 miles northeast of Emigrant Gap.

PERIOD OF RECORD.--October 1964 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,880 ft (from topographic map).

EXTREMES.--Period of record: Maximum daily discharge, 838 cfs Apr. 11, 16, May 14, 1969; no flow for several days in most years.

REMARKS.--Canal diverts from Spaulding No. 1 powerhouse at Lake Spaulding Dam. Water is used for irrigation and power in the Bear River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co. under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	733	502	446	790	809	503	801	678	723	387	541	729
2	731	495	520	790	812	780	804	678	730	388	541	727
3	726	501	521	789	808	779	761	685	741	177	520	726
4	729	502	523	787	809	798	736	695	740	56	503	729
5	729	497	433	774	809	717	741	709	738	57	516	729
6	729	508	212	792	812	802	763	723	741	57	533	727
7	730	512	213	790	811	796	744	727	740	52	533	730
8	724	515	434	789	812	787	721	721	740	12	537	736
9	724	513	516	747	809	801	686	723	736	12	545	734
10	724	515	515	703	808	799	724	721	738	12	569	731
11	723	516	520	710	811	790	719	717	737	12	569	731
12	726	515	513	712	811	799	721	719	663	146	569	698
13	724	525	517	688	807	801	734	707	550	174	569	3.7
14	727	526	516	640	812	801	737	723	554	491	569	1.4
15	724	520	520	673	808	801	736	723	555	473	568	.91
16	714	523	412	620	809	798	731	720	558	505	571	0
17	719	532	172	629	805	801	723	721	453	502	569	0
18	720	542	200	660	792	796	710	714	379	551	573	0
19	724	536	409	766	790	793	706	716	343	555	707	0
20	726	531	651	802	793	787	716	710	252	559	729	0
21	729	526	515	645	807	782	721	714	255	537	716	0
22	731	520	671	674	809	774	720	714	350	537	727	0
23	729	513	677	767	814	771	717	717	377	537	723	0
24	727	508	641	798	812	764	709	716	377	537	720	0
25	730	503	688	807	801	760	698	716	378	537	726	0
26	726	425	709	807	799	760	693	719	379	537	723	0
27	630	226	771	805	796	777	689	719	380	537	724	0
28	501	226	770	799	796	808	685	720	381	539	724	0
29	497	226	786	802	-----	808	682	714	383	540	724	396
30	501	226	795	809	-----	804	679	712	386	541	726	531
31	505	-----	796	811	-----	766	-----	717	-----	541	731	-----
TOTAL	21,512	14,225	16,582	23,175	22,571	24,103	21,707	22,108	16,057	11,098	19,295	9,660.01
MEAN	694	474	535	748	806	778	724	713	535	358	622	322
MAX	733	542	796	811	814	808	804	727	741	559	731	736
MIN	497	226	172	620	790	503	679	678	252	12	503	0
AC-FT	42,670	28,220	32,890	45,970	44,770	47,810	43,060	43,850	31,850	22,010	38,270	19,160
CAL YR 1969	TOTAL 238,575.60		MEAN 654		MAX 838		MIN 1.0		AC-FT 473,200			
WTR YR 1970	TOTAL 222,093.01		MEAN 608		MAX 814		MIN 0		AC-FT 440,500			



## SACRAMENTO RIVER BASIN

897

11414190 DRUM CANAL ABOVE DRUM FOREBAY, NEAR BLUE CANYON, CALIF.

LOCATION.--Lat 39°15'50", long 120°43'47", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.10, T.16 N., R.11 E., Placer County, on right bank 1.2 miles west of Blue Canyon and 1.5 miles upstream from Drum Forebay.

PERIOD OF RECORD.--October 1964 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,800 ft (from topographic map).

AVERAGE DISCHARGE.--6 years, 524 cfs (379,600 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 766 cfs Apr. 6-8, 1966; no flow at times in 1965, 1966, 1970.

REMARKS.--Flow represents water diverted from South Yuba River through Spaulding No. 1 powerplant, plus diversion from North Fork American River basin by way of Lake Valley Canal (see sta 11426190). This water enters the Bear River at Drum Forebay.

COOPERATION.--Records collected by Pacific Gas and Electric Co. under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	737	510	439	731	704	456	737	670	716	380	559	733
2	742	504	530	733	708	714	731	672	714	380	551	731
3	735	506	530	731	708	721	723	674	723	243	520	731
4	737	512	532	729	714	718	718	689	721	93	524	733
5	740	510	454	716	714	328	725	710	725	93	541	731
6	740	512	243	735	721	32	727	716	725	93	549	731
7	740	520	243	731	716	32	706	721	725	68	551	735
8	735	518	417	731	721	431	683	718	729	41	551	737
9	735	516	514	727	718	721	633	723	691	41	575	733
10	735	518	504	689	714	718	674	725	725	26	579	727
11	729	520	506	700	716	712	654	721	723	67	579	721
12	737	518	498	702	708	729	656	716	668	182	577	323
13	737	530	504	700	708	729	695	702	537	423	579	41
14	737	539	502	683	727	727	710	721	541	464	575	41
15	733	528	506	672	723	729	708	716	541	530	575	41
16	716	532	409	676	725	733	708	712	543	526	575	41
17	716	539	187	662	706	731	693	712	476	551	571	14
18	721	549	209	660	714	727	651	714	373	579	624	0
19	725	547	388	679	721	725	645	714	367	577	710	0
20	727	541	647	660	706	727	691	718	256	563	700	0
21	716	537	534	685	704	729	706	718	256	557	721	0
22	712	539	645	679	718	731	702	721	346	559	718	0
23	714	532	689	700	727	729	697	716	365	559	718	0
24	721	528	668	662	725	725	685	714	375	559	723	0
25	733	528	700	689	729	744	672	721	376	555	723	0
26	727	462	687	710	723	750	668	718	376	559	721	627
27	647	261	704	712	718	735	666	721	378	559	723	716
28	510	261	702	718	725	737	674	723	378	559	721	727
29	508	258	723	714	-----	744	676	716	378	561	723	624
30	508	259	718	710	-----	742	668	710	378	559	733	561
31	510	-----	737	708	-----	710	-----	721	-----	559	735	-----
TOTAL	21,660	14,634	16,269	21,734	20,061	20,216	20,682	22,063	15,825	12,065	19,524	11,799
MEAN	699	488	525	701	716	652	689	712	528	389	630	393
MAX	742	549	737	735	729	750	737	725	729	579	735	737
MIN	508	258	187	660	704	32	633	670	256	26	520	0
AC-FT	42,960	29,030	32,270	43,110	39,790	40,100	41,020	43,760	31,390	23,930	38,730	23,400
CAL YR 1969	TOTAL 228,684.90	MEAN 627	MAX 748	MIN 0	AC-FT 453,600							
WTR YR 1970	TOTAL 216,532.00	MEAN 593	MAX 750	MIN 0	AC-FT 429,500							



## 11414250 SOUTH YUBA RIVER AT LANGS CROSSING, NEAR EMIGRANT GAP, CALIF.

LOCATION.--Lat 39°19'07", long 120°39'27", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.20, T.17 N., R.12 E., Nevada County, on right bank 150 ft downstream from road bridge, 0.8 mile downstream from Spaulding Nos. 1 and 2 powerplants, and 1.6 miles northeast of Emigrant Gap.

DRAINAGE AREA.--120 sq mi.

PERIOD OF RECORD.--December 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,432.44 ft above mean sea level (levels by Pacific Gas and Electric Co.).

EXTREMES.--Current year: Maximum discharge, 9,700 cfs Jan. 22 (gage height, 14.45 ft); minimum daily, 5.2 cfs Apr. 7, 8, July 29.

Period of record: Maximum discharge, 9,700 cfs Jan. 22, 1970 (gage height, 14.45 ft); minimum daily, 3.1 cfs Nov. 5-7, 1967.

REMARKS.--Flow regulated by Lake Spaulding (see sta 11414140).

COOPERATION.--Records collected by Pacific Gas and Electric Co. under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.1	7.4	7.6	8.4	63	52	9.6	11	6.4	8.2	6.6	6.4
2	7.1	7.1	7.6	7.9	56	43	8.7	9.3	6.6	8.2	6.6	7.1
3	6.9	6.9	7.4	7.4	52	37	7.4	9.0	6.4	8.2	6.4	7.1
4	6.9	6.9	7.4	6.6	50	35	7.1	8.4	6.4	8.2	6.4	7.1
5	6.9	13	7.4	6.4	49	36	7.1	7.9	6.1	7.9	6.4	7.1
6	7.1	16	7.6	6.1	49	34	6.4	7.6	5.9	8.7	6.1	7.1
7	7.1	14	7.6	6.1	47	34	5.2	7.4	5.9	11	6.1	7.1
8	8.2	12	8.2	7.1	45	40	5.2	7.4	6.6	12	6.1	7.1
9	7.6	10	8.4	42	44	35	7.6	7.4	9.0	14	6.1	7.1
10	7.1	9.3	8.4	43	44	34	10	7.6	12	16	6.6	7.1
11	6.6	9.0	11	25	44	33	10	7.4	11	17	6.6	22
12	6.9	8.7	17	38	47	33	10	7.4	9.3	16	6.6	10
13	7.1	8.4	17	79	57	31	9.9	7.1	9.0	15	6.9	7.9
14	7.4	8.2	13	181	55	32	13	6.9	9.0	13	7.4	7.6
15	14	8.2	11	48	51	30	12	6.9	9.0	16	6.9	7.9
16	26	8.7	10	261	53	32	13	7.1	8.7	12	6.6	7.4
17	16	8.2	10	240	56	27	13	6.6	8.7	8.7	7.1	7.4
18	11	8.2	9.9	126	51	25	13	6.6	8.7	7.9	6.4	7.4
19	9.6	8.2	37	97	46	24	14	6.4	8.4	7.1	6.1	7.4
20	8.7	8.2	62	92	43	22	14	6.1	8.4	6.4	5.9	7.4
21	8.7	7.9	126	1,140	42	22	13	6.1	8.4	5.9	5.7	7.4
22	8.4	7.9	30	7,620	39	20	13	6.1	8.7	5.9	5.7	7.4
23	8.2	7.6	56	2,940	39	19	12	5.9	8.2	5.7	5.7	7.4
24	8.2	7.6	125	2,840	38	14	12	5.9	8.4	5.7	5.7	7.4
25	8.4	6.9	89	818	38	10	10	5.9	8.4	5.9	5.7	7.1
26	8.4	7.4	30	269	36	10	11	5.9	8.7	5.7	5.9	7.1
27	8.4	7.6	18	585	30	9.9	12	5.7	8.7	5.4	5.9	6.9
28	8.4	7.9	14	283	37	9.9	12	5.7	8.7	5.4	5.9	6.9
29	8.2	7.6	11	101	-----	10	13	6.4	8.7	5.2	5.9	6.9
30	7.9	7.6	10	87	-----	10	13	6.4	8.4	5.9	5.7	6.6
31	7.9	-----	9.3	72	-----	9.6	-----	5.9	-----	6.6	5.7	-----
TOTAL	276.4	262.6	793.8	18,083.0	1,301	813.4	317.2	217.4	246.8	284.8	193.4	233.8
MEAN	8.92	8.75	25.6	583	46.5	26.2	10.6	7.01	8.23	9.19	6.24	7.79
MAX	26	16	126	7,620	63	52	14	11	12	17	7.4	22
MIN	6.6	6.9	7.4	6.1	30	9.6	5.2	5.7	5.9	5.2	5.7	6.4
AC-FT	548	521	1,570	35,870	2,580	1,610	629	431	490	565	384	464

CAL YR 1969 TOTAL 70,687.0 MEAN 194 MAX 2,570 MIN 6.6 AC-FT 140,200  
WTR YR 1970 TOTAL 23,023.6 MEAN 63.1 MAX 7,620 MIN 5.2 AC-FT 45,670

## SACRAMENTO RIVER BASIN

## 11415500 BOWMAN LAKE NEAR GRANITEVILLE, CALIF.

LOCATION.--Lat 39°27'01", long 120°39'10", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.5, T.18 N., R.12 E., Nevada County, on rockfill portion of Bowman Dam on Canyon Creek, 4.5 miles east of Graniteville, and 8 miles south of Sierra City.

DRAINAGE AREA.--27.1 sq mi.

PERIOD OF RECORD.--December 1926 to current year.

GAGE.--Water-stage recorder. Prior to Oct. 8, 1964, nonrecording gage at same site and datum. Datum of gage is at mean sea level (levels by Nevada Irrigation District).

EXTREMES.--Current year: Maximum contents, 68,800 acre-ft June 9-11 (elevation, 5,563.8 ft); minimum, 42,400 acre-ft Dec. 19 (elevation, 5,529.5 ft).

Period of record: Maximum contents, 71,000 acre-ft May 30, 1965 (elevation, 5,566.5 ft); minimum observed under normal operating conditions since reservoir first filled, 1,000 acre-ft Mar. 4, 1931 (elevation, 5,430.1 ft).

REMARKS.--Lake is formed by one rockfill and one concrete-arch dam; storage began in November 1926. Total capacity, 68,200 acre-ft between elevations 5,400 ft (bottom of outlet tunnel) and 5,563 ft (crest of concrete-arch dam) above mean sea level. Flashboards are occasionally added, increasing elevation to 5,565.8 ft and capacity to 70,400 acre-ft, all of which is available for release. Lake receives water from Middle Yuba River through Milton-Bowman tunnel (see sta 11408000), and releases it through Bowman-Spaulding Canal (see sta 11416000), which conveys it to reservoirs of Pacific Gas and Electric Co. Water is eventually used for irrigation by Nevada Irrigation District. Lake completely drained for inspection and repair Nov. 25 to Dec. 9, 1949, Oct. 1-20, 1966.

COOPERATION.--Twelve nonrecording gage readings furnished by Nevada Irrigation District.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

5,430	900	5,470	10,200
5,435	1,400	5,480	14,200
5,440	2,100	5,510	30,000
5,450	4,100	5,540	49,800
5,460	6,900	5,570	73,800

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55,600	53,400	50,300	56,000	64,800	63,600	60,400	53,800	67,900	65,300	59,400	51,000
2	55,600	53,200	50,100	55,700	64,700	63,600	60,000	53,700	68,000	65,100	59,200	51,200
3	55,600	52,700	49,700	55,400	64,600	63,600	59,800	53,800	68,200	64,800	59,100	51,200
4	55,600	52,200	49,100	55,100	64,500	63,500	59,600	54,000	68,400	64,500	58,900	51,200
5	55,600	52,000	48,500	54,700	64,400	63,400	59,400	54,400	68,400	64,300	58,700	51,100
6	55,600	51,500	48,000	54,400	64,400	63,200	59,200	54,600	68,400	64,000	58,600	51,100
7	55,600	50,900	47,500	54,000	64,400	63,200	59,100	54,800	68,500	63,700	58,400	51,000
8	55,600	50,400	47,000	53,800	64,300	63,200	58,900	54,800	68,700	63,400	58,300	50,900
9	55,600	50,000	46,500	54,400	64,300	63,100	58,800	54,900	68,800	63,100	58,000	50,900
10	55,600	49,500	46,000	54,900	64,300	63,000	58,800	55,200	68,800	62,800	57,800	50,900
11	55,600	49,600	45,600	55,000	64,300	62,800	58,700	55,500	68,800	62,600	57,600	50,800
12	55,500	49,600	45,200	55,200	64,400	62,700	58,600	55,700	68,600	62,300	57,200	50,600
13	55,500	49,700	44,800	55,700	64,400	62,500	58,400	56,000	68,600	62,000	56,800	50,500
14	55,400	49,700	44,500	57,200	64,400	62,700	58,300	56,500	68,700	61,900	56,300	50,500
15	55,700	49,700	43,800	57,800	64,400	62,800	58,000	57,200	68,500	61,700	55,700	50,500
16	56,000	49,700	43,400	63,100	64,400	62,800	57,800	58,100	68,400	61,600	55,200	50,400
17	56,000	49,800	42,900	65,300	64,400	62,900	57,600	59,100	68,300	61,400	54,700	50,200
18	56,000	49,900	42,600	65,900	64,400	62,800	57,200	60,200	68,200	61,200	54,000	49,900
19	56,000	50,000	42,400	66,200	64,300	62,800	57,000	61,200	68,000	61,200	53,500	49,500
20	56,000	50,000	44,600	66,600	64,100	62,500	56,800	62,000	67,900	60,900	52,900	49,100
21	55,800	50,000	48,800	67,100	64,000	62,200	56,500	62,800	67,700	60,800	52,400	48,600
22	55,200	50,000	49,400	67,300	64,000	62,000	56,200	63,600	67,500	60,600	51,800	48,200
23	54,700	50,100	50,300	67,200	63,900	61,800	55,900	64,300	67,200	60,500	51,200	47,800
24	54,100	50,100	53,600	66,800	63,700	61,600	55,500	65,100	67,000	60,400	50,800	47,800
25	53,600	50,100	55,800	66,000	63,600	61,600	55,200	65,900	66,700	60,300	50,800	47,700
26	53,300	50,100	56,400	65,600	63,600	61,400	55,000	66,700	66,300	60,100	51,000	47,700
27	53,300	50,200	56,700	65,400	63,400	61,200	54,800	67,200	66,100	60,000	51,100	47,600
28	53,300	50,200	56,700	65,200	63,300	61,100	54,600	67,300	65,900	59,900	51,200	47,600
29	53,400	50,200	56,700	65,000	-----	60,800	54,300	67,400	65,700	59,800	51,200	47,600
30	53,400	50,300	56,400	64,900	-----	60,700	54,000	67,600	65,600	59,600	51,100	47,500
31	53,400	-----	56,300	64,800	-----	60,400	-----	67,600	-----	59,600	51,000	-----
MAX	56,000	53,400	56,700	67,300	64,800	63,600	60,400	67,600	68,800	65,300	59,400	51,200
MIN	53,300	49,500	42,400	53,800	63,300	60,400	54,000	53,700	65,600	59,600	50,800	47,500
(a)	5,544.5	5,540.6	5,548.1	5,558.8	5,556.9	5,553.3	5,545.3	5,562.3	5,559.7	5,552.2	5,541.5	5,536.7
(b)	-2,200	-3,100	+6,000	+8,500	-1,500	-2,900	-6,400	+13,600	-2,000	-6,000	-8,600	-3,500

CAL YR 1969 MAX 69,200 MIN 35,000 b +17,000  
WAT YR 1970 MAX 68,800 MIN 42,400 b -8,100

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

## 11416000 BOWMAN-SPAULDING CANAL INTAKE NEAR SIERRA CITY, CALIF.

LOCATION.--Lat 39°26'26", long 120°39'30", in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.8, T.18 N., R.12 E., Nevada County, Tahoe National Forest, on left bank 0.6 mile downstream from Bowman Dam and 8 miles south of Sierra City.

PERIOD OF RECORD.--October 1927 to current year. Prior to October 1962, published as Bowman-Spauldung Canal at intake.

GAGE.--Water-stage recorder. Datum of gage is 5,390.39 ft above mean sea level. Prior to July 1965 at site 0.3 mile upstream at different datum.

AVERAGE DISCHARGE.--43 years, 151 cfs (109,400 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 302 cfs Dec. 5, 1969; no flow at times in most years.

REMARKS.--Records good. Canal diverts from left bank at Canyon Creek below Bowman Lake. Water is diverted to Lake Spaulding and after passing through several powerhouses is used for irrigation by Nevada Irrigation District.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	294	.75	253	210	172	188	144	248	266	288	284	286
2	295	122	253	215	172	182	252	246	272	289	283	286
3	297	216	252	221	172	204	251	246	272	292	283	286
4	295	216	280	223	172	217	250	241	272	292	283	286
5	294	215	302	223	172	217	248	239	275	292	282	286
6	294	254	295	223	182	218	248	235	277	290	281	286
7	297	284	292	222	190	220	248	234	282	289	281	284
8	299	258	290	164	190	214	248	234	284	289	281	284
9	295	240	280	179	190	210	248	234	292	288	281	286
10	293	244	283	74	190	215	247	232	284	288	280	286
11	294	247	259	163	190	226	241	229	276	288	280	286
12	294	247	241	161	192	230	239	234	274	287	280	286
13	294	246	240	84	191	228	245	236	274	287	280	278
14	295	244	239	34	191	208	248	238	280	287	283	280
15	286	244	241	68	191	208	248	238	283	286	286	283
16	239	245	245	54	191	216	248	236	283	284	284	283
17	251	246	247	18	192	216	248	230	283	283	286	282
18	278	246	247	22	192	228	248	222	283	282	284	284
19	292	247	225	44	204	235	250	221	283	282	283	281
20	297	247	151	16	215	234	247	222	286	282	282	280
21	288	247	34	15	215	234	247	230	288	286	283	278
22	282	247	110	1.5	215	234	252	242	288	288	284	278
23	282	247	161	1.2	215	234	260	250	288	288	284	277
24	286	251	24	1.2	215	234	260	246	288	288	284	277
25	288	256	18	31	216	230	260	242	288	287	283	281
26	100	254	116	93	217	227	254	244	288	287	283	283
27	.75	253	162	128	217	227	246	245	288	287	284	283
28	.75	253	158	151	214	230	247	248	288	286	284	283
29	.75	253	176	173	-----	234	252	257	287	287	286	283
30	.75	253	216	172	-----	234	253	262	287	287	286	283
31	.75	-----	206	172	-----	234	-----	260	-----	286	286	-----
TOTAL	7,302.75	7,022.75	6,496	3,556.9	5,475	6,866	7,377	7,421	8,459	8,902	8,774	8,485
MEAN	236	234	210	115	196	221	246	239	282	287	283	283
MAX	299	284	302	223	217	235	260	262	292	292	286	286
MIN	.75	.75	18	1.2	172	182	144	221	266	282	280	277
AC-FT	14,490	13,930	12,880	7,060	10,860	13,620	14,630	14,720	16,780	17,660	17,400	16,830
CAL YR 1969	TOTAL 73,526.50		MEAN 201	MAX 302	MIN .75	AC-FT 145,800						
WAT YR 1970	TOTAL 86,137.40		MEAN 236	MAX 302	MIN .75	AC-FT 170,900						

## SACRAMENTO RIVER BASIN

## 11416100 BOWMAN-SPAULDING CANAL AT JORDAN CREEK SIPHON VENTURI, NEAR EMGIRANT GAP, CALIF.

LOCATION.--Lat 39°20'32", long 120°38'26", in SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.16, T.17 N., R.12 E., Nevada County, at outlet of Jordan Creek siphon 0.6 mile downstream from Fuller Lake, and 3.5 miles northeast of Emigrant Gap.

PERIOD OF RECORD.--October 1964 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 5,440 ft above mean sea level (from topographic map).

AVERAGE DISCHARGE.--6 years, 215 cfs (155,800 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 330 cfs Dec. 22, 1964; no flow at times in most years.

REMARKS.--Records show water diverted from Bowman Lake (see sta 11415500) plus numerous small tributaries before it enters Lake Spaulding (see sta 11414140). See schematic diagram of Yuba River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co. under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	288	36	253	251	269	272	189	297	294	283	277	270
2	287	109	255	252	266	259	289	298	296	283	277	270
3	288	205	250	252	263	257	294	299	298	284	277	269
4	289	217	262	255	259	262	295	300	297	285	276	270
5	288	222	288	253	253	263	295	299	297	283	276	273
6	288	257	289	251	251	264	295	300	298	283	276	272
7	288	292	288	250	257	264	295	298	296	282	276	272
8	288	270	289	193	258	266	295	297	296	280	276	270
9	291	246	290	273	256	264	295	294	297	279	273	255
10	288	245	287	259	256	260	295	296	301	278	272	233
11	287	249	270	250	253	260	297	298	300	278	272	277
12	289	250	250	280	264	262	293	291	297	278	274	286
13	289	252	251	288	264	269	289	288	290	277	263	274
14	288	251	249	284	266	269	293	290	288	277	282	267
15	291	250	247	251	266	268	295	291	290	268	278	267
16	292	251	249	283	264	283	295	293	293	316	276	268
17	284	252	249	282	264	286	293	300	293	291	275	268
18	286	249	249	282	264	280	295	305	291	277	275	268
19	289	249	267	285	262	284	294	302	291	277	275	268
20	291	246	285	281	264	279	295	292	287	277	273	267
21	291	247	295	288	264	277	292	290	286	276	272	267
22	288	251	251	283	264	279	290	290	286	278	273	268
23	285	253	250	243	264	282	296	292	286	279	273	268
24	284	249	293	264	263	288	299	299	288	281	272	267
25	285	253	292	258	262	290	299	299	285	281	259	266
26	140	253	273	250	263	290	300	297	285	280	281	268
27	0	256	258	285	265	287	300	295	285	279	276	269
28	0	253	246	272	266	282	292	294	286	279	274	270
29	0	253	246	268	-----	282	288	290	286	278	272	270
30	0	253	250	272	-----	281	291	291	284	278	272	269
31	26	-----	253	269	-----	280	-----	294	-----	277	272	-----
TOTAL	7,368	7,119	8,224	8,207	7,330	8,489	8,723	9,159	8,747	8,702	8,495	8,046
MEAN	238	237	265	265	262	274	291	295	292	281	274	268
MAX	292	292	295	288	269	290	300	305	301	316	282	286
MIN	0	36	246	193	251	257	189	288	284	268	259	233
AC-FT	14,610	14,120	16,310	16,280	14,540	16,840	17,300	18,170	17,350	17,260	16,850	15,960
CAL YR 1969	TOTAL	96,730	MEAN 265	MAX 312	MIN 0	AC-FT 191,900						
WTR YR 1970	TOTAL	98,609	MEAN 270	MAX 316	MIN 0	AC-FT 195,600						

LOCATION.--Lat 39°26'23", long 120°39'39", in SE<sub>4</sub> sec.7, T.18 N., R.12 E., Nevada County, on left bank 1 mile downstream from Bowman Dam, 3 miles upstream from Texas Creek, and 9 miles south of Sierra City.

PERIOD OF RECORD.--January 1927 to current year.

GAGE.--Water-stage recorder and concrete control. Concrete control covered with rocks Jan. 22, 1970. Altitude of gage is 5,100 ft (from topographic map).

**AVERAGE DISCHARGE.**--43 years, 40.8 cfs (29,560 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 3,740 cfs Jan. 22 (gage height, 9.42 ft in gage well, 10.32 ft, from floodmarks), from rating curve extended as explained below; minimum daily, 1.3 cfs Sept. 11, 12. Period of record: Maximum discharge, 3,740 cfs Jan. 22, 1970 (gage height, 9.42 ft in gage well, 10.32 ft, from floodmarks), from rating curve extended above 1,500 cfs on basis of slope-area measurement of maximum flow; no flow at times.

REMARKS.--Records fair. Flow regulated by French Lake (usable capacity, 13,840 acre-ft), by Bowman Lake (see sta 11415500), several smaller reservoirs, and diversion into Bowman-Spaulding Canal (see sta 11416000). See schematic diagram showing diversions and storage in Yuba River basin.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.9	3.3	2.2	2.9	190	3.4	1.9	5.4	2.7	3.0	3.2	3.0
2	3.5	3.3	2.2	2.8	169	2.4	1.9	4.4	2.7	3.0	3.2	3.0
3	3.3	3.3	2.2	2.8	135	2.4	1.8	4.0	2.7	2.7	3.2	2.7
4	3.3	3.2	2.4	2.7	111	2.4	2.0	3.2	2.7	2.7	3.2	2.8
5	3.5	3.6	2.4	2.6	94	2.7	3.7	3.0	2.7	3.4	3.2	3.2
6	3.5	4.0	2.4	2.6	79	3.4	3.7	3.0	2.7	3.2	3.2	3.2
7	3.5	4.0	2.2	2.6	59	4.2	3.7	3.0	2.4	3.0	3.2	3.2
8	3.8	4.0	2.3	2.8	48	4.7	3.4	3.0	3.0	3.0	3.0	3.4
9	3.3	3.9	2.3	14	40	4.2	3.2	3.0	15	3.0	3.0	2.0
10	3.1	3.9	2.4	8.0	34	3.7	3.4	3.2	60	2.7	3.0	1.5
11	2.8	3.8	2.4	5.2	30	3.7	3.7	3.2	30	3.0	3.0	1.3
12	2.8	3.3	4.6	11	43	4.2	3.4	3.2	30	3.2	2.7	1.3
13	2.8	3.2	4.6	19	82	5.4	3.4	3.4	8.7	3.2	2.7	5.2
14	2.9	3.1	3.1	26	94	7.5	3.7	3.2	4.0	3.2	2.7	6.3
15	5.7	3.2	2.7	9.4	77	5.4	3.7	2.7	5.0	3.2	2.7	3.4
16	8.0	3.8	2.6	50	62	4.7	3.7	2.4	3.7	3.2	2.7	3.4
17	5.0	3.1	2.6	220	82	5.8	3.7	2.2	3.2	3.2	2.7	3.4
18	3.5	2.9	2.7	465	72	6.6	4.0	2.2	3.2	3.2	2.7	3.4
19	3.1	2.7	13	427	39	4.7	5.0	2.0	3.0	3.2	2.7	3.7
20	2.9	2.6	19	699	27	3.2	4.7	2.0	2.7	3.2	2.7	3.7
21	2.8	2.6	28	2,050	4.2	3.2	4.7	3.0	2.7	3.2	3.0	3.7
22	2.7	2.6	5.6	2,970	2.0	3.4	5.0	4.7	2.4	3.2	3.0	3.7
23	2.6	2.6	17	1,660	2.0	3.7	5.2	4.4	2.4	3.2	3.0	3.4
24	2.6	2.6	32	1,410	1.9	3.7	5.0	4.0	2.2	3.2	3.0	3.4
25	2.6	2.6	16	874	1.9	3.4	4.4	3.7	2.2	3.2	3.0	3.4
26	2.4	2.4	5.2	662	2.0	3.2	4.7	3.0	2.2	3.2	3.0	3.4
27	2.3	2.4	4.3	680	2.0	3.0	5.2	3.0	2.2	3.2	3.0	3.4
28	2.4	2.3	3.6	506	2.7	2.4	5.2	2.7	2.2	3.2	3.0	3.4
29	2.7	2.2	3.3	328	-----	2.4	5.4	2.7	2.2	3.2	3.0	3.2
30	5.1	2.2	3.2	257	-----	2.2	6.0	2.7	2.4	3.2	3.0	3.4
31	3.6	-----	3.1	210	-----	2.2	-----	2.7	-----	3.2	3.0	-----
TOTAL	106.0	92.7	201.6	13,582.4	1,585.7	117.5	118.5	98.3	213.2	96.7	91.7	97.5
MEAN	3.42	3.09	6.50	438	56.6	3.79	3.95	3.17	7.11	3.12	2.96	3.25
MAX	8.0	4.0	32	2,970	190	7.5	6.0	5.4	60	3.4	3.2	6.3
MIN	2.3	2.2	2.2	2.6	1.9	2.2	1.8	2.0	2.2	2.7	2.7	1.3
AC-FT	210	184	400	26,940	3,150	233	235	195	423	192	182	193
CAL YR 1969	TOTAL	30,227.3	MEAN	82.8	MAX	1,090	MIN	2.2	AC-FT	59,960		
WAT YR 1970	TOTAL	16,401.8	MEAN	44.9	MAX							

## 11417000 SOUTH YUBA RIVER NEAR WASHINGTON, CALIF.

LOCATION.--Lat 39°21'38", long 120°46'14", on line between secs.5 and 8, T.17 N., R.11 E., Nevada County, on left bank 800 ft upstream from unnamed tributary and 1.5 miles east of Washington.

DRAINAGE AREA.--198 sq mi.

PERIOD OF RECORD.--March 1942 to September 1953, October 1956 to current year. Prior to October 1949, published as South Fork Yuba River near Washington.

GAGE.--Water-stage recorder. Altitude of gage is 2,735 ft (from river-profile map). Mar. 14, 1942, to Sept. 30, 1945, at site 150 ft upstream at present datum. Oct. 1, 1945, to July 14, 1949, on right bank 50 ft downstream at present datum. July 15, 1949, to Sept. 30, 1953, on right bank 0.8 mile upstream at different datum. Oct. 1, 1956, to Apr. 24, 1963, at site 50 ft downstream at present datum. Apr. 25, 1963, to Feb. 26, 1965, at site 50 ft downstream at present datum.

AVERAGE DISCHARGE.--25 years, 295 cfs (213,700 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 12,000 cfs Jan. 21 (gage height, 12.20 ft); minimum daily, 23 cfs Oct. 4, Sept. 10.

Period of record: Maximum discharge, 35,300 cfs Dec. 23, 1964 (gage height, 20.0 ft, from floodmarks), from rating curve extended above 6,500 cfs on basis of slope-area measurement at gage height 16.60 ft in gage well, 17.8 ft, from floodmarks; minimum, 9.1 cfs Oct. 18, 1950.

Flood of Dec. 23, 1955, reached a stage of 17.8 ft, from floodmarks (discharge, 26,300 cfs).

REMARKS.--Records good except for November; December, and February, which are fair. Natural flow affected by Lake Spaulding beginning in 1912 (see sta 1141410), Bowman Lake (see sta 11415500), Fordyce Lake beginning in 1926 (capacity, 46,700 acre-ft), diversions into and out of basin for several powerhouses and for irrigation of about 20,000 acres by Nevada Irrigation District. See schematic diagram of Yuba River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	32	31	112	349	302	70	88	45	34	27	24
2	24	28	30	105	305	236	68	79	45	34	27	25
3	24	26	30	98	278	184	65	73	44	35	27	26
4	23	24	30	93	258	177	61	69	43	34	27	26
5	24	49	29	84	243	170	59	66	42	34	27	26
6	24	93	29	86	229	167	58	64	41	34	26	26
7	24	70	29	85	213	165	57	62	39	34	26	26
8	28	62	35	115	204	234	56	61	42	35	26	26
9	30	51	38	496	195	202	54	67	58	35	26	25
10	26	46	42	606	189	186	57	63	108	36	27	23
11	24	45	84	315	186	174	59	67	89	37	27	27
12	24	46	71	407	226	167	58	68	78	37	25	27
13	24	45	116	908	235	179	59	69	58	36	25	24
14	28	44	67	1,840	225	204	63	67	47	35	26	25
15	84	46	50	890	210	189	62	61	45	34	27	25
16	145	51	44	3,400	265	174	64	59	45	34	27	25
17	107	42	43	2,720	345	163	66	58	42	30	26	24
18	56	38	40	1,630	275	150	66	56	40	29	27	24
19	45	37	250	1,490	230	135	78	54	38	29	26	24
20	40	38	630	2,180	208	126	75	53	36	30	26	24
21	37	37	1,090	8,400	192	119	69	53	36	29	26	25
22	35	35	360	7,690	180	116	67	53	36	29	26	25
23	33	34	497	4,540	172	112	66	53	35	29	26	24
24	32	35	1,610	4,630	165	108	66	51	33	29	27	24
25	32	35	1,040	2,230	156	101	63	47	33	29	25	25
26	33	34	441	1,990	152	94	69	48	34	29	24	24
27	37	34	266	1,590	157	88	77	47	35	29	25	24
28	35	33	193	900	235	83	72	46	36	28	25	24
29	34	33	160	638	-----	81	74	45	36	27	25	25
30	33	32	138	456	-----	80	84	47	35	26	25	24
31	35	-----	124	405	-----	75	-----	46	-----	27	24	-----
TOTAL	1,204	1,255	7,637	51,129	6,277	4,741	1,962	1,840	1,374	987	806	746
MEAN	38.8	41.8	246	1,649	224	153	65.4	59.4	45.8	31.8	26.0	24.9
MAX	145	93	1,610	8,400	349	302	84	88	108	37	27	27
MIN	23	24	29	84	152	75	54	45	33	26	24	23
AC-FT	2,390	2,490	15,150	101,400	12,450	9,400	3,890	3,650	2,730	1,960	1,600	1,480
CAL YR 1969	TOTAL 166,068		MEAN 455		MAX 4,370		MIN 21		AC-FT 329,400			
WTR YR 1970	TOTAL 79,958		MEAN 219		MAX 8,400		MIN 23		AC-FT 158,600			

NOTE.--No gage-height record Nov. 13 to Dec. 21, Jan. 31 to Mar. 2.



## 11417100 POORMAN CREEK NEAR WASHINGTON, CALIF.

LOCATION.--Lat 39°21'36", long 120°48'24", in SW $\frac{1}{4}$  sec.1, T.17 N., R.10 E., Nevada County, Tahoe National Forest, on left bank just downstream from U.S. Forest Service road bridge, 0.4 mile west of Washington, and 1.4 miles downstream from Deadman Creek.

DRAINAGE AREA.--23.1 sq mi.

PERIOD OF RECORD.--July 1961 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,600 ft (from topographic map).

AVERAGE DISCHARGE.--9 years, 67.0 cfs (48,540 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 2,520 cfs Jan. 21 (gage height, 9.02 ft); minimum daily, 7.2 cfs Sept. 30.

Period of record: Maximum discharge, 6,090 cfs Dec. 22, 1964 (gage height, 12.52 ft in gage well, 13.5 ft, from floodmarks), from rating curve extended above 1,700 cfs on basis of slope-area measurement at gage height 10.95 ft; minimum, 5.9 cfs Oct. 4, 1961.

REMARKS.--Records good. No known diversion or storage above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	11	11	53	169	130	63	57	24	15	11	8.9
2	10	11	11	47	152	105	62	57	22	14	11	8.9
3	10	11	11	43	140	96	60	56	22	14	10	8.9
4	10	11	11	40	132	91	59	56	21	14	10	8.9
5	10	22	11	37	123	88	59	57	20	13	10	9.3
6	10	29	11	35	115	87	59	59	20	13	10	9.3
7	10	21	11	34	108	84	59	58	19	13	10	9.1
8	11	18	13	39	102	100	59	59	20	13	10	9.0
9	12	15	13	125	98	93	58	59	31	13	10	8.8
10	11	14	15	188	95	92	58	60	32	13	9.9	8.6
11	10	14	24	109	93	87	62	57	23	13	9.8	8.8
12	10	15	24	125	115	85	59	56	21	13	9.6	8.7
13	10	14	43	291	120	89	60	55	20	12	9.5	8.9
14	11	14	22	615	116	98	61	52	21	12	9.4	8.9
15	31	14	17	356	107	93	57	50	20	12	9.4	8.8
16	52	17	15	1,150	114	88	56	51	20	12	9.3	8.8
17	33	15	15	907	158	86	54	53	19	12	9.3	8.5
18	19	13	14	494	122	80	53	52	18	12	9.3	8.3
19	15	13	87	420	109	76	59	49	17	12	9.3	8.5
20	13	13	224	434	101	74	53	47	16	11	9.2	8.6
21	13	13	414	1,520	96	73	50	44	16	11	9.1	8.6
22	12	12	140	1,180	91	73	48	42	16	11	9.1	8.2
23	12	12	202	670	88	73	46	40	15	11	9.1	8.1
24	12	12	617	868	82	74	46	37	15	11	9.1	8.0
25	12	12	390	524	78	74	47	35	15	11	9.0	7.7
26	12	12	194	379	76	72	52	34	16	11	9.0	7.5
27	12	12	127	542	82	68	50	33	16	11	9.0	7.5
28	12	12	98	346	120	67	47	31	16	11	9.0	7.4
29	12	12	80	272	-----	68	47	29	17	11	9.0	7.3
30	11	11	68	227	-----	68	52	27	16	11	9.0	7.2
31	11	-----	59	192	-----	65	-----	25	-----	11	8.9	-----
TOTAL	439	425	2,992	12,262	3,102	2,597	1,655	1,477	584	377	295.3	254.0
MEAN	14.2	14.2	96.5	396	111	83.8	55.2	47.6	19.5	12.2	9.53	8.47
MAX	52	29	617	1,520	169	130	63	60	32	15	11	9.3
MIN	10	11	11	34	76	65	46	25	15	11	8.9	7.2
AC-FT	871	843	5,930	24,320	6,150	5,150	3,280	2,930	1,160	748	586	504
CAL YR 1969	TOTAL 36,153.8		MEAN 99.1		MAX 1,590		MIN 9.9		AC-FT 71,710			
WTR YR 1970	TOTAL 26,459.3		MEAN 72.5		MAX 1,520		MIN 7.2		AC-FT 52,480			

## PEAK DISCHARGE (BASE, 500 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1315	6.06	804	1-21	2000	9.02	2,520
12-24	0515	6.16	844	1-24	0115	7.37	1,390
1-14	1200	6.66	1,040	1-27	0615	5.94	756
1-16	0815	7.96	1,750				

## SACRAMENTO RIVER BASIN

11417500 SOUTH YUBA RIVER AT JONES BAR, NEAR GRASS VALLEY, CALIF.

LOCATION.--Lat 39°17'32", long 121°06'13", near center of sec.32, T.17 N., R.8 E., Nevada County, on left bank at Jones Bar, 100 ft upstream from Rush Creek, 0.9 mile downstream from bridge on State Highway 49, and 5 miles northwest of Grass Valley.

DRAINAGE AREA.--308 sq mi.

PERIOD OF RECORD.--October 1940 to September 1948, April 1959 to current year. Published as South Fork Yuba River at Jones Bar 1940-48 and as South Yuba River "at Jones Bar" 1959-63.

GAGE.--Water-stage recorder. Altitude of gage is 1,060 ft (from river-profile map). Oct. 1, 1940, to Sept. 30, 1948, at site 150 ft upstream at datum 2.00 ft higher.

AVERAGE DISCHARGE.--19 years, 490 cfs (355,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 18,200 cfs Jan. 22 (gage height, 16.68 ft); minimum daily, 42 cfs Sept. 6.

Period of record: Maximum discharge, 53,600 cfs Dec. 22, 1964 (gage height, 25.0 ft, from floodmarks), from rating curve extended above 23,000 cfs on basis of slope-area measurement of maximum flow; minimum, 1.0 cfs Sept. 10-13, 1944.

Flood of Dec. 23, 1955, reached a stage of 28.7 ft, from floodmarks (at site 100 ft upstream and datum 2.00 ft lower).

REMARKS.--Records good except those for period of no gage-height record, which are poor. Flow regulated by Lake Spaulding (see sta 11414040), Fordyce Lake (capacity, 46,700 acre-ft), Bowman Lake (see sta 11415500), and many smaller reservoirs. Diversions into and out of basin for several powerhouses, and for irrigation of about 20,000 acres by the Nevada Irrigation District. Records of water temperatures and suspended-sediment loads for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	68	68	244	1,000	1,220	257	236	123	90	48	48
2	49	66	68	221	990	895	259	220	119	84	48	46
3	49	65	68	202	878	694	257	208	117	81	48	46
4	48	62	67	191	806	658	250	201	114	77	47	44
5	48	119	66	177	738	618	244	196	111	72	47	44
6	48	226	67	166	674	547	242	194	108	69	46	42
7	49	172	68	163	610	540	239	193	105	67	46	44
8	53	151	80	174	568	991	234	190	105	67	46	46
9	62	118	91	632	530	706	229	198	133	68	46	46
10	60	100	106	1,570	496	686	226	197	160	70	46	46
11	54	94	198	738	481	614	231	197	193	73	46	46
12	52	90	186	688	575	568	228	193	154	76	47	46
13	51	88	256	1,760	859	561	224	190	151	74	44	48
14	53	85	179	4,250	878	564	230	189	135	71	44	48
15	80	82	137	2,170	722	568	220	178	126	67	46	48
16	247	84	118	5,900	804	516	230	172	120	62	46	48
17	238	75	106	5,710	1,390	490	230	168	116	66	45	48
18	136	84	100	3,280	914	460	240	167	110	57	46	48
19	97	80	340	2,370	766	436	250	164	106	55	46	46
20	82	76	1,360	3,030	670	415	240	158	99	55	44	46
21	75	76	3,150	9,730	582	397	230	155	95	53	44	48
22	70	75	1,110	15,600	519	382	230	152	92	50	46	48
23	68	73	985	8,360	490	375	240	150	90	50	47	48
24	66	72	3,950	9,570	469	368	230	146	85	51	48	48
25	66	72	2,160	5,000	448	358	220	140	85	51	50	48
26	66	70	1,060	2,000	433	335	210	138	87	50	49	48
27	68	68	642	2,000	418	322	220	135	93	48	48	56
28	71	68	460	1,800	435	310	220	132	96	48	48	95
29	69	69	372	1,600	-----	308	230	130	98	48	48	50
30	68	68	315	1,400	-----	292	230	128	96	48	48	49
31	68	-----	272	1,200	-----	270	-----	125	-----	47	48	-----
TOTAL	2,360	2,716	18,205	91,896	19,143	16,464	7,020	5,340	3,422	1,945	1,446	1,462
MEAN	76.1	90.5	587	2,964	684	531	234	172	114	62.7	46.6	48.7
MAX	247	226	3,950	15,600	1,390	1,220	259	236	193	90	50	95
MIN	48	62	66	163	418	270	210	125	85	47	44	42
AC-FT	4,680	5,390	36,110	182,300	37,970	32,660	13,920	10,590	6,790	3,860	2,870	2,900

CAL YR 1969 TOTAL 312,980 MEAN 857 MAX 11,200 MIN 48 AC-FT 620,800  
WTR YR 1970 TOTAL 171,419 MEAN 470 MAX 15,600 MIN 42 AC-FT 340,000

NOTE.--No gage-height record Aug. 18 to Sept. 23.

11418000 YUBA RIVER BELOW ENGLEBRIGHT DAM, NEAR SMARTVILLE, CALIF.  
(Formerly published as Yuba River at Englebright Dam)

LOCATION.--Lat 39°14'07", long 121°16'23", in NW¼ sec.23, T.16 N., R.6 E., Yuba County, on right bank 2,000 ft downstream from Englebright Dam, 0.5 mile upstream from Deer Creek, and 2.3 miles northeast of Smartville. Prior to Oct. 1, 1969, at site 2,000 ft upstream.

DRAINAGE AREA.--1,108 sq mi.

PERIOD OF RECORD.--October 1941 to current year. Prior to October 1953, published as "at Narrows Dam." October 1953 to Sept. 30, 1969, published as "at Englebright Dam." If records for Deer Creek near Smartville (sta 11418500) since 1941 are added to records at this station, records equivalent to those published from 1903 to 1941 as Yuba River at Smartville (sta 11419000) can be obtained.

GAGE.--Water-stage recorder. Datum of gage is 278.68 ft above mean sea level (levels by International Engineering Co.). Prior to Sept. 19, 1958, at site 2,000 ft upstream at datum 248.31 ft higher and Sept. 19, 1958, to Sept. 30, 1969, at datum 278.68 ft lower. Supplementary gage 2,000 ft upstream since Oct. 1, 1969, at Englebright Dam at datum 278.68 ft lower.

AVERAGE DISCHARGE.--29 years, 2,543 cfs (1,842,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 94,100 cfs Jan. 21 (gage height, 31.50 ft), from rating curve extended above 40,000 cfs on basis of rated flow over spillway of dam at gage height 540.21 ft plus flow through powerplant; minimum daily, 224 cfs Sept. 23.

Period of record: Maximum discharge, 171,000 cfs Dec. 22, 1964 (gage height, 546.14 ft, site and datum then in use), no flow through powerplant, from rating curve extended above 25,000 cfs on basis of computation of peak flow over spillway of dam at gage heights 544.72 and 546.14 ft; no flow at times in 1942, 1949, 1956, 1958-61, 1968, 1969.

REMARKS.--Records good. Diversions for power and irrigation above station. Up to 250 cfs can bypass station and up to 670 cfs can be diverted into Bear River basin. Flow regulated by Lake Spaulding beginning in 1912 (see sta 11414140), Jackson Meadows Reservoir (see sta 11407800) since November 1964, New Bullards Bar Reservoir (see sta 11413515) since January 1969, Englebright Reservoir beginning in 1941 (capacity, 70,000 acre-ft), Bowman Lake (see sta 11415500), Fordyce Lake beginning in 1926 (capacity, 46,700 acre-ft), and many smaller reservoirs. See schematic diagram of Yuba River basin.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	300	360	380	700	6,140	5,050	734	3,370	1,540	755	1,560	2,230
2	297	360	384	700	4,400	4,700	726	3,180	1,170	710	1,570	2,250
3	297	360	400	700	6,120	4,180	726	3,340	1,170	703	1,570	2,260
4	300	360	388	700	3,860	5,430	730	3,370	1,870	702	1,560	2,250
5	300	364	364	712	3,810	4,100	730	3,350	1,730	699	1,550	2,240
6	300	376	364	718	5,990	3,020	730	3,380	1,300	716	1,560	2,240
7	300	380	360	712	2,780	3,760	730	2,460	1,280	703	1,560	2,250
8	300	380	375	706	2,460	4,430	734	1,030	1,050	732	1,560	2,860
9	297	380	360	706	2,920	4,050	734	1,270	800	740	1,560	3,550
10	332	384	392	712	2,820	5,930	734	2,440	1,990	716	1,550	3,430
11	353	384	380	718	2,950	4,720	730	3,450	1,520	707	1,540	3,380
12	353	384	416	850	4,100	4,780	734	3,550	1,310	706	1,550	3,280
13	356	384	388	3,440	4,620	5,010	730	3,550	1,310	703	1,540	3,150
14	360	388	388	10,600	4,560	3,970	726	3,620	1,310	702	1,550	3,070
15	376	384	376	6,390	4,160	3,920	726	3,580	1,300	702	1,540	3,040
16	380	384	585	17,700	4,030	3,490	726	3,550	1,310	702	1,540	2,790
17	376	384	380	34,900	6,350	3,740	726	3,460	1,320	701	1,540	2,720
18	376	380	396	19,900	5,900	3,240	726	1,980	1,310	696	1,540	2,570
19	376	380	356	14,800	4,430	3,650	726	2,150	1,290	694	1,540	2,540
20	364	376	353	18,500	2,790	3,660	726	1,920	1,290	1,220	1,590	2,560
21	350	372	372	49,800	3,250	3,650	726	1,940	1,300	1,600	1,930	1,100
22	353	368	542	76,400	3,030	3,440	726	1,900	1,300	1,600	1,940	263
23	353	368	682	39,400	2,970	3,650	726	1,860	1,310	1,580	1,950	224
24	356	372	10,000	55,900	4,130	3,570	734	1,850	1,300	1,560	2,120	263
25	360	380	5,610	26,700	3,380	3,350	742	1,830	1,300	1,560	2,300	317
26	360	364	3,240	12,300	3,620	2,090	742	1,540	978	1,570	2,300	431
27	360	356	1,880	16,600	3,600	726	814	1,200	763	1,580	2,330	840
28	360	356	1,320	7,540	3,650	722	3,090	943	761	1,590	2,250	1,100
29	360	356	1,030	13,900	-----	1,060	3,170	1,430	780	1,590	2,240	715
30	360	360	838	15,100	-----	1,880	3,380	2,880	811	1,590	2,230	1,770
31	360	-----	718	8,740	-----	1,640	-----	2,880	-----	1,560	1,290	-----
TOTAL	10,625	11,184	34,017	457,244	112,820	110,608	29,434	78,253	37,773	32,089	53,950	61,683
MEAN	343	373	1,097	14,750	4,029	3,568	981	2,524	1,259	1,035	1,740	2,056
MAX	380	388	10,000	76,400	6,350	5,930	3,380	3,620	1,990	1,600	2,330	3,550
MIN	297	356	353	700	2,460	722	726	943	761	694	1,290	224
AC-FT	21,070	22,180	67,470	906,900	223,800	219,400	58,380	155,200	74,920	63,650	107,000	122,300

CAL YR 1969 TOTAL 1,151,717 MEAN 3,155 MAX 32,400 MIN 275 AC-FT 2,284,000  
WTR YR 1970 TOTAL 1,029,680 MEAN 2,821 MAX 76,400 MIN 224 AC-FT 2,042,000

## SACRAMENTO RIVER BASIN

## 11418500 DEER CREEK NEAR SMARTVILLE, CALIF.

LOCATION.--Lat 39°13'28", long 121°16'03", in SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.23, T.16 N., R.6 E., Nevada County, on left bank 400 ft upstream from county road bridge, 0.9 mile upstream from mouth, and 2 miles northeast of Smartville.

DRAINAGE AREA.--84.6 sq mi.

PERIOD OF RECORD.--June 1935 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 630 ft (from river-profile map). June 21, 1935, to Nov. 30, 1938, nonrecording gage at same site and datum.

AVERAGE DISCHARGE.--35 years, 134 cfs (97,080 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 6,550 cfs Jan. 21 (gage height, 10.73 ft); minimum daily, 3.5 cfs Sept. 30.

Period of record: Maximum discharge, 11,600 cfs Oct. 13, 1962 (gage height, 13.77 ft), from rating curve extended above 5,200 cfs; minimum daily, 0.1 cfs Aug. 4-6, 15, 1940.

Flood of March 1928 reached a stage of 14.5 ft, from floodmarks (discharge, 14,000 cfs).

REMARKS.--Records good. Natural flow of stream is affected by Scotts Flat Reservoir beginning in 1949 (usable capacity, 26,300 acre-ft, increased to 49,000 acre-ft in July 1964), Deer Creek Reservoir (capacity, 1,400 acre-ft), power developments, and diversion for irrigation. At times water from South Yuba River is diverted to Deer Creek and water from Deer Creek is diverted to Bear River. Records of chemical analyses for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.7	16	19	49	448	1,310	117	36	13	13	5.0	5.6
2	8.4	16	18	44	397	569	115	33	11	12	5.3	5.8
3	8.8	15	16	43	343	390	116	33	11	11	4.7	5.0
4	9.2	16	17	41	306	390	108	31	12	11	4.5	5.3
5	9.2	78	16	38	276	367	104	27	12	11	5.4	6.6
6	9.2	82	16	37	250	305	101	21	12	11	5.8	8.0
7	8.8	43	15	39	226	292	93	23	13	8.5	4.5	9.2
8	11	36	20	42	210	1,050	82	24	13	11	5.0	8.0
9	17	26	31	288	196	452	61	33	24	11	5.9	7.3
10	16	21	40	391	183	488	59	30	33	12	5.3	6.9
11	15	19	72	145	178	381	58	32	27	13	4.2	6.4
12	14	19	57	168	235	330	47	25	24	11	4.5	6.6
13	15	17	80	584	515	301	47	31	23	10	6.6	7.3
14	19	17	38	1,790	464	282	60	23	25	9.0	8.3	8.0
15	50	17	29	428	287	268	56	18	25	10	8.7	8.0
16	88	18	24	1,880	538	247	55	17	22	11	8.0	8.4
17	34	19	21	701	912	229	54	18	18	10	6.7	7.7
18	26	17	20	329	429	217	52	19	17	11	6.9	7.3
19	23	17	233	408	324	198	52	15	16	11	7.4	8.0
20	22	16	641	513	278	189	44	19	14	9.9	6.2	8.8
21	19	17	1,340	3,760	240	186	43	20	14	9.6	6.2	9.2
22	17	17	231	1,430	225	183	41	18	12	9.1	6.0	9.2
23	16	17	705	1,250	214	172	38	18	11	8.2	6.1	8.4
24	16	17	2,220	2,250	202	167	36	17	10	7.8	6.9	7.0
25	17	17	481	1,140	190	161	34	15	10	7.7	7.7	6.0
26	16	19	183	850	184	153	34	17	12	8.4	7.8	4.2
27	15	20	111	1,740	175	142	42	17	13	7.0	7.0	3.6
28	14	22	83	904	190	134	39	16	15	6.6	7.2	3.8
29	17	22	70	701	-----	137	37	17	16	6.2	7.4	3.6
30	20	20	61	596	-----	137	37	16	15	6.2	6.9	3.5
31	16	-----	53	515	-----	124	-----	15	-----	5.7	5.8	-----
TOTAL	594.3	713	6,961	23,094	8,615	9,951	1,862	694	493	299.9	193.9	202.7
MEAN	19.2	23.8	225	745	308	321	62.1	22.4	16.4	9.67	6.25	6.76
MAX	88	82	2,220	3,760	912	1,310	117	36	33	13	8.7	9.2
MIN	7.7	15	15	37	175	124	34	15	10	5.7	4.2	3.5
AC-FT	1,180	1,410	13,810	45,810	17,090	19,740	3,690	1,380	978	595	385	402
(a)	25,509	26,271	32,046	48,547	48,547	48,547	47,316	45,732	42,930	38,675	34,030	30,183

CAL YR 1969 TOTAL 80,514.0 MEAN 221 MAX 4,030 MIN 6.8 ACFT 159,700  
WAT YR 1970 TOTAL 53,673.8 MEAN 147 MAX 3,760 MIN 3.5 ACFT 106,500

a Contents, in acre-feet, at end of month for Scotts Flat Reservoir; furnished by Nevada Irrigation District.

## 11420700 DRY CREEK NEAR BROWNS VALLEY, CALIF.

LOCATION.--Lat 39°15'23", long 121°20'34", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.7, T.16 N., R.6 E., Yuba County, on left bank 500 ft upstream from diversion dam and 3.6 miles east of Browns Valley.

DRAINAGE AREA.--87.1 sq mi.

PERIOD OF RECORD.--July 1964 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 265 ft (from topographic map).

AVERAGE DISCHARGE (unadjusted).--6 years, 86.0 cfs (62,310 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 5,840 cfs Jan. 21 (gage height, 10.31 ft); minimum daily, 1.4 cfs Dec. 3.

Period of record: Maximum discharge, 5,950 cfs Jan. 21 1969 (gage height, 10.38 ft); minimum daily, 1.2 cfs Dec. 12-15, 1964.

REMARKS.--Records good except those for the summer months, which are fair. Flow regulated by Lake Mildred (capacity, 1,500 acre-ft), Merle Collins Reservoir (capacity, 57,000 acre-ft) 6.5 miles upstream since 1963. Some diversion above station for irrigation.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.1	2.1	1.6	5.0	279	1,600	52	7.9	8.4	6.7	7.0	7.4
2	5.9	1.9	1.6	4.4	246	952	53	6.7	7.8	6.5	6.5	7.4
3	5.4	1.7	1.4	3.9	221	415	49	6.7	7.4	6.2	6.2	7.7
4	4.9	1.6	1.8	3.7	204	354	45	7.0	7.5	6.5	5.2	7.2
5	4.8	8.9	1.0	3.5	187	402	24	7.7	7.5	6.5	5.4	7.0
6	5.5	4.7	2.0	3.2	173	291	14	7.9	7.2	5.6	5.4	6.5
7	5.4	2.7	2.0	3.1	162	254	27	8.4	7.7	5.2	5.4	7.2
8	6.7	2.4	2.9	3.7	153	865	57	9.7	8.5	4.8	5.4	7.7
9	6.8	2.2	3.4	19	144	497	46	10	11	5.0	5.6	7.7
10	6.6	2.1	3.6	46	133	515	34	8.9	10	5.0	6.0	7.7
11	6.0	1.8	5.0	24	129	362	27	9.4	9.7	4.8	6.0	7.0
12	6.4	1.7	5.1	46	158	284	23	9.2	9.0	5.0	6.0	6.0
13	6.0	1.7	7.5	110	481	242	13	8.4	7.9	6.2	5.2	6.0
14	7.0	1.6	3.9	842	1,050	215	19	8.2	7.5	6.7	5.8	6.0
15	14	1.7	3.1	1,040	433	193	28	7.4	7.4	7.0	5.6	6.7
16	12	1.7	2.7	2,530	393	171	23	7.9	7.7	6.9	5.8	6.8
17	6.3	1.6	2.5	1,240	1,110	160	14	9.7	7.4	7.2	5.8	6.2
18	6.1	1.5	2.7	629	520	141	9.2	8.7	7.4	7.0	6.5	5.8
19	4.5	1.6	21	521	327	130	7.9	8.4	7.9	6.2	6.2	6.0
20	4.1	1.6	74	1,150	258	124	8.7	9.2	7.2	6.2	6.2	7.1
21	3.3	1.7	118	3,690	225	121	10	8.9	7.2	6.2	6.2	6.6
22	3.7	1.6	27	3,040	203	116	9.3	10	7.2	6.2	5.6	6.6
23	3.6	1.7	71	1,320	184	110	8.6	10	8.2	6.2	6.0	6.6
24	3.7	1.7	349	2,470	174	103	7.9	9.6	7.7	5.4	6.5	7.5
25	3.5	1.7	81	925	162	95	8.2	9.4	7.4	5.6	6.2	7.1
26	3.2	1.7	34	577	151	91	8.2	8.6	6.5	6.5	6.7	7.5
27	2.3	1.7	19	1,610	142	80	8.4	8.6	5.6	6.0	7.0	8.0
28	2.2	1.7	13	811	160	76	7.9	8.4	6.0	6.2	7.2	7.1
29	2.0	1.7	9.4	498	-----	79	7.4	9.0	6.0	6.2	6.5	8.2
30	2.0	1.7	6.9	384	-----	73	8.4	8.9	6.0	6.7	7.0	7.9
31	2.0	-----	5.7	319	-----	61	-----	8.5	-----	7.0	6.7	-----
TOTAL	161.5	63.7	883.7	23,871.5	8,162	9,172	658.1	267.3	229.9	189.4	188.8	210.2
MEAN	5.21	2.12	28.5	770	292	296	21.9	8.62	7.66	6.11	6.09	7.01
MAX	14	8.9	349	3,690	1,110	1,600	57	10	11	7.2	7.2	8.2
MIN	2.0	1.5	1.4	3.1	129	61	7.4	6.7	5.6	4.8	5.2	5.8
AC-FT	320	126	1,750	47,330	16,190	18,190	1,310	530	456	376	374	417
CAL YR 1969	TOTAL 56,228.6		MEAN 154		MAX 4,720	MIN 1.4		AC-FT 111,500				
WTR YR 1970	TOTAL 44,858.1		MEAN 121		MAX 3,690	MIN 1.4		AC-FT 87,390				

## SACRAMENTO RIVER BASIN

## 11421000 YUBA RIVER NEAR MARYSVILLE, CALIF.

LOCATION.--Lat 39°10'33", long 121°31'26", in New Helvetia Grant, Yuba County, on left bank 4.2 miles northeast of Marysville and 5 miles downstream from Dry Creek.

DRAINAGE AREA.--1,339 sq mi.

PERIOD OF RECORD.--Water years 1940-43, 1945 (low-water periods only), October 1940 to current year. Published as "at Marysville" October 1940 to September 1957. Records published for two sites August 1954 to September 1955. Yearly discharge for the 1945 water year published in WSP 1315-A.

GAGE.--Water-stage recorder. Gage is set to datum of Corps of Engineers, which is 2.95 ft below mean sea level. Prior to August 1954 and Oct. 1, 1956, to Sept. 30, 1957, at Simpson Lane Bridge in Marysville 4.2 miles downstream at same datum. Sept. 3, 1963, to Sept. 23, 1968, auxiliary water-stage recorder at Simpson Lane Bridge in Marysville 4.2 miles downstream at same datum.

AVERAGE DISCHARGE.--27 years (1943-70), 2,573 cfs (1,864,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 106,000 cfs Jan. 22 (gage height, 84.46 ft); minimum daily, 75 cfs Oct. 7.

Period of record: Maximum discharge (1943-70), 180,000 cfs Dec. 22, 1964 (gage height, 90.15 ft, from floodmarks), from rating curve extended above 91,000 cfs on basis of Corps of Engineers flood routing study; minimum recorded, 10 cfs July 2, 1959.

REMARKS.--Records poor prior to Dec. 15, good thereafter. Flow regulated by several reservoirs above station. Many diversions above station for power. Diversions for irrigation of about 13,000 acres between stations at Englebright Dam and near Marysville. Records of water temperatures near this gaging station for the water year 1970 are published in Part 2 of this report.

REVISIONS (WATER YEARS).--WRD Calif. 1965: 1960.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	96	102	168	688	8,890	7,970	1,150	2,850	1,770	299	937	1,700
2	90	110	168	664	5,970	6,930	951	2,770	388	235	943	1,890
3	88	114	218	640	7,910	5,050	930	2,780	602	227	948	1,910
4	80	138	218	624	5,010	6,860	909	2,800	909	231	948	1,920
5	84	185	176	612	4,810	5,330	888	2,760	1,580	224	953	1,940
6	80	262	173	607	7,060	3,870	854	2,770	671	218	951	1,960
7	75	248	176	602	4,190	4,080	788	2,400	764	216	948	1,960
8	78	234	176	607	3,390	6,520	740	763	706	222	948	2,260
9	80	221	209	701	3,490	5,040	690	711	368	231	957	3,270
10	78	206	212	1,260	3,770	7,280	590	1,210	965	219	949	3,170
11	100	209	320	935	3,410	5,960	521	2,960	1,310	214	944	3,120
12	130	206	276	994	4,790	5,640	467	3,060	860	218	947	3,020
13	145	200	320	3,690	5,820	5,840	420	3,080	842	204	948	2,910
14	148	179	230	14,700	6,770	4,560	380	3,140	836	199	955	2,840
15	194	179	179	10,100	5,300	4,420	364	3,110	830	187	956	2,820
16	293	176	220	18,100	4,950	4,000	346	3,090	818	198	961	2,700
17	251	173	432	35,500	8,900	4,110	332	3,080	818	201	953	2,540
18	197	176	349	23,500	7,720	3,650	318	1,980	806	194	947	2,410
19	175	182	435	16,700	5,860	3,840	304	1,830	764	197	948	2,370
20	160	182	1,110	19,700	3,690	3,940	290	1,560	763	352	922	2,410
21	145	176	1,960	47,900	4,010	3,910	278	1,520	763	902	1,370	1,380
22	135	173	893	90,200	3,680	3,720	272	1,500	761	934	1,400	294
23	120	168	1,030	40,300	3,550	3,840	242	1,410	766	936	1,430	224
24	120	168	13,300	63,900	4,530	3,790	245	1,400	754	920	1,560	166
25	125	200	8,210	35,600	4,080	3,560	251	1,370	753	917	1,910	178
26	135	197	4,280	19,500	4,080	2,830	269	1,270	624	942	1,910	316
27	145	200	2,300	21,700	4,050	1,130	284	493	314	951	1,940	596
28	148	173	1,570	13,100	4,080	1,000	1,870	400	294	950	1,890	764
29	135	168	1,170	16,700	-----	1,010	2,680	350	300	953	1,870	749
30	135	170	928	18,200	-----	1,860	2,740	1,850	314	959	1,860	1,030
31	116	-----	767	11,500	-----	2,060	-----	2,340	-----	944	1,070	-----
TOTAL	4,081	5,475	42,173	529,524	143,760	133,600	21,363	62,607	23,013	14,794	37,173	54,817
MEAN	132	183	1,360	17,080	5,134	4,310	712	2,020	767	477	1,199	1,827
MAX	293	262	13,300	90,200	8,900	7,970	2,740	3,140	1,770	959	1,940	3,270
MIN	75	102	168	602	3,390	1,000	242	350	294	187	922	166
AC-FT	8,090	10,860	83,650	1,050M	285,100	265,000	42,370	124,200	45,650	29,340	73,730	108,700

CAL YR 1969 TOTAL 1,297,862 MEAN 3,556 MAX 39,900 MIN 44 ACFT 2,574,000  
WAT YR 1970 TOTAL 1,072,380 MEAN 2,938 MAX 90,200 MIN 75 ACFT 2,127,000

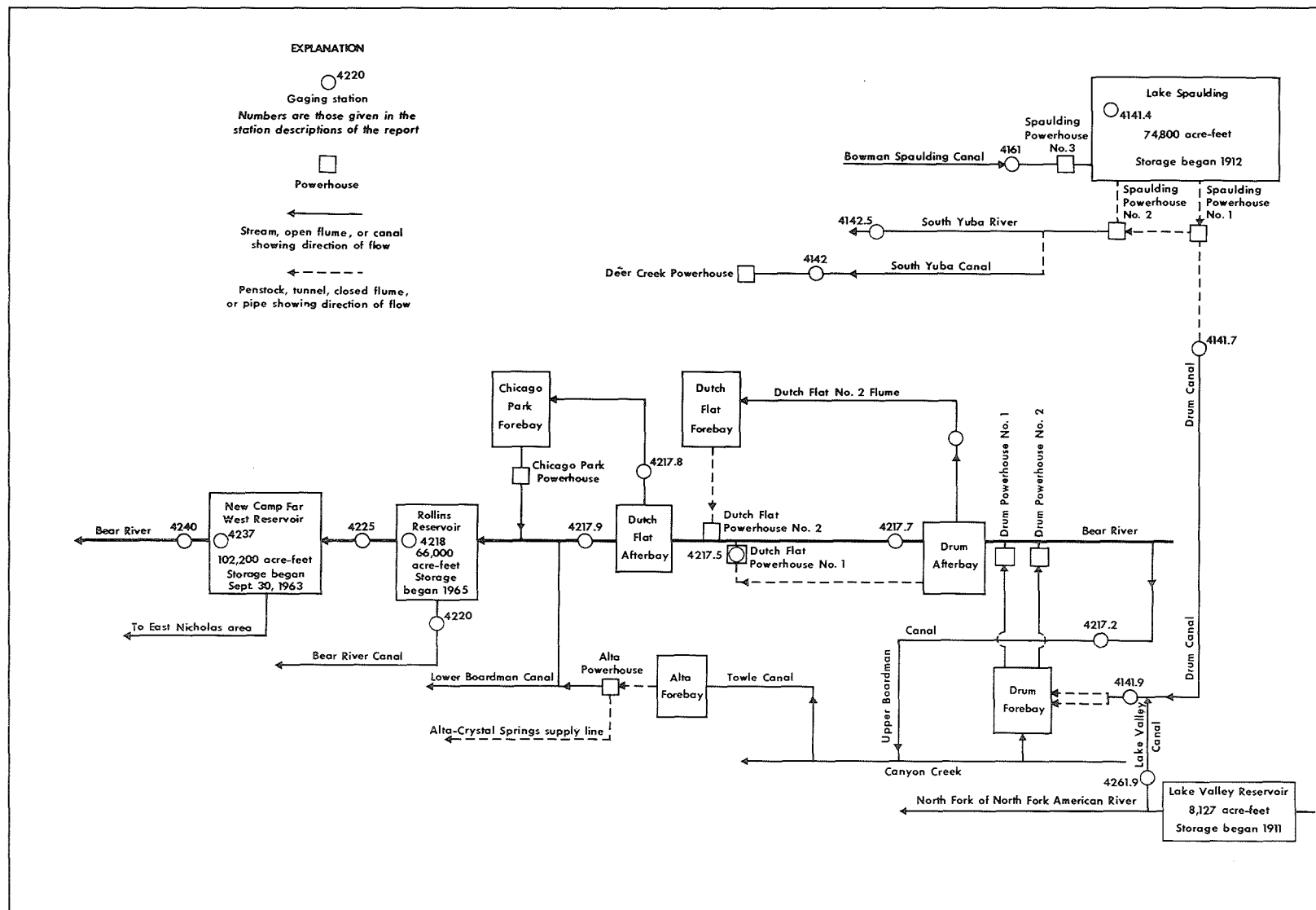


FIGURE 15.--Schematic diagram showing diversion and storage in Bear River basin.

## SACRAMENTO RIVER BASIN

11421700 FEATHER RIVER BELOW SHANGHAI BEND, NEAR OLIVEHURST, CALIF.

LOCATION.--Lat 39°04'44", long 121°36'08", in New Helvetia Grant, Sutter County, on right bank 1.5 miles downstream from Shanghai Bend, 3.0 miles southeast of Olivehurst, and 3.4 miles south of Yuba City.

DRAINAGE AREA.--5,334 sq mi.

PERIOD OF RECORD.--June 1944 to September 1969 in reports of California Department of Water Resources. October 1969 to September 1970.

GAGE.--Water-stage recorder. Gage is set to datum of Corps of Engineers which is 3.01 ft below mean sea level (levels by California Department of Water Resources).

EXTREMES.--Current year: Maximum discharge, 133,000 cfs Jan. 22 (gage height, 62.55 ft); minimum daily, 2,030 cfs July 8.

REMARKS.--Flow regulated by many reservoirs and powerplants. See schematic diagrams of South Fork Feather River, North Fork Feather River, and Yuba River basins, and Feather River at Lake Oroville.

COOPERATION.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3,470	3,410	3,720	17,600	38,900	16,400	4,830	4,770	3,750	2,290	3,660	5,850
2	3,350	3,350	3,870	16,400	29,000	24,900	4,330	4,810	2,330	2,180	3,790	6,210
3	3,340	3,360	3,910	14,400	24,800	21,200	4,240	4,670	2,160	2,110	4,050	6,260
4	3,340	3,440	3,950	13,700	19,200	21,300	4,120	4,780	2,760	2,120	4,350	6,290
5	3,280	3,530	4,010	11,300	16,100	21,000	4,010	4,770	3,790	2,110	4,650	6,300
6	3,240	3,640	4,020	6,150	17,000	19,400	3,940	4,820	2,810	2,070	4,820	6,330
7	3,250	3,620	4,040	5,170	15,400	18,600	3,750	4,830	2,770	2,040	4,890	6,310
8	3,250	3,590	4,310	5,040	13,800	21,100	3,660	3,370	2,720	2,030	4,890	6,320
9	3,250	3,520	4,450	5,210	13,500	21,100	3,560	2,730	2,530	2,070	4,900	7,440
10	3,240	3,500	4,530	6,870	13,800	22,500	3,490	3,010	2,730	2,120	4,960	7,440
11	3,230	3,550	4,970	10,200	13,000	22,500	3,420	4,740	3,300	2,040	5,040	7,360
12	3,260	3,550	5,510	12,300	14,300	21,400	3,310	4,970	2,830	2,060	5,230	7,320
13	3,430	3,550	6,070	16,100	15,400	21,000	3,260	5,070	2,720	2,070	5,270	7,160
14	3,170	3,550	6,500	32,400	20,600	18,100	3,130	5,010	2,710	2,060	5,270	7,110
15	3,210	3,550	6,540	62,800	21,700	17,400	3,020	5,060	2,710	2,080	5,430	7,010
16	3,490	3,670	6,560	81,500	19,300	16,500	2,940	5,030	2,630	2,100	5,450	6,840
17	3,430	3,890	6,670	110,000	22,700	13,600	2,910	4,940	2,590	2,120	5,440	6,680
18	3,390	3,920	6,510	95,800	23,700	13,200	2,790	4,310	2,590	2,130	5,430	6,530
19	3,320	3,930	6,680	83,400	21,200	12,600	2,570	3,770	2,580	2,120	5,430	6,520
20	3,360	3,930	7,760	82,100	18,700	10,900	2,490	3,750	2,560	2,150	5,430	6,490
21	3,390	3,930	9,390	83,500	18,300	7,980	2,480	3,520	2,550	2,830	5,610	5,960
22	3,390	3,930	9,370	126,000	18,200	7,450	2,460	3,520	2,570	2,950	5,810	4,610
23	3,400	3,930	7,660	101,000	18,000	7,140	2,440	3,410	2,560	2,970	5,820	4,420
24	3,400	3,920	18,400	117,000	18,300	6,950	2,470	3,330	2,520	2,940	5,890	4,380
25	3,380	3,950	30,500	105,000	18,800	6,490	2,370	3,310	2,530	2,960	6,150	4,340
26	3,390	3,810	29,000	88,100	15,100	5,930	2,320	3,260	2,540	3,000	6,330	4,490
27	3,410	3,760	25,800	85,700	13,500	4,270	2,370	2,620	2,250	3,060	6,410	4,830
28	3,440	3,720	24,000	79,000	13,400	3,990	3,280	2,270	2,180	3,110	6,430	4,820
29	3,430	3,740	23,100	68,300	-----	4,080	4,630	2,240	2,240	3,310	6,390	4,510
30	3,420	3,720	22,600	66,200	-----	4,900	4,600	3,210	2,260	3,470	6,370	3,960
31	3,430	-----	22,000	50,900	-----	5,360	-----	3,950	-----	3,520	5,960	-----
TOTAL	103,780	110,460	326,400	1,659,1M	525,700	439,240	99,190	123,850	79,770	76,190	165,550	180,090
MEAN	3,348	3,682	10,530	53,520	18,780	14,170	3,306	3,995	2,659	2,458	5,340	6,003
MAX	3,490	3,950	30,500	126,000	38,900	24,900	4,830	5,070	3,790	3,520	6,430	7,440
MIN	3,170	3,350	3,720	5,040	13,000	3,990	2,320	2,240	2,160	2,030	3,660	3,960
AC-FT	205,800	219,100	647,400	3,291M	1,043M	871,200	196,700	245,700	158,200	151,100	328,400	357,200
CAL YR 1969	TOTAL -			MEAN -		MAX -		MIN -		AC-FT -		
WTR YR 1970	TOTAL 3,889,360.00			MEAN 10,660		MAX 126,000		MIN 2,030		AC-FT 7,715,000		



## 913

LOCATION.--Lat 39°17'49", long 120°42'08", in SE¼NE¼ sec.35, T.17 N., R.11 E., Placer County, on right bank 0.4 mile downstream from Boardman diversion dam and 1.8 miles west of Emigrant Gap.

GAGE.--Water-stage recorder and Parshall flume. Altitude of gage is 5,020 ft (from topographic map). Prior to June 14, 1967, water-stage recorder 0.2 mile downstream at different datum.

REMARKS.--Water is diverted from Bear River to be used for power development and irrigation in the Bear River basin.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	20	33	17	10	22	21	22	26	27	33	32
2	31	20	33	17	9.9	21	21	20	26	28	33	33
3	31	20	33	16	14	21	19	20	26	29	33	32
4	31	21	33	16	16	21	22	20	26	29	32	33
5	15	24	33	15	16	21	22	20	26	29	29	33
6	2.1	24	33	15	15	21	22	20	26	29	29	32
7	.17	24	33	15	15	21	22	20	26	27	29	32
8	.09	23	33	16	15	21	22	23	26	26	29	32
9	.06	23	33	16	15	21	22	25	26	27	29	32
10	.06	22	33	16	15	21	20	25	26	28	31	32
11	.03	22	24	16	15	21	19	25	26	28	33	32
12	.03	22	19	16	15	21	20	25	26	28	33	31
13	.03	22	19	16	21	21	20	25	26	29	33	30
14	.03	22	19	11	26	21	20	25	26	29	33	30
15	.45	22	20	11	26	21	20	25	26	31	33	30
16	.90	22	23	4.1	27	21	20	24	25	35	33	31
17	.33	22	26	.90	27	21	20	24	25	35	32	31
18	.22	22	26	.66	26	21	20	24	26	35	32	31
19	.22	22	20	.74	23	21	20	24	25	35	31	31
20	.17	23	14	.74	21	21	19	24	25	35	32	31
21	12	22	12	1.3	21	21	19	24	25	33	32	33
22	20	22	15	.59	21	21	18	24	25	30	32	35
23	19	22	21	.59	21	21	17	24	26	30	32	32
24	19	22	14	.59	21	21	17	24	30	30	32	30
25	20	22	12	7.0	21	21	25	24	29	30	34	31
26	20	26	20	10	21	21	26	24	27	30	37	33
27	20	30	23	7.7	21	21	26	25	27	31	37	30
28	20	32	21	7.9	21	21	26	26	27	30	37	28
29	20	33	19	10	-----	21	26	26	27	33	37	24
30	20	33	17	10	-----	21	26	26	27	34	37	24
31	19	-----	17	10	-----	21	-----	26	-----	33	36	-----
TOTAL	352.89	706	731	301.81	535.9	652	637	733	786	943	1,015	931
MEAN	11.4	23.5	23.6	9.74	19.1	21.0	21.2	23.6	26.2	30.4	32.7	31.0
MAX	31	33	33	17	27	22	26	26	30	35	37	35
MIN	.03	20	12	.59	9.9	21	17	20	25	26	29	24
AC-FT	700	1,400	1,450	599	1,060	1,290	1,260	1,450	1,560	1,870	2,010	1,850
CAL YR 1969	TOTAL	8,152.49	MEAN	22.3	MAX	33	MIN	.03	AC-FT	16,170		
WTR YR 1970	TOTAL	8,324.60	MEAN	22.8	MAX	37	MIN	.03	AC-FT	16,510		

## SACRAMENTO RIVER BASIN

## 11421750 DUTCH FLAT NO. 1 POWERPLANT NEAR DUTCH FLAT, CALIF.

LOCATION.--Lat 39°13'02", long 120°50'04", in SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.27, T.16 N., R.10 E., Placer County, at powerplant 0.8 mile north of Dutch Flat.

PERIOD OF RECORD.--October 1964 to current year.

GAGE.--Recorded powerplant output.

EXTREMES.--Period of record: Maximum daily discharge, 548 cfs for several days in January, February, April 1965; no flow for many days in each year.

REMARKS.--Water is diverted from Drum Afterbay through a tunnel to Dutch Flat No. 1 powerplant and returned to Dutch Flat Afterbay.

COOPERATION.--Records furnished by Pacific Gas and Electric Co. in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	308	239	76	361	416	352	419	365	284		0	193
2	320	198	244	346	401	352	435	321	316		0	214
3	326	193	174	366	431	419	418	269	397		0	217
4	302	299	52	339	429	401	353	310	389		0	185
5	297	178	152	357	396	365	328	294	380		0	199
6	321	161	128	374	364	397	335	324	386		0	193
7	330	170	90	331	405	414	540	290	373		0	210
8	283	265	135	357	458	411	539	309	379		0	203
9	323	227	183	383	401	401	535	335	379		0	208
10	335	146	251	433	439	404	540	280	453		0	212
11	351	233	178	311	384	398	471	340	436		0	173
12	280	185	255	341	482	401	535	323	386		0	162
13	312	309	136	398	500	462	283	355	292		0	0
14	401	211	149	537	404	419	286	343	272		0	0
15	323	267	157	442	375	453	336	315	293		0	0
16	352	161	184	539	385	436	336	346	533		0	0
17	285	207	152	542	421	435	284	317	527		0	0
18	348	289	82	414	436	425	278	343	376		70	0
19	327	196	179	437	374	412	256	362	343		163	0
20	335	302	283	498	426	395	73	299	285		202	0
21	323	204	394	541	360	428	283	379	227		184	0
22	305	222	310	544	388	404	311	289	312		233	0
23	353	197	392	466	381	410	312	352	240		200	0
24	297	206	495	539	411	399	313	313	226		178	0
25	306	250	418	540	428	404	262	344	83		194	0
26	340	179	355	439	419	422	305	261	157		198	0
27	344	161	379	538	414	395	295	330	142		185	0
28	193	0	390	476	359	414	293	318	126		218	0
29	190	63	384	439	-----	405	281	361	0		205	0
30	191	153	345	434	-----	414	246	352	0		207	0
31	176	-----	379	401	-----	375	-----	335	-----		215	-----
TOTAL	9,479	6,061	7,481	13,463	11,487	12,622	10,481	10,074	8,992	0	2,652	2,369
MEAN	306	202	241	434	410	407	349	325	300	0	85.5	79.0
MAX	401	309	435	544	500	462	540	379	533	0	233	217
MIN	176	0	52	311	359	352	73	261	0	0	0	0
AC-FT	18,800	12,020	14,840	26,700	22,780	25,040	20,790	19,980	17,840	0	5,260	4,700
CAL YR 1969	TOTAL	101,208.00	MEAN	277	MAX	541	MIN	0	AC-FT	200,700		
WAT YR 1970	TOTAL	95,161.00	MEAN	261	MAX	544	MIN	0	AC-FT	188,800		

## 11421760 DUTCH FLAT NO. 2 FLUME NEAR BLUE CANYON, CALIF.

LOCATION.--Lat 39°15'16", long 120°46'28", in SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.18, T.16 N., R.11 E., Placer County, on left bank 600 ft downstream from Drum Afterbay and 3.6 miles west of Blue Canyon.

PERIOD OF RECORD.--October 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,348.09 ft above mean sea level (levels by Nevada Irrigation District).

EXTREMES.--Period of record.--Maximum daily discharge, 610 cfs Mar. 1, 1968; no flow for many days in each year.

REMARKS.--Records good. Water is diverted from Drum Afterbay through the flume to Dutch Flat No. 2 powerplant and thence to Dutch Flat Afterbay.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	453	373	386	397	557	488	559	378	418	311	562	556
2	456	351	420	453	556	448	451	404	362	358	559	556
3	453	367	442	444	488	554	507	429	353	143	561	555
4	465	238	440	445	557	554	435	412	363	73	556	556
5	459	365	419	436	557	448	438	422	320	111	560	556
6	421	452	208	439	509	554	198	414	372	56	561	556
7	420	432	256	444	520	519	0	431	359	0	559	555
8	467	364	290	445	532	554	0	448	333	2.0	560	556
9	417	361	428	425	477	554	0	448	335	0	561	556
10	409	381	341	556	486	554	0	436	330	0	561	557
11	414	375	366	520	497	554	0	450	330	111	557	560
12	420	342	443	470	470	470	227	467	306	145	558	142
13	357	369	469	558	470	532	443	442	277	397	558	0
14	437	358	416	557	557	527	436	400	277	497	558	0
15	416	353	430	557	530	508	424	430	26	509	558	0
16	439	350	301	557	556	502	427	421	0	476	558	0
17	428	370	148	557	556	501	418	399	0	560	557	0
18	414	354	161	551	556	522	396	408	0	562	557	0
19	417	377	328	540	529	513	396	403	0	560	557	0
20	417	320	558	558	544	518	404	434	0	561	558	0
21	404	371	558	557	539	500	432	442	0	560	559	0
22	418	375	552	557	521	469	425	444	151	560	559	0
23	420	368	447	550	537	484	437	404	145	563	559	0
24	430	359	559	558	512	486	389	399	183	559	559	0
25	434	315	499	557	520	463	434	407	258	560	559	47
26	435	290	486	557	521	472	433	413	257	561	558	326
27	422	101	457	557	460	461	413	443	308	559	558	557
28	359	237	456	558	556	445	406	444	360	559	557	557
29	338	206	441	558	-----	541	383	426	372	534	557	558
30	339	195	451	558	-----	513	395	431	372	559	556	559
31	357	-----	441	557	-----	406	-----	439	-----	557	557	-----
TOTAL	12,935	10,069	12,597	16,033	14,670	15,614	10,306	13,168	7,167	11,563.0	17,314	8,865
MEAN	417	336	406	517	524	504	344	425	239	373	559	296
MAX	467	452	559	558	557	554	559	467	418	563	562	560
MIN	338	101	148	397	460	406	0	378	0	0	556	0
AC-FT	25,660	19,970	24,990	31,800	29,100	30,970	20,440	26,120	14,220	22,940	34,340	17,580
CAL YR 1969	TOTAL 162,161.38		MEAN 444		MAX 579		MIN 0		AC-FT 321,600			
WTR YR 1970	TOTAL 150,301.00		MEAN 412		MAX 563		MIN 0		AC-FT 298,100			

## SACRAMENTO RIVER BASIN

## 11421770 BEAR RIVER BELOW DRUM AFTERBAY, NEAR BLUE CANYON, CALIF.

LOCATION.--Lat 39°15'16", long 120°46'26", in SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.17, T.16 N., R.11 E., Placer County, on left bank 60 ft below Drum Afterbay Dam and 3.5 miles west of Blue Canyon.

DRAINAGE AREA.--12.3 sq mi.

PERIOD OF RECORD.--April 1966 to current year, low flows only April to September 1966.

GAGE.--Water-stage recorder and 4-ft steel Cipolletti weir set in a concrete broad-crested weir. Altitude of gage is 3,300 ft (from topographic map). April 1966 to May 25, 1967, water-stage recorder at present site at different datum, May 26, 1967, to Feb. 11, 1968, water-stage recorder at site 1,000 ft downstream at different datum.

EXTREMES.--Current year: Maximum discharge, 2,880 cfs Jan. 21 (gage height, 3.68 ft), from rating curve extended above 900 cfs; minimum daily, 5.4 cfs several days in October and November.

Period of record: Maximum discharge, 2,880 cfs Jan. 21, 1970 (gage height, 3.68 ft), from rating curve extended above 900 cfs; minimum daily, 1.0 cfs Dec. 9, 1967.

REMARKS.--Water for Dutch Flat No. 1 powerplant (see sta 11421750) and Dutch Flat No. 2 flume (see sta 11421760) is diverted from Drum Afterbay just upstream from station.

COOPERATION.--Records collected by Pacific Gas and Electric Co. under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.6	5.8	6.1	10	5.8	9.7	11	11	11	11	11	11
2	5.7	5.8	6.0	10	5.8	21	11	11	11	11	12	11
3	5.5	5.8	6.0	9.9	6.1	14	11	11	11	11	11	11
4	5.5	5.7	6.3	9.9	5.8	11	10	11	11	12	11	11
5	5.5	5.7	6.3	9.9	5.7	12	10	11	12	11	11	11
6	5.7	5.4	6.4	9.7	5.8	11	93	11	11	11	11	11
7	5.5	5.5	6.3	9.7	5.7	11	166	11	11	11	11	11
8	5.5	5.4	6.3	9.5	5.7	11	138	11	11	11	11	11
9	5.5	5.5	6.3	7.8	6.1	11	84	11	11	11	10	11
10	5.7	5.5	6.4	5.8	6.1	11	106	12	11	11	11	11
11	5.7	5.4	9.1	5.7	6.4	11	145	11	10	11	11	11
12	5.7	5.5	10	6.0	6.1	11	15	11	11	11	11	12
13	5.8	5.5	7.8	37	5.8	11	11	11	11	11	11	12
14	5.4	5.5	6.0	215	5.7	11	12	11	10	11	11	12
15	5.7	5.4	6.0	7.8	6.3	11	11	11	11	11	11	12
16	5.5	5.5	6.1	298	10	11	12	11	11	11	11	12
17	5.7	5.7	6.1	111	5.8	11	11	11	11	11	11	12
18	5.7	5.7	6.1	6.0	5.7	11	11	11	11	11	11	12
19	5.7	5.5	6.1	145	5.8	11	11	11	10	12	10	12
20	5.7	5.5	6.0	55	5.5	11	11	11	10	11	11	12
21	5.5	5.4	6.1	834	5.7	11	12	11	10	12	11	11
22	5.4	5.5	5.5	181	6.1	11	11	11	11	11	11	11
23	5.4	5.4	6.3	141	6.1	11	11	11	10	11	11	11
24	5.5	5.4	155	215	6.0	11	10	11	10	11	11	11
25	5.7	5.7	78	31	5.8	11	10	11	11	11	11	11
26	5.7	6.0	6.1	33	5.7	11	10	11	11	12	11	11
27	5.7	6.1	7.4	170	6.0	11	11	11	10	11	11	12
28	5.7	6.1	9.7	6.1	6.0	11	11	11	10	11	11	11
29	5.4	6.0	10	6.1	-----	11	11	11	10	12	11	11
30	5.4	6.3	10	6.3	-----	11	11	11	10	12	11	11
31	5.4	-----	10	6.1	-----	11	-----	11	-----	12	11	-----
TOTAL	174.1	169.2	435.8	2,608.3	169.1	353.7	998	342	320	348	340	340
MEAN	5.62	5.64	14.1	84.1	6.04	11.4	33.3	11.0	10.7	11.2	11.0	11.3
MAX	6.6	6.3	155	834	10	21	166	12	12	12	12	12
MIN	5.4	5.4	5.5	5.7	5.5	9.7	10	11	10	11	10	11
AC-FT	345	336	864	5,170	335	702	1,980	678	635	690	674	674

CAL YR 1969 TOTAL 5,674.3 MEAN 15.5 MAX 369 MIN 5.4 AC-FT 11,250  
WTR YR 1970 TOTAL 6,598.2 MEAN 18.1 MAX 834 MIN 5.4 AC-FT 13,090

## 11421780 CHICAGO PARK FLUME NEAR DUTCH FLAT, CALIF.

LOCATION.--Lat 39°12'55", long 120°50'23", in NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.34, T.16 N., R.10 E., Nevada County, on left bank 670 ft downstream from Dutch Flat Afterbay and 0.6 mile north of Dutch Flat.

PERIOD OF RECORD.--November 1965 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,600 ft (from topographic map). Prior to Sept. 8, 1968, at site 420 ft upstream at same datum.

EXTREMES.--Period of record: Maximum daily discharge, 1,040 cfs Mar. 27, 1970; no flow for several days in each year.

REMARKS.--Records fair. Flow regulated by Dutch Flat Afterbay.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	723	515	536	703	1,030	862	852	691	710	399	490	789
2	806	511	532	836	1,030	823	878	691	758	380	744	792
3	736	519	532	832	1,030	1,030	929	728	761	0	583	814
4	720	564	547	794	1,030	1,030	845	712	736	0	611	753
5	755	544	456	790	989	823	769	712	735	0	616	798
6	687	646	246	773	871	1,030	753	768	729	0	614	771
7	724	528	245	764	976	977	837	726	790	0	615	805
8	767	636	507	795	1,030	1,030	742	821	739	0	612	800
9	732	568	522	775	871	1,030	792	811	840	0	616	787
10	726	475	501	1,030	909	1,030	802	776	726	0	616	830
11	685	494	543	967	938	979	610	657	761	286	628	722
12	722	519	588	784	1,030	1,030	709	881	724	148	625	203
13	765	587	633	1,030	1,030	1,030	699	770	553	475	612	0
14	732	570	553	1,030	1,030	1,030	773	744	515	573	614	0
15	727	538	571	1,030	1,030	1,030	765	707	475	596	601	0
16	798	359	405	1,030	815	1,030	764	805	691	503	615	0
17	759	639	217	1,030	1,030	975	699	747	537	645	612	0
18	740	539	207	1,030	992	993	661	768	445	610	614	0
19	700	564	498	1,030	1,030	929	673	670	441	573	733	0
20	752	540	957	1,030	1,030	958	705	803	267	625	793	0
21	729	553	1,030	1,030	950	948	763	788	240	606	807	0
22	696	583	1,030	1,030	903	912	741	794	486	598	778	0
23	768	429	780	1,030	1,030	948	705	698	403	596	792	44
24	719	669	1,020	1,030	924	903	742	753	432	633	754	33
25	767	305	929	1,030	1,030	901	730	746	417	609	793	58
26	724	488	909	1,030	1,030	896	749	769	402	607	794	389
27	681	91	856	1,030	846	1,040	716	820	446	592	815	578
28	512	280	917	1,030	1,030	771	671	723	497	655	754	632
29	471	339	803	1,030	-----	1,030	651	729	399	567	778	595
30	523	220	793	1,030	-----	1,020	765	778	458	623	837	564
31	581	-----	894	1,030	-----	847	-----	779	-----	606	791	-----
TOTAL	21,927	14,812	19,757	29,413	27,464	29,865	22,490	23,365	17,113	12,505	21,257	11,757
MEAN	707	494	637	949	981	963	750	754	570	403	686	392
MAX	806	669	1,030	1,030	1,030	1,040	929	881	840	655	837	830
MIN	471	91	207	703	815	771	610	657	240	0	490	0
AC-FT	43,490	29,380	39,190	58,340	54,470	59,240	44,610	46,340	33,940	24,800	42,160	23,320
CAL YR 1969	TOTAL 249,184.80		MEAN 683		MAX 1,030		MIN 0		AC-FT 494,300			
WTR YR 1970	TOTAL 251,725.00		MEAN 690		MAX 1,040		MIN 0		AC-FT 499,300			

## SACRAMENTO RIVER BASIN

## 11421790 BEAR RIVER BELOW DUTCH FLAT AFTERBAY, NEAR DUTCH FLAT, CALIF.

LOCATION.--Lat 39°12'55", long 120°50'23", in NE¼NW¼ sec.34, T.16 N., R.10 E., Placer County, at the left bank downstream end of spillway, on Dutch Flat Afterbay Dam, 0.6 mile north of Dutch Flat.

DRAINAGE AREA.--21.5 sq mi.

PERIOD OF RECORD.--December 1965 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 2,600 ft (from topographic map).

EXTREMES.--Current year: Maximum daily discharge, 1,330 cfs Jan. 21; minimum daily, 4.7 cfs Mar. 18, 19, 25.

Period of record: Maximum daily discharge, 1,500 cfs Jan. 20, 1969; minimum daily, 0.08 cfs Mar. 8-19, 1968.

REMARKS.--Records good. Water is imported from South Yuba River basin via South Yuba Canal (see sta 11414200) and Drum Canal above forebay (see sta 11414190). Chicago Park flume (see sta 11421780) diverts above station to Chicago Park powerplant. Records include spill over Dutch Flat Afterbay Dam. This station measures flow from Dutch Flat Afterbay in connection with a Federal Power Commission project.

COOPERATION.--Records of elevations for Dutch Flat Afterbay furnished by Nevada Irrigation District.

REVISIONS (WATER YEARS).--WRD Calif. 1967: 1966.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	9.8	6.4	6.1	6.1	6.1	5.5	8.3	9.8	9.8	10	9.8
2	12	6.4	6.4	6.1	6.1	25	5.5	10	9.8	9.8	10	9.8
3	12	6.4	6.4	6.1	6.1	14	6.1	9.8	9.5	112	9.8	9.8
4	12	6.4	6.4	6.1	6.1	6.1	6.1	9.8	9.5	44	9.8	9.8
5	12	6.4	6.4	6.1	6.1	6.1	6.1	10	9.5	160	10	9.8
6	12	6.4	6.4	6.1	6.1	6.1	6.4	10	9.5	65	10	9.8
7	12	6.4	6.4	6.1	6.1	6.1	6.4	10	9.5	43	10	9.8
8	12	6.4	6.4	6.1	6.1	6.1	6.4	10	9.5	9.8	10	9.8
9	12	6.4	6.4	6.1	6.1	6.1	6.4	10	9.8	9.8	10	9.8
10	12	6.4	6.4	18	6.1	6.1	6.1	10	9.8	9.8	10	9.8
11	12	6.4	6.4	6.1	6.1	6.1	6.1	10	9.8	9.8	10	9.8
12	12	6.4	6.4	6.1	6.1	6.1	6.4	10	9.8	10	10	9.8
13	12	6.4	6.4	52	6.1	6.1	6.4	11	9.8	10	10	9.8
14	12	6.4	6.4	600	6.1	6.1	6.4	11	9.8	10	10	9.8
15	12	6.4	6.4	121	6.1	6.1	6.4	10	9.8	10	10	13
16	12	6.4	6.4	689	9.5	6.1	6.4	10	9.8	10	10	20
17	12	6.4	6.4	551	40	5.2	6.4	10	9.8	9.8	10	20
18	12	6.4	6.4	112	85	4.7	6.4	10	9.8	9.8	10	20
19	12	6.4	6.4	209	21	4.7	6.4	10	9.8	9.8	10	20
20	12	6.4	6.4	271	6.1	4.9	6.4	10	9.8	9.8	10	20
21	12	6.4	6.4	1,330	6.1	4.9	6.4	11	9.8	10	10	20
22	12	6.4	6.4	791	6.1	4.9	6.4	11	9.8	10	10	20
23	12	6.4	11	284	6.1	4.9	6.4	11	9.8	10	10	16
24	12	6.4	511	609	6.1	4.9	6.4	11	9.8	10	10	9.5
25	12	6.4	226	278	6.1	4.7	6.4	11	9.8	10	9.8	9.5
26	12	6.4	17	117	6.1	5.1	6.4	12	9.8	10	9.8	9.5
27	12	6.4	6.1	517	6.1	5.5	6.4	11	9.8	10	9.8	9.5
28	12	6.4	6.1	122	6.1	5.5	6.4	10	9.8	10	9.8	9.5
29	12	6.4	6.1	53	-----	5.5	6.4	10	9.8	10	9.8	9.5
30	12	6.4	6.1	37	-----	5.5	6.4	10	9.8	10	9.8	9.8
31	12	-----	6.1	15	-----	5.3	-----	10	-----	10	9.8	-----
TOTAL	372	195.4	936.3	6,843.1	301.9	200.6	188.7	317.9	292.2	682.0	308.2	373.0
MEAN	12.0	6.51	30.2	221	10.8	6.47	6.29	10.3	9.74	22.0	9.94	12.4
MAX	12	9.8	511	1,330	85	25	6.4	12	9.8	160	10	20
MIN	12	6.4	6.1	6.1	6.1	4.7	5.5	8.3	9.5	9.8	9.8	9.5
AC-FT	738	388	1,860	13,570	599	398	374	631	580	1,350	611	740
CAL YR 1969	TOTAL 29,487.0 MEAN 80.8 MAX 1,500 MIN 3.4 ACFT 58,490											
WAT YR 1970	TOTAL 11,011.3 MEAN 30.2 MAX 1,330 MIN 4.7 ACFT 21,840											

NOTE.--No gage-height record Jan. 1 to Feb. 3.

## 11421800 ROLLINS RESERVOIR NEAR COLFAX, CALIF.

LOCATION.--Lat 39°08'05", long 120°56'54", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.22, T.15 N., R.9 E., Placer County, on left bank just upstream from Rollins Dam on Bear River, 2.3 miles north of Colfax.

DRAINAGE AREA.--104 sq mi.

PERIOD OF RECORD.--December 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Nevada Irrigation District).

EXTREMES.--Current year: Maximum contents, 70,100 acre-ft Jan. 21 (elevation, 2,175.8 ft); minimum, 50,700 acre-ft Sept. 26-28 (elevation, 2,150.8 ft).

Period of record: Maximum contents, 70,100 acre-ft Jan. 21, 1970 (elevation, 2,175.8 ft); minimum since reservoir first filled, 28,100 acre-ft Mar. 7, 1965 (elevation, 2,110.0 ft).

REMARKS.--Reservoir is formed by earthfill dam. Storage began Dec. 15, 1964. Usable capacity, 65,720 acre-ft between elevations 1,970.0 ft (invert of outlet tunnel) and 2,171.0 ft (spillway crest) above mean sea level. Dead storage, 270 acre-ft. Several diversions into and out of basin upstream for power development and irrigation. Stored water is released into Bear River, part of which is diverted to Pacific Gas and Electric's Bear River Canal for power development. Water is later used for irrigation. Records, including extremes, represent total contents at 2400 hours.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

2,050	8,940	2,140	43,800
2,060	11,200	2,160	57,300
2,080	16,800	2,176	70,200
2,120	32,700		

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60,400	66,200	64,200	66,700	67,000	67,200	66,800	66,800	66,700	61,900	53,700	61,500
2	61,000	66,300	64,300	66,700	67,000	67,000	66,800	66,700	66,700	61,600	53,900	61,900
3	61,500	66,300	64,400	66,700	66,900	67,000	66,900	66,800	66,700	60,700	54,000	62,300
4	61,900	66,400	64,500	66,600	67,000	67,000	66,800	66,800	66,700	59,800	54,200	62,700
5	62,400	66,500	64,500	66,600	66,900	66,900	66,800	66,700	66,700	58,200	54,200	63,100
6	62,800	66,600	64,000	66,700	66,900	67,000	66,800	66,700	66,700	58,100	54,300	63,500
7	63,200	66,500	63,500	66,700	66,900	67,000	66,800	66,700	66,700	57,200	54,400	63,900
8	63,800	66,600	63,700	66,700	66,900	67,200	66,800	66,700	66,700	56,100	54,400	64,300
9	64,300	66,500	63,800	66,900	66,900	67,200	66,800	66,700	66,700	55,100	54,500	64,800
10	64,700	66,300	64,000	66,900	66,900	67,200	66,700	66,700	66,700	54,100	54,700	65,200
11	65,000	66,400	64,300	66,800	66,900	67,200	66,600	66,700	66,700	53,500	54,800	65,400
12	65,500	66,400	64,700	66,900	67,000	67,200	66,700	66,800	66,700	52,700	54,900	64,800
13	66,000	66,500	65,100	67,200	67,100	67,200	66,700	66,800	66,400	52,400	55,000	63,900
14	66,300	66,500	65,200	68,100	67,000	67,200	66,800	66,800	66,300	52,400	55,100	62,800
15	66,700	66,400	65,500	67,300	67,000	67,200	66,800	66,700	66,200	52,500	55,200	61,700
16	66,700	66,200	65,400	68,300	67,200	67,200	66,800	66,800	66,300	52,400	55,200	60,700
17	66,600	66,400	64,900	68,000	67,100	67,200	66,800	66,700	66,200	52,600	55,400	59,700
18	66,600	66,400	64,400	67,400	67,100	67,200	66,700	66,700	66,000	52,700	55,500	58,600
19	66,600	66,500	65,000	67,700	67,000	67,200	66,700	66,700	65,700	52,800	55,800	57,500
20	66,600	66,400	66,900	67,600	67,000	67,100	66,800	66,700	65,200	53,000	56,300	56,500
21	66,600	66,400	67,200	70,100	66,900	67,000	66,800	66,700	64,500	53,000	56,700	55,500
22	66,600	66,400	66,800	68,200	66,900	67,000	66,800	66,700	64,400	53,300	57,200	54,400
23	66,700	66,200	67,500	68,000	66,900	67,100	66,800	66,700	64,100	53,200	57,600	53,400
24	66,600	66,400	67,700	67,900	66,800	67,100	66,800	66,700	63,900	53,300	57,900	52,400
25	66,600	66,100	67,200	67,500	66,900	66,900	66,700	66,700	63,500	53,400	58,400	51,300
26	66,600	66,200	66,900	67,300	66,900	66,800	66,800	66,700	63,200	53,400	58,800	50,700
27	66,500	65,300	66,700	67,700	66,800	66,900	66,800	66,700	62,900	53,500	59,400	50,700
28	66,300	64,900	66,700	67,300	66,900	66,800	66,700	66,700	62,700	53,700	59,700	50,700
29	66,200	64,600	66,700	67,200	-----	66,900	66,700	66,700	62,400	53,700	60,100	51,100
30	66,200	64,100	66,700	67,100	-----	66,900	66,800	66,700	62,300	53,800	60,600	51,000
31	66,200	-----	66,700	67,100	-----	66,700	-----	66,700	-----	53,900	61,100	-----
MAX	66,700	66,600	67,700	70,100	67,200	67,200	66,900	66,800	66,700	61,900	61,100	65,400
MIN	60,400	64,100	63,500	66,600	66,800	66,700	66,600	66,700	62,300	52,400	53,700	50,700
(a)	2,171.2	2,168.7	2,171.8	2,172.3	2,172.1	2,171.9	2,172.0	2,171.9	2,166.4	2,155.3	2,164.9	2,151.2
(b)	6,300	-2,100	+2,600	+400	-200	-200	+100	-100	-4,400	-8,400	+7,200	-10,100
CAL YR 1969	MAX 69,400	MIN 54,700	b +200									
WAT YR 1970	MAX 70,100	MIN 50,700	b -8,900									

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

## SACRAMENTO RIVER BASIN

## 11422000 BEAR RIVER CANAL INTAKE NEAR COLFAX, CALIF.

LOCATION.--Lat 39°07'58", long 120°57'12", in SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.22, T.15 N., R.9 E., Placer County, on right bank 600 ft downstream from canal inlet, 0.2 mile below Rollins Dam, and 2.2 miles north of Colfax.

PERIOD OF RECORD.--January 1912 to September 1953, October 1964 to current year. Monthly discharge only for some periods published in WSP 1315-A. Prior to 1913, published as Pacific Gas and Electric Co.'s Canal near Colfax.

GAGE.--Water-stage recorder. Altitude of gage is 1,980 ft (from topographic map). Prior to Mar. 25, 1946, water-stage recorder at site 1.5 miles downstream at different datum.

AVERAGE DISCHARGE.--47 years (1912-53, 1964-70), 274 cfs (198,500 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 499 cfs Apr. 20-22, 1966, Aug. 1-3, 1967; no flow at times in most years.

REMARKS.--Records good. Canal diverts from left bank of Bear River. Water is first used to develop power at Halsey and Wise Powerhouse, part of it is then distributed for irrigation and part is eventually spilled into North Fork American River.

COOPERATION.--Records collected by Pacific Gas and Electric Co. under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	453	456	458	437	447	440	440	439	454	455	457	455
2	452	456	458	437	447	440	439	440	454	455	457	454
3	452	456	458	437	448	432	438	439	454	455	457	454
4	452	456	458	438	449	424	437	440	454	456	457	454
5	452	439	458	438	440	424	437	453	454	456	457	453
6	452	433	458	439	437	431	437	459	454	456	457	454
7	451	432	458	440	437	438	437	469	455	456	457	453
8	451	432	458	440	437	329	438	473	454	456	457	454
9	451	432	458	404	438	0	439	473	454	456	458	454
10	451	435	458	405	438	0	439	474	453	456	457	454
11	451	437	458	404	438	0	439	473	454	457	457	454
12	451	441	458	402	439	0	440	468	454	457	458	454
13	452	442	458	403	418	0	440	465	454	457	458	454
14	455	441	458	380	417	0	440	460	455	458	458	455
15	457	442	458	356	437	0	440	454	455	458	458	455
16	455	442	458	365	438	0	440	455	456	458	458	455
17	455	443	458	361	439	0	441	456	457	458	458	455
18	455	444	457	397	438	0	442	456	455	458	458	456
19	454	426	447	420	437	0	443	457	453	458	458	456
20	455	456	436	409	437	74	444	457	453	457	458	456
21	456	456	439	385	437	106	443	456	454	457	458	456
22	456	456	436	346	438	107	443	453	454	456	457	456
23	456	456	437	346	438	107	442	453	454	456	457	457
24	457	448	388	365	438	107	442	453	454	456	456	457
25	457	438	388	404	438	238	442	453	454	457	456	457
26	457	438	444	404	438	399	441	453	455	457	456	457
27	457	438	444	404	438	437	440	454	455	457	455	457
28	457	448	444	404	438	439	440	454	455	457	456	457
29	456	457	445	404	-----	440	440	454	454	457	456	457
30	456	457	441	409	-----	440	440	454	455	457	456	458
31	456	-----	437	433	-----	442	-----	454	-----	457	455	-----
TOTAL	14,078	13,333	13,869	12,516	12,259	6,694	13,203	14,151	13,630	14,157	14,168	13,658
MEAN	454	444	447	404	438	216	440	456	454	457	457	455
MAX	457	457	458	440	449	442	444	474	457	458	458	458
MIN	451	426	388	346	417	0	437	439	453	455	455	453
AC-FT	27,920	26,450	27,510	24,830	24,320	13,280	26,190	28,070	27,040	28,080	28,100	27,090
CAL YR 1969	TOTAL 157,537.00		MEAN 432		MAX 467	MIN 0	AC-FT 312,500					
WTR YR 1970	TOTAL 155,716.00		MEAN 427		MAX 474	MIN 0	AC-FT 308,900					



## 11422500 BEAR RIVER BELOW ROLLINS DAM, NEAR COLFAX, CALIF.

LOCATION.--Lat 39°07'53", long 120°57'29", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.22, T.15 N., R.9 E., Nevada County, on right bank 65 ft downstream from highway bridge, 0.5 mile downstream from Rollins Dam, and 2.2 miles north of Colfax.

DRAINAGE AREA.--105 sq mi.

PERIOD OF RECORD.--January 1912 to September 1913, October 1913 to July 1915 (gage heights and discharge measurements only), August 1915 to June 1917, November 1949 to September 1953, August 1964 to current year. Prior to August 1964, published as Bear River near Colfax. Monthly discharge only for some periods, published in WSP 1315-A. Records for November and December 1911 include diversion to Bear River Canal and are not equivalent.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,927.41 ft above mean sea level. Prior to Aug. 8, 1915, nonrecording gages at several sites above diversion dam 0.3 mile upstream at different datums. Aug. 8, 1915, to June 30, 1917, nonrecording gage 0.7 mile downstream at different datum. Nov. 1, 1949, to Sept. 30, 1953, at site 0.2 mile downstream at different datum.

AVERAGE DISCHARGE (unadjusted).--11 years (1912-13, 1915-16, 1950-53, 1964-70), 376 cfs (272,400 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 12,700 cfs Jan. 21 (gage height, 11.72 ft); minimum daily, 20 cfs Dec. 8.

Period of record: Maximum discharge 9,620 cfs Nov. 20, 1950 (gage height, 21.40 ft, site and datum then in use), from rating curve extended above 3,600 cfs on basis of slope-area measurement of maximum flow; no flow at times in 1912, 1952. Maximum discharge since construction of Rollins Dam in 1964, 12,700 cfs Jan. 21, 1970 (gage height, 11.72 ft), from rating curve extended above 6,000 cfs; minimum daily, 0.5 cfs Nov. 17, 1964.

REMARKS.--Records good. Flow regulated by Rollins Reservoir (see sta 11421800) beginning Dec. 15, 1964. Bear River Canal (see sta 11422000) diverts above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74	57	21	420	1,130	1,010	494	387	301	78	80	80
2	74	40	21	499	1,060	955	540	334	334	78	80	80
3	74	50	21	508	907	988	576	345	342	78	80	80
4	75	63	21	471	949	955	507	348	320	78	80	80
5	75	128	22	439	890	736	451	328	301	76	81	80
6	74	309	21	425	742	863	398	362	310	74	81	80
7	75	205	21	395	809	813	479	345	328	71	80	83
8	75	221	20	436	845	1,110	390	394	324	74	80	80
9	75	234	21	580	691	1,450	415	394	401	78	80	74
10	77	80	22	1,190	693	1,500	491	373	345	78	81	76
11	77	83	23	968	721	1,380	307	298	348	78	81	78
12	77	75	23	746	895	1,390	295	412	331	80	81	78
13	78	161	23	1,380	1,030	1,360	366	401	235	83	81	78
14	98	151	23	3,490	1,120	1,350	415	370	155	81	81	78
15	280	165	23	2,590	940	1,320	408	310	143	80	83	78
16	523	72	24	4,450	748	1,270	451	384	178	80	81	78
17	435	80	24	4,160	1,430	1,210	359	359	152	80	78	78
18	353	154	23	2,670	1,100	1,210	370	370	97	81	78	78
19	304	121	36	2,000	1,050	1,140	324	320	80	80	78	78
20	333	124	264	2,580	954	1,140	352	370	80	74	78	78
21	292	105	1,630	7,210	832	1,040	408	387	80	74	78	80
22	276	121	1,210	6,660	742	992	412	387	81	74	78	78
23	330	109	930	3,210	830	1,010	366	348	81	74	78	78
24	298	124	3,820	3,700	746	962	376	352	81	76	78	78
25	335	87	2,030	2,670	804	891	380	310	81	76	80	78
26	319	57	1,210	1,970	803	631	387	380	81	78	81	80
27	324	41	772	3,300	624	680	373	390	81	78	78	83
28	146	32	731	2,300	785	488	356	338	81	78	76	85
29	96	22	574	1,770	-----	656	345	338	80	78	78	78
30	80	22	559	1,500	-----	692	348	348	80	78	78	78
31	78	-----	573	1,290	-----	549	-----	342	-----	78	80	-----
TOTAL	5,880	3,301	14,736	65,977	24,870	31,741	12,139	11,124	5,912	2,402	2,466	2,369
MEAN	190	110	475	2,128	888	1,024	405	359	197	77.5	79.5	79.0
MAX	523	309	3,820	7,210	1,430	1,500	576	412	401	83	83	85
MIN	74	22	20	395	624	488	295	298	80	71	76	74
AC-FT	11,660	6,550	29,230	130,900	49,330	62,960	24,080	22,060	11,730	4,760	4,890	4,700
CAL YR 1969	TOTAL 239,859		MEAN 657		MAX 8,560		MIN 20		AC-FT 475,800			
WTR YR 1970	TOTAL 182,917		MEAN 501		MAX 7,210		MIN 20		AC-FT 362,800			

## SACRAMENTO RIVER BASIN

## 11423700 NEW CAMP FAR WEST RESERVOIR NEAR WHEATLAND, CALIF.

LOCATION.--Lat 39°03'01", long 121°18'53", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.21, T.14 N., R.6 E., on Yuba, Placer county line, in center of New Camp Far West Dam on the Bear River, 6.4 miles east of Wheatland, and 11.8 miles northeast of Sheridan.

DRAINAGE AREA.--283 sq mi.

PERIOD OF RECORD.--October 1966 to current year. October 1963 to September 1966 in reports of California Department of Water Resources.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by South Sutter Water District).

EXTREMES.--Current year: Maximum contents, 120,200 acre-ft Jan. 21 (elevation, 307.3 ft); minimum, 39,100 acre-ft Sept. 30 (elevation, 255.0 ft).  
Period of record: Maximum contents, 120,200 acre-ft Jan. 21, 1970 (elevation, 307.3 ft); minimum, 2,200 acre-ft Oct. 11, 1968 (elevation, 175.0 ft), may have been lower during period of no record Oct. 12-16, 1968.

REMARKS.--Reservoir is formed by an earthfill dam. Storage began Sept. 30, 1963. Usable capacity, 102,200 acre-ft between elevations 175.0 ft (bottom of lowest river outlet) and 300.0 ft (crest of spillway). Dead storage, 2,200 acre-ft. Records, including extremes, represent total contents at 2400 hours.

COOPERATION.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

170	1,400	250	34,200
180	3,000	260	44,000
190	4,800	270	55,500
200	7,000	280	69,500
210	9,800	290	85,600
220	14,000	300	104,400
230	19,400	320	151,000
240	25,800		

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74,500	83,000	86,400	105,900	107,200	108,500	105,900	103,300	105,300	93,100	69,800	47,900
2	74,200	83,200	86,200	105,700	107,000	107,700	105,700	103,300	104,800	92,600	69,100	47,300
3	74,000	83,200	86,000	105,900	106,800	107,000	105,700	103,300	104,600	91,800	68,200	46,800
4	73,700	83,300	86,200	105,900	106,600	107,200	105,500	103,300	104,400	91,200	67,500	46,200
5	73,500	83,300	86,000	105,700	106,600	106,800	105,500	103,100	104,000	90,500	66,800	45,600
6	73,500	83,500	86,000	105,700	106,600	106,800	105,500	102,900	103,600	89,900	66,100	45,000
7	73,500	83,500	85,800	105,700	106,400	106,800	105,500	102,900	103,500	89,200	65,400	44,500
8	73,400	83,700	85,800	105,700	106,400	108,100	105,500	102,900	103,500	88,200	64,700	43,900
9	73,400	83,800	85,800	106,400	106,400	107,900	105,500	102,900	103,300	87,500	63,900	43,500
10	73,400	84,200	86,000	107,400	106,100	107,900	105,500	103,100	102,900	86,700	63,200	43,100
11	73,200	84,200	86,000	107,000	106,100	107,700	105,300	103,300	103,100	85,800	62,500	42,700
12	73,000	83,800	86,200	106,800	106,600	107,400	105,300	103,500	103,100	85,000	61,700	42,300
13	73,000	83,700	86,200	107,900	108,300	107,200	105,300	103,600	103,100	84,300	61,000	42,000
14	73,000	83,800	86,200	112,600	107,900	107,200	105,300	104,200	102,900	83,500	60,300	41,700
15	73,400	84,300	86,200	109,600	107,200	107,200	105,500	104,600	102,500	82,900	59,400	41,500
16	74,300	84,500	86,000	112,600	107,700	107,000	105,500	104,800	102,100	82,200	58,700	41,200
17	75,100	84,800	86,000	111,100	108,500	107,000	105,500	105,100	101,800	81,400	57,900	40,900
18	76,100	85,000	85,800	109,400	107,700	107,000	105,500	105,100	101,400	80,800	57,200	40,700
19	76,900	85,300	86,400	109,000	107,200	107,000	105,300	105,100	100,800	80,000	56,300	40,400
20	77,700	85,400	88,400	109,600	107,000	107,000	105,300	105,100	100,300	79,300	55,500	40,200
21	78,500	85,600	94,800	120,200	106,800	107,000	105,300	105,300	99,900	78,700	54,800	39,900
22	79,200	86,000	98,400	113,300	106,600	106,800	104,800	105,300	99,100	77,900	54,100	39,700
23	79,500	86,200	102,500	110,300	106,600	106,800	104,400	105,300	98,600	77,200	53,400	39,500
24	80,100	86,400	112,200	110,700	106,400	106,600	104,400	105,100	98,000	76,400	52,900	39,500
25	80,800	86,500	109,400	109,400	106,400	106,600	104,200	105,300	97,300	75,600	52,300	39,400
26	81,400	86,500	107,700	108,500	106,400	106,400	103,800	105,500	96,500	75,000	51,600	39,300
27	82,100	86,500	106,800	110,500	106,100	106,100	103,500	105,500	95,800	74,200	50,900	39,300
28	82,500	86,500	106,600	109,200	106,400	106,100	103,500	105,500	95,200	73,400	50,300	39,200
29	82,900	86,500	106,400	108,300	-----	105,900	103,300	105,500	94,400	72,600	49,800	39,200
30	82,900	86,400	106,100	107,900	-----	106,100	103,300	105,300	93,900	71,600	49,200	39,100
31	83,000	-----	105,900	107,400	-----	106,100	-----	105,300	-----	70,800	48,500	-----
MAX	83,000	86,500	112,200	120,200	108,500	108,500	105,900	105,500	105,300	93,100	69,800	47,900
MIN	73,000	83,000	85,800	105,700	106,100	105,900	103,300	102,900	93,900	70,800	48,500	39,100
(a)	288.36	290.41	300.73	301.39	300.92	300.80	299.40	300.40	294.35	280.78	263.90	254.99
(b)	+8,500	+3,400	+19,500	+1,500	-1,000	-300	-2,800	+2,000	-11,400	-23,100	-22,300	-9,400

CAL YR 1969 MAX 118,900 MIN 73,000 b +58,300  
WTR YR 1970 MAX 120,200 MIN 39,100 b -35,400

a Elevation, in feet, at end of month.  
b Change in contents, in acre-feet.

## 11424000 BEAR RIVER NEAR WHEATLAND, CALIF.

LOCATION.--Lat 39°00'01", long 121°24'21", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.3, T.13 N., R.5 E., Yuba County, on right bank 100 ft downstream from bridge on U.S. Highway 99E, 1 mile southeast of Wheatland, and 6.5 miles downstream from Rock Creek.

DRAINAGE AREA.--292 sq mi.

PERIOD OF RECORD.--October 1928 to current year.

GAGE.--Water-stage recorder. Datum of gage is 71.92 ft above mean sea level. Prior to July 17, 1929, nonrecording gage at about same site at datum 9.58 ft higher. July 17, 1929, to Oct. 22, 1943, water-stage recorder at several sites within 300 ft of present site at datum 9.58 ft higher. Oct. 23, 1943, to June 23, 1964, at site 100 ft upstream at datum 7.00 ft higher. June 23, 1964, to May 28, 1970, at present site at datum 5.00 ft higher.

AVERAGE DISCHARGE (adjusted for change in storage and diversions from New Camp Far West Reservoir since 1966).--41 years, 438 cfs (317,300 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 21,900 cfs Jan. 22 (gage height, 13.96 ft); minimum daily, 4.6 cfs Nov. 3.

Period of record: Maximum discharge, 33,000 cfs Dec. 22, 1955 (gage height, 19.30 ft, site and datum then in use); maximum gage height, 20.83 ft Nov. 21, 1950, site and datum then in use; no flow at times.

REMARKS.--Records good. Natural flow of stream affected by inflow from Yuba River and American River basins. Flow regulated by Lake Combie (usable capacity, 7,840 acre-ft), Rollins Reservoir since December 1964 (see sta 11421800) and New Camp Far West Reservoir since October 1963 (see sta 11423700). Many diversions for irrigation and power. Records of chemical analyses for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	7.7	109	710	1,690	1,440	571	13	24	12	10	13
2	14	6.5	109	616	1,450	1,960	505	14	19	12	10	13
3	13	4.6	109	606	1,300	1,410	505	16	17	11	6.6	9.6
4	10	6.0	109	606	1,250	1,320	549	14	16	11	6.6	12
5	9.6	11	109	585	1,160	1,340	505	12	18	10	7.2	13
6	10	42	109	550	1,110	1,120	430	14	17	8.4	7.8	13
7	9.6	293	109	520	1,010	1,080	360	16	17	11	11	13
8	10	420	109	510	1,020	1,810	360	17	17	12	13	16
9	11	420	72	644	1,010	1,840	323	19	17	12	13	11
10	12	274	38	1,370	922	1,790	323	21	17	11	11	8.4
11	13	76	98	1,460	892	1,660	343	17	17	11	8.4	7.8
12	12	264	112	1,270	946	1,520	258	14	16	10	11	9.0
13	12	162	126	1,400	1,220	1,450	318	14	17	12	12	11
14	12	73	126	5,580	2,230	1,400	215	14	13	9.6	14	11
15	28	36	123	6,670	1,570	1,360	130	15	12	12	11	10
16	36	38	123	6,630	1,290	1,330	181	15	10	11	10	10
17	33	38	123	7,560	2,280	1,280	169	15	9.0	15	12	8.4
18	33	36	126	4,590	1,940	1,230	128	26	12	12	11	8.4
19	30	38	130	2,650	1,500	1,180	100	52	13	12	9.6	9.6
20	29	34	301	3,390	1,320	1,160	73	48	11	10	10	9.0
21	29	44	470	10,600	1,200	1,170	42	56	15	10	12	8.4
22	29	40	455	14,600	1,070	1,120	161	75	12	8.4	15	7.8
23	27	40	530	6,790	988	1,090	120	81	10	6.0	16	7.8
24	27	48	5,100	5,820	1,000	1,080	41	67	8.4	6.6	13	8.4
25	24	66	6,080	4,640	952	1,040	13	52	8.4	7.2	13	7.2
26	30	84	2,870	3,240	940	934	13	30	9.0	6.0	13	6.6
27	27	107	1,570	4,260	916	766	13	28	11	6.6	14	6.6
28	27	109	1,110	4,220	850	748	13	44	10	10	13	7.2
29	25	109	946	2,940	-----	648	13	48	11	9.0	16	9.0
30	10	109	820	2,290	-----	676	13	39	12	11	15	7.8
31	6.5	-----	732	1,950	-----	706	-----	24	-----	10	15	-----
TOTAL	613.7	3,035.8	23,053	109,267	35,026	38,658	6,788	930	415.8	315.8	360.2	293.0
MEAN	19.8	101	744	3,525	1,251	1,247	226	30.0	13.9	10.2	11.6	9.77
MAX	36	420	6,080	14,600	2,280	1,960	571	81	24	15	16	16
MIN	6.5	4.6	38	510	850	648	13	12	8.4	6.0	6.6	6.6
AC-FT	1,220	6,020	45,730	216,700	69,470	76,680	13,460	1,840	825	626	714	581
(a)	2,090	0	0	0	0	105	14,220	17,990	19,740	21,300	20,500	9,990

CAL YR 1969 TOTAL 278,707.5 MEAN 764 MAX 16,800 MIN 4.6 AC-FT 552,800 MEAN b 1,000 AC-FT b 727,000  
WTR YR 1970 TOTAL 218,756.3 MEAN 599 MAX 14,600 MIN 4.6 AC-FT 433,900 MEAN b 696 AC-FT b 504,400

a Diversion, in acre-feet, to Camp Far West North and South Canals, and South Sutter Conveyance Canal.

b Adjusted for diversions from and change in contents in New Camp Far West Reservoir.

## SACRAMENTO RIVER BASIN

11424600 WELLMAN CREEK NEAR SMARTVILLE, CALIF.

LOCATION.--Lat 39°11'37", long 121°20'23", in SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.31, T.16 N., R.6 E., Yuba County, on right bank 4 ft upstream from culvert on Smartville-Hammonton Road, 2.3 miles southwest of Smartville.

DRAINAGE AREA.--0.59 sq mi.

PERIOD OF RECORD.--Water years 1960-67 (annual maximum), October 1967 to current year.

GAGE.--Water-stage recorder with tipping-bucket rain gage, crest-stage gages, and culvert control. Altitude of gage is 495 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 179 cfs Jan. 14 (gage height, 14.46 ft), from rating curve extended above 44 cfs on basis of computation of flow through culverts and over roadway at gage height 14.46 ft; no flow for several months.

Period of record: Maximum discharge, 467 cfs Jan. 20, 1964 (gage height, 15.66 ft), from rating curve extended above 40 cfs on basis of computation of flow through culverts and over roadway at gage heights 12.39, 12.65, 13.94, 14.56, and 15.66 ft; no flow for several months in each year.

REMARKS.--Records good. No regulation or diversion above station. Small ditch diverts some flow into basin at gage during heavy storms.

REVISIONS (WATER YEARS).--WRD Calif. 1969: 1968(M).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			0	.01	.12	12	.07	.02				
2			0	.01	.10	.54	.07	.02				
3			0	0	.08	.24	.06	.02				
4			0	0	.07	3.7	.06	.01				
5			0	0	.07	.57	.07	.01				
6			0	0	.06	.24	.07	.01				
7			0	0	.06	2.2	.06	.01				
8			0	.01	.06	5.5	.06	.02				
9			0	3.4	.05	.50	.06	.02				
10			0	.45	.05	.64	.06	.02				
11			0	.45	.05	.27	.06	.02				
12			0	.82	.32	.21	.06	.02				
13			0	5.7	5.8	.18	.06	.02				
14			0	19	1.6	.16	.07	.01				
15			0	2.8	.24	.14	.06	.01				
16			0	12	3.1	.14	.06	0				
17			0	.59	1.4	.14	.07	0				
18			0	.16	.37	.12	.06	0				
19			0	2.8	.18	.10	.06	0				
20			.74	5.5	.16	.10	.06	0				
21			5.1	33	.12	.10	.06	0				
22			.06	3.2	.10	.10	.05	0				
23			5.9	11	.08	.10	.05	0				
24			15	3.7	.08	.08	.05	0				
25			3.3	.59	.07	.08	.05	0				
26			.30	.78	.06	.08	.05	0				
27			.05	6.5	.06	.07	.05	0				
28			.03	.50	.72	.08	.04	0				
29			.02	.27	-----	.07	.03	0				
30			.01	.18	-----	.07	.03	0				
31		-----	.01	.16	-----	.07	-----	0	-----			-----
TOTAL	0	0	30.52	113.58	15.23	28.59	1.72	.24	0	0	0	0
MEAN	0	0	.98	3.66	.54	.92	.057	.007	0	0	0	0
MAX	0	0	15	33	5.8	12	.07	.02	0	0	0	0
MIN	0	0	0	0	.05	.07	.03	0	0	0	0	0
AC-FT	0	0	61	225	30	57	3.4	.5	0	0	0	0
(a)	1.07	1.30	8.40	10.30	3.30	3.00	.10	0	.70	0	0	0

CAL YR 1969 TOTAL 333.78 MEAN .91 MAX 49 MIN 0 ACFT 662  
WAT YR 1970 TOTAL 189.88 MEAN .52 MAX 33 MIN 0 ACFT 377

a Precipitation, in inches.

## 11425000 FEATHER RIVER AT NICOLAUS, CALIF.

LOCATION.--Lat 38°54'01", long 121°35'00", T.12 N., R.3 E., Sutter County, on left bank at highway bridge at Nicolaus, 2.9 miles downstream from Bear River, and at mile 9.4.

DRAINAGE AREA.--5,920 sq mi (revised).

PERIOD OF RECORD.--June 1921 to December 1942 (low-water periods only), April 1943 to current year.

GAGE.--Water-stage recorder. Gage is set to datum of Corps of Engineers which is 3.30 ft below mean sea level. Prior to November 1931, on middle fender pier of bridge 0.3 mile upstream at same datum. Since June 1960, auxiliary water-stage recorder at various sites near highway bridge for low-water periods.

AVERAGE DISCHARGE.--27 years, 8,113 cfs (5,878,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 146,000 cfs Jan. 22 (gage height, 46.81 ft); minimum daily, 1,920 cfs June 3.

Period of record: Maximum discharge since 1943, 357,000 cfs Dec. 23, 1955; maximum gage height, 51.60 ft Dec. 23, 1955; no flow Aug. 2-18, 1924, July 11-22, 24, 26, Aug. 1, 1931.

REMARKS.--Records fair. Flow partly regulated by many reservoirs (total capacity, 6,868,000 acre-ft), the largest of which are Lake Oroville (see sta 11406800) completed in 1968, Lake Almanor (see sta 11399000) completed in 1913, and New Bullards Bar Reservoir (see sta 11413515) completed in 1969. Diversions for irrigation of about 87,000 acres between stations at Oroville and at Nicolaus. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3,950	3,390	3,830	19,200	59,900	17,000	5,430	4,600	3,480	2,330	3,650	5,900
2	3,720	3,340	3,960	16,800	45,000	25,700	4,680	4,650	2,220	2,290	3,860	6,500
3	3,630	3,310	4,060	15,200	36,700	24,400	4,580	4,510	1,920	2,220	4,100	6,530
4	3,560	3,390	4,070	14,900	26,300	23,300	4,470	4,680	2,400	2,200	4,360	6,590
5	3,490	3,520	4,040	13,400	19,900	23,500	4,350	4,680	2,750	2,180	4,720	6,650
6	3,460	3,620	4,010	8,850	20,100	21,600	4,220	4,760	2,700	2,130	4,900	6,680
7	3,430	3,710	3,990	6,510	17,300	20,000	4,020	4,880	2,550	2,070	5,020	6,700
8	3,420	3,940	4,280	6,270	14,300	23,000	3,880	3,740	2,500	2,050	5,040	6,690
9	3,390	3,870	4,450	6,350	14,000	25,000	3,760	3,030	2,500	2,040	5,080	7,230
10	3,400	3,830	4,440	8,000	13,800	24,800	3,670	3,130	2,500	2,040	5,160	7,910
11	3,350	3,590	4,770	11,900	12,900	25,300	3,630	4,530	2,600	2,040	5,230	7,860
12	3,350	3,680	5,270	14,600	14,500	23,600	3,450	5,120	2,800	2,020	5,370	7,830
13	3,510	3,730	5,800	16,800	15,800	23,200	3,340	5,300	2,750	2,010	5,450	7,780
14	3,330	3,600	6,630	33,400	22,800	20,800	3,240	5,280	2,740	1,980	5,460	7,700
15	3,370	3,550	6,940	62,200	24,400	19,500	2,930	5,350	2,720	1,940	5,590	7,630
16	3,590	3,580	7,030	78,200	20,800	18,700	2,920	5,250	2,700	1,980	5,650	7,600
17	3,620	3,890	6,740	109,000	24,400	15,900	2,880	5,110	2,690	2,040	5,630	7,460
18	3,520	3,950	6,260	110,000	26,800	14,600	2,760	4,600	2,680	2,080	5,580	7,300
19	3,460	3,960	6,260	97,600	22,800	13,700	2,590	3,850	2,660	2,080	5,580	7,290
20	3,440	3,960	7,070	94,200	20,100	12,700	2,490	3,900	2,650	2,100	5,560	7,290
21	3,460	3,970	9,630	94,200	18,600	9,280	2,450	3,630	2,620	2,610	5,600	7,090
22	3,460	3,950	11,000	138,000	18,500	8,400	2,430	3,610	2,580	2,870	5,840	5,570
23	3,450	3,940	8,240	121,000	18,500	7,890	2,450	3,500	2,560	2,890	5,940	5,270
24	3,430	3,940	17,800	131,000	18,800	7,730	2,430	3,370	2,540	2,860	6,030	5,250
25	3,430	3,980	39,600	138,000	20,500	7,340	2,340	3,310	2,520	2,880	6,240	5,190
26	3,420	3,920	39,200	130,000	16,700	6,900	2,310	3,210	2,500	2,930	6,440	5,260
27	3,410	3,870	32,800	122,000	15,000	5,350	2,350	2,730	2,470	3,000	6,570	5,560
28	3,450	3,850	28,200	118,000	15,200	4,810	2,740	2,350	2,430	3,030	6,600	5,580
29	3,430	3,870	25,300	101,000	-----	4,740	4,350	2,270	2,400	3,220	6,550	5,440
30	3,420	3,840	24,500	96,200	-----	5,260	4,410	2,650	2,370	3,400	6,570	4,730
31	3,430	-----	23,500	79,600	-----	5,810	-----	3,570	-----	3,510	6,420	-----
TOTAL	107,780	112,540	363,670	2,012,444	614,400	489,810	101,550	125,150	77,500	75,020	169,790	198,060
MEAN	3,477	3,751	11,730	64,920	21,940	15,800	3,385	4,037	2,583	2,420	5,477	6,602
MAX	3,950	3,980	39,600	138,000	59,900	25,700	5,430	5,350	3,480	3,510	6,600	7,910
MIN	3,330	3,310	3,830	6,270	12,900	4,740	2,310	2,270	1,920	1,940	3,650	4,730
AC-FT	213,800	223,200	721,300	3,992M	1,219M	971,500	201,400	248,200	153,700	148,800	336,800	392,900
CAL YR 1969	TOTAL 4,651,080		MEAN 12,740		MAX 82,800		MIN 1,310		ACFT 9,225,000			
WAT YR 1970	TOTAL 4,447,650		MEAN 12,190		MAX 138,000		MIN 1,920		ACFT 8,822,000			

## SACRAMENTO RIVER BASIN

## 11425500 SACRAMENTO RIVER AT VERONA, CALIF.

LOCATION.--Lat 38°46'51", long 121°36'12", in SE¼ sec.23, T.11 N., R.3 E., Sutter County, on left bank 0.8 mile southeast of Verona, 1 mile downstream from Feather River, 6.2 miles east of Knights Landing, and at mile 19.6 upstream from Sacramento.

DRAINAGE AREA.--21,257 sq mi (revised)

PERIOD OF RECORD.--May 1926 to September 1929 (low-water periods only), October 1929 to current year.

GAGE.--Water-stage recorder. Gage is set to datum of Corps of Engineers which is 3.00 ft below mean sea level.

AVERAGE DISCHARGE.--41 years (1929-70), 18,370 cfs (13,310,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 77,800 cfs Jan. 26 (gage height, 39.21 ft); minimum daily, 7,600 cfs June 4.

Period of record: Maximum discharge, 79,200 cfs Mar. 1, 1940 (gage height, 41.20 ft); minimum daily, 304 cfs July 23, 24, 1931; maximum reverse flow, 16,800 cfs Dec. 4, 1950, backwater from American River.

Maximum combined discharge of Sacramento River at Verona and Fremont weir, about 322,000 cfs Dec. 25, 1964.

REMARKS.--Records excellent except those for period May 21 to Aug. 14, which are good. Natural flow of stream affected by storage reservoirs, power developments, diversions for irrigation, return flow from irrigated areas, and bypassing for flood control. When discharge exceeds about 55,000 cfs, flow begins over Fremont weir (just upstream) into Yolo Bypass (see sta 11453000). Elevation of crest of Fremont weir is 33.5 ft (datum of Corps of Engineers). Records of chemical analyses for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13,700	12,400	12,600	58,300	69,400	41,300	19,000	13,800	10,300	10,500	10,700	14,100
2	13,200	12,400	12,600	56,000	67,800	46,600	18,100	13,500	9,400	10,600	10,500	14,700
3	12,600	12,300	12,800	53,300	66,800	51,100	17,300	13,300	9,220	10,300	10,700	15,000
4	12,100	12,300	12,800	49,800	65,600	51,100	16,400	13,500	7,600	10,100	10,800	15,200
5	11,700	12,500	12,800	44,900	64,400	50,400	15,800	14,000	7,780	10,100	11,000	15,200
6	11,600	12,800	12,800	38,200	63,700	50,300	15,300	13,900	8,200	10,100	11,200	15,100
7	11,400	13,800	12,700	32,500	62,900	50,200	14,600	13,600	8,500	9,580	11,400	15,100
8	11,400	14,700	13,000	29,800	61,900	49,600	14,100	13,300	8,500	9,040	11,600	15,300
9	11,400	14,900	13,400	28,400	61,100	51,100	13,600	12,400	9,400	8,680	11,900	16,300
10	11,200	14,600	13,600	30,900	60,600	52,500	13,300	12,800	9,940	8,500	12,100	17,100
11	11,100	14,200	13,800	38,100	60,000	53,600	12,800	14,200	10,800	8,680	12,300	17,600
12	11,200	13,700	14,300	44,600	59,500	53,500	12,200	15,500	11,600	8,680	12,300	18,200
13	11,400	12,700	15,600	52,400	59,100	52,200	12,000	15,900	11,300	9,400	12,500	18,400
14	11,600	11,500	25,700	59,200	59,800	49,700	12,100	15,900	11,000	9,760	12,300	18,000
15	11,600	11,500	31,200	64,900	60,300	46,500	11,600	15,800	10,800	9,940	12,400	17,700
16	13,000	12,300	30,600	67,900	59,600	43,700	11,400	14,900	10,700	9,760	12,500	17,400
17	12,800	12,800	28,200	71,900	59,200	40,500	11,200	13,900	10,300	9,580	12,500	17,200
18	13,400	13,000	25,600	73,100	59,500	37,700	10,700	13,000	10,300	9,670	12,400	17,000
19	13,700	13,000	24,200	72,600	58,800	35,600	10,100	11,600	10,100	9,760	12,300	16,900
20	13,400	13,100	26,100	71,800	57,700	33,900	9,500	11,600	10,100	9,940	12,300	16,900
21	13,100	13,100	33,900	71,400	56,500	30,100	9,160	11,400	10,100	9,940	12,500	16,700
22	12,900	13,000	39,100	75,100	55,500	27,400	8,810	11,000	10,100	10,700	12,900	15,400
23	12,800	13,000	44,000	75,000	54,000	25,700	8,380	11,000	9,940	10,700	13,100	14,300
24	12,800	13,000	55,100	75,200	52,200	24,900	8,110	10,900	9,760	10,700	13,300	13,900
25	12,700	13,000	62,800	76,500	50,900	24,100	8,400	10,900	9,400	10,700	13,500	13,500
26	12,700	12,900	63,500	77,300	48,600	23,100	8,860	10,500	9,040	10,700	13,800	13,200
27	12,700	12,800	62,900	76,100	45,000	21,400	9,930	10,100	8,900	10,800	14,100	13,500
28	12,700	12,800	62,100	75,500	42,200	19,800	10,600	8,680	8,800	10,700	14,300	13,700
29	12,700	12,700	61,200	73,800	-----	19,200	12,800	9,000	9,220	10,500	14,500	13,700
30	12,500	12,700	60,400	73,200	-----	19,100	13,800	9,500	9,940	10,700	14,700	13,100
31	12,500	-----	59,700	71,600	-----	19,300	-----	10,100	-----	10,700	14,800	-----
TOTAL	383,600	389,500	969,100	1,859.3M	1,642.6M	1,195.2M	369,950	389,480	291,040	309,510	387,200	469,400
MEAN	12,370	12,980	31,260	59,980	58,660	38,550	12,330	12,560	9,701	9,984	12,490	15,650
MAX	13,700	14,900	63,500	77,300	69,400	53,600	19,000	15,900	11,600	10,800	14,800	18,400
MIN	11,100	11,500	12,600	28,400	42,200	19,100	8,110	8,680	7,600	8,500	10,500	13,100
AC-FT	760,900	772,600	1,922M	3,688M	3,258M	2,371M	733,800	772,500	577,300	613,900	768,000	931,100

CAL YR 1969 TOTAL 10,142,100 MEAN 27,790 MAX 68,300 MIN 9,020 AC-FT 20,120,000  
WTR YR 1970 TOTAL 8,655,880 MEAN 23,710 MAX 77,300 MIN 7,600 AC-FT 17,170,000

## 11426000 SACRAMENTO WEIR SPILL TO YOLO BYPASS, NEAR SACRAMENTO, CALIF.

LOCATION.--Lat 38°36'25", long 121°33'15", (unsurveyed), Sacramento County, on right bank 100 ft upstream and 100 ft downstream from weir, 3.2 miles upstream from American River, 4 miles northwest of Sacramento, and at mile 4.2 upstream from Sacramento.

PERIOD OF RECORD.--October 1939 to current year. Published as Sacramento weir near Sacramento 1939-61. Monthly discharge only for water years 1940-51, published in WSP 1735. Gage-height records collected at same site February 1926 to September 1934 and major flood flows only October 1934 to September 1939 are contained in reports of California Department of Water Resources.

GAGE.--Water-stage recorders and concrete weir crest. Gage is set to datum of Corps of Engineers. October 1939 to September 1942, October 1959 to September 1963, water-stage recorder or nonrecording gage at downstream end of weir. October 1942 to September 1959, water-stage recorder on left bank at Sacramento River opposite center of weir at same datum. February 1963 to Nov. 15, 1965, water-stage recorders on right bank 100 ft upstream and 100 ft downstream from ends of weir at same datum.

AVERAGE DISCHARGE.--31 years, 244 cfs (176,800 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 27,100 cfs Jan. 24 (gage height, 31.74 ft); no flow for several months.

Period of record: Maximum discharge, 118,000 cfs Mar. 26, 1928; maximum gage height, 33.01 ft Dec. 23, 1955; no flow during all or most of each year.

REMARKS.--Crest of weir is at elevation 25.0 ft and top of moveable gates at 31.0 ft. Weir consists of 48 gates each 38.1 ft long. Flow over weir enters Yolo Bypass by way of Sacramento Bypass. Flow regulated by weir gates. Since February 1963, stage is obtained by averaging the stage obtained at sites above and below the weir.

COOPERATION.--Records furnished by California Department of Water Resources and reviewed by Geological Survey, rounded to Survey standards.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				0	6,440							
2				0	1,440							
3				0	686							
4				0	586							
5				0	463							
6				0	384							
7				0	347							
8				0	283							
9				0	233							
10				0	174							
11				0	109							
12				0	72							
13				0	57							
14				114	70							
15				451	105							
16				781	74							
17				4,640	50							
18				18,400	63							
19				18,300	26							
20				10,100	0							
21				8,440	0							
22				12,800	0							
23				19,500	0							
24				24,800	0							
25				25,200	0							
26				17,800	0							
27				15,400	0							
28				13,100	0							
29				10,100	-----							
30				9,060	-----							
31		-----		7,910	-----		-----		-----			-----
TOTAL	0	0	0	216,896	11,662	0	0	0	0	0	0	0
MEAN	0	0	0	6,997	417	0	0	0	0	0	0	0
MAX	0	0	0	25,200	6,440	0	0	0	0	0	0	0
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	430,200	23,130	0	0	0	0	0	0	0
CAL YR 1969	TOTAL 232,106		MEAN 636	MAX 33,300	MIN 0	ACFT 460,400						
WAT YR 1970	TOTAL 228,558		MEAN 626	MAX 25,200	MIN 0	ACFT 453,300						

## SACRAMENTO RIVER BASIN

## 11426150 ONION CREEK NEAR SODA SPRINGS, CALIF.

LOCATION.--Lat 39°16'02", long 120°21'50", in SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.11, T.16 N., R.14 E., Placer County, Tahoe National Forest, on right bank 0.3 mile upstream from unnamed tributary, 1 mile upstream from mouth, and 4.0 miles south of Soda Springs.

DRAINAGE AREA.--3.58 sq mi.

PERIOD OF RECORD.--August 1959 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 5,900 ft (from topographic map).

AVERAGE DISCHARGE.--11 years, 9.64 cfs (6,980 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 914 cfs Jan. 21 (gage height, 3.64 ft), from rating curve extended above 110 cfs on basis of slope-area measurement at 960 cfs; maximum gage height, 3.82 ft Jan. 21 (backwater from debris); minimum daily discharge, 0.22 cfs Sept. 1, 2, 27-30.

Period of record: Maximum discharge, 1,750 cfs Dec. 23, 1964 (gage height, 4.98 ft in gage well, 6.82 ft, from floodmarks), from rating curve extended above 40 cfs on basis of slope-area measurement of maximum flow; minimum daily, 0.1 cfs for several days in 1959, 1961.

REMARKS.--Records good. No regulation or diversion above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.33	.43	.54	3.9	16	11	16	19	18	1.8	.59	.22
2	.33	.43	.49	3.9	15	10	18	24	18	1.8	.59	.22
3	.33	.43	.43	3.4	14	9.5	18	31	16	1.7	.59	.25
4	.33	.43	.49	3.4	15	9.5	19	36	15	1.5	.51	.29
5	.33	.54	.49	3.4	14	9.5	21	39	13	1.4	.51	.33
6	.33	.68	.49	3.2	14	9.1	23	36	12	1.2	.51	.33
7	.33	.68	.43	4.5	15	8.9	24	31	10	1.2	.51	.33
8	.38	.76	.43	5.9	15	7.8	24	28	10	1.2	.44	.29
9	.38	1.2	.43	8.9	15	7.3	25	33	13	1.2	.44	.29
10	.38	1.4	.49	10	14	6.8	25	30	8.3	1.2	.38	.29
11	.38	1.7	.49	9.4	14	6.3	25	24	6.8	1.2	.38	.25
12	.38	1.7	.54	9.4	15	6.8	24	23	6.8	1.1	.38	.25
13	.38	1.6	.49	9.4	14	8.9	22	25	7.3	.98	.38	.25
14	.38	1.2	.68	10	13	14	19	32	5.5	.86	.29	.29
15	5.4	1.2	.61	10	12	13	18	35	5.1	.86	.33	.29
16	5.5	1.4	.54	193	11	13	17	42	4.8	.86	.33	.29
17	1.2	.95	.54	46	12	13	16	48	4.5	.86	.29	.29
18	.76	.85	.61	23	11	11	16	46	4.5	.76	.29	.25
19	1.3	.85	4.6	26	11	9.5	15	41	4.5	.76	.29	.25
20	1.2	.85	37	47	9.5	11	15	32	4.2	.76	.29	.29
21	.95	.85	58	462	9.5	12	13	32	3.9	.67	.29	.29
22	.68	.76	10	256	9.5	15	13	32	3.3	.76	.29	.29
23	.54	.68	6.7	105	9.5	16	13	30	3.1	.76	.29	.29
24	.54	.68	19	90	9.5	20	13	28	2.9	.67	.29	.25
25	.54	.61	21	49	9.5	20	15	28	2.7	.67	.25	.25
26	.54	.61	11	38	10	19	15	28	3.3	.67	.25	.25
27	.54	.54	7.5	38	11	18	13	25	3.1	.59	.25	.22
28	.49	.61	6.3	28	11	19	13	22	2.9	.59	.25	.22
29	.49	.54	5.2	22	-----	19	12	21	2.5	.51	.25	.22
30	.49	.54	4.5	20	-----	16	15	20	2.3	.51	.25	.22
31	.49	-----	3.9	18	-----	15	-----	19	-----	.51	.25	-----
TOTAL	26.62	25.70	203.91	1,559.7	349.0	384.9	535	940	217.3	30.11	11.23	8.04
MEAN	.86	.86	6.58	50.3	12.5	12.4	17.8	30.3	7.24	.97	.36	.27
MAX	5.5	1.7	58	462	16	20	25	48	18	1.8	.59	.33
MIN	.33	.43	.43	3.2	9.5	6.3	12	19	2.3	.51	.25	.22
AC-FT	53	51	404	3,090	692	763	1,060	1,860	431	60	22	16

CAL YR 1969	TOTAL	5,297.73	MEAN	14.5	MAX	129	MIN	.29	ACFT	10,510
WAT YR 1970	TOTAL	4,291.51	MEAN	11.8	MAX	462	MIN	.22	ACFT	8,510

## PEAK DISCHARGE (BASE, 50 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	0800	2.70	180	1-23	2400	2.64	192
1-16	0630	3.18	464	5-5	1700	2.12	53
1-21	1700	3.64	914	5-17	1900	2.17	62



## 11426190 LAKE VALLEY CANAL NEAR EMIGRANT GAP, CALIF.

LOCATION.--Lat 39°17'58", long 120°39'11", in NE $\frac{1}{4}$  sec.32, T.17 N., R.12 E., Placer County, Tahoe National Forest, on right bank 0.2 mile upstream from inlet to Carpenter Flat Siphon, and 1 mile east of Emigrant Gap.

PERIOD OF RECORD.--October 1964 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 5,360 ft (from topographic map).

AVERAGE DISCHARGE.--6 years, 10.5 cfs (7,610 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 38 cfs Nov. 18, 1965; no flow for several months in each year.

REMARKS.--Canal diverts from right bank of the North Fork of North Fork American River 2.7 miles downstream from Lake Valley Reservoir to the Drum Canal in the Bear River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co. under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	28	26				0	16	15	32	30	29
2	28	28	25				0	16	4.0	32	30	29
3	28	28	24				0	16	1.5	32	30	29
4	29	28	24				0	15	1.3	31	30	29
5	29	28	23				0	24	1.0	31	30	29
6	29	28	23				0	29	1.0	31	30	29
7	29	28	22				0	28	1.1	18	30	30
8	29	28	21				0	29	1.2	.35	30	30
9	29	28	7.2				0	29	1.2	.29	29	30
10	29	28	0				0	29	1.1	.09	29	30
11	28	28	0				0	28	1.1	.09	29	30
12	28	28	0				0	28	1.2	.03	29	30
13	29	27	0				0	28	1.1	9.6	29	19
14	29	29	0				0	29	1.2	30	30	0
15	28	29	0				0	29	1.1	31	29	0
16	27	29	0				0	29	1.1	30	29	0
17	26	29	0				0	30	22	30	29	0
18	26	28	0				0	30	32	30	29	0
19	26	27	0				0	30	31	30	29	0
20	28	26	0				0	29	31	29	29	0
21	28	26	0				0	29	31	29	30	0
22	28	26	0				0	28	31	29	30	0
23	28	27	0				0	29	32	29	30	0
24	28	27	0				0	29	32	29	30	0
25	28	28	0				0	29	32	29	30	0
26	28	28	0				0	29	31	29	30	12
27	28	27	0				0	28	31	29	30	31
28	28	27	0				0	25	31	29	29	32
29	28	26	0		-----		0	21	31	30	29	32
30	28	26	0		-----		11	21	31	30	29	31
31	28	-----	0		-----		-----	21	-----	30	29	-----
TOTAL	871	828	195.2	0	0	0	11	810	464.2	749.45	915	511
MEAN	28.1	27.6	6.30	0	0	0	.37	26.1	15.5	24.2	29.5	17.0
MAX	29	29	26	0	0	0	11	30	32	32	30	32
MIN	26	26	0	0	0	0	0	15	1.0	.03	29	0
AC-FT	1,730	1,640	387	0	0	0	22	1,610	921	1,490	1,810	1,010

CAL YR 1969 TOTAL 4,213.20 MEAN 11.5 MAX 30 MIN 0 AC-FT 8,360  
WAT YR 1970 TOTAL 5,354.85 MEAN 14.7 MAX 32 MIN 0 AC-FT 10,620

## SACRAMENTO RIVER BASIN

## 11426200 NORTH FORK FORBES CREEK NEAR DUTCH FLAT, CALIF.

LOCATION.--Lat 39°08'37", long 120°45'30", in SE $\frac{1}{4}$  sec.17, T.15 N., R.11 E., Placer County, Tahoe National Forest, on right bank 0.2 mile downstream from Big Reservoir and 6.0 miles southeast of Dutch Flat.

DRAINAGE AREA.--1.68 sq mi.

PERIOD OF RECORD.--July 1956 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,980 ft (from topographic map).

AVERAGE DISCHARGE.--14 years, 4.68 cfs (3,390 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 377 cfs Jan. 22 (gage height, 4.76 ft); minimum daily, 0.30 cfs Dec. 30 to Jan. 8, Sept. 22-26, 28-30.

Period of record: Maximum discharge, 377 cfs Jan. 22, 1970 (gage height, 4.76 ft); no flow many days in 1964-66.

Maximum stage known, 6.40 ft probably Dec. 23, 1955, from floodmarks (discharge unknown).

REMARKS.--Flow regulated by Big Reservoir (capacity, 2,200 acre-ft). Some diversion above the station for mining.

COOPERATION.--Records furnished by Bureau of Reclamation and reviewed by Geological Survey.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	3.4	5.9	.30	28	10	2.5	1.4	.90	.60	.50	.40
2	2.7	3.4	5.8	.30	25	11	2.7	1.4	1.0	.60	.50	.40
3	2.7	3.4	5.7	.30	25	10	2.7	1.4	1.0	.60	.50	.40
4	2.6	3.6	5.6	.30	24	12	2.6	1.3	1.0	.60	.50	.40
5	2.6	4.2	5.6	.30	17	12	2.6	1.2	1.0	.60	.50	.40
6	2.6	5.2	5.5	.30	7.4	11	2.5	1.1	1.0	.60	.40	.40
7	2.5	6.4	5.4	.30	7.4	10	2.4	1.1	1.0	.60	.40	.40
8	2.6	6.5	5.4	.30	7.4	11	2.4	1.1	1.0	.60	.40	.40
9	2.7	6.4	5.4	.60	7.6	11	2.3	1.2	1.0	.60	.40	.40
10	2.7	6.4	5.4	1.1	7.2	12	2.2	1.2	1.0	.60	.40	.40
11	2.6	6.4	5.4	.60	7.0	12	2.2	1.2	1.0	.60	.50	.40
12	2.6	6.5	5.4	.60	7.1	11	2.1	1.1	.90	.50	.50	.40
13	2.6	6.5	5.3	1.2	7.3	11	2.3	1.0	.90	.50	.50	.40
14	2.6	6.5	5.2	3.0	7.1	11	2.7	1.0	.90	.50	.50	.40
15	2.8	6.6	5.1	1.7	6.9	10	2.5	1.0	.90	.50	.50	.40
16	3.0	6.6	5.0	4.1	7.2	9.5	2.5	1.0	.90	.50	.50	.40
17	2.8	6.5	4.9	4.2	7.4	8.7	2.4	.90	.90	.50	.50	.40
18	2.9	6.3	4.8	5.3	7.3	8.2	2.2	.90	.80	.50	.50	.40
19	3.3	6.2	5.1	35	8.5	7.6	2.6	.90	.80	.50	.50	.40
20	3.3	6.2	3.7	51	9.7	7.0	2.3	.90	.80	.50	.50	.40
21	3.3	6.2	1.5	155	8.9	6.6	2.0	.90	.80	.50	.50	.40
22	3.3	6.2	.60	317	8.4	6.2	1.9	.90	.80	.50	.50	.30
23	3.3	6.1	.80	183	7.8	5.9	1.9	.90	.80	.50	.50	.30
24	3.4	6.1	2.8	134	7.7	5.6	1.7	.90	.70	.50	.50	.30
25	3.4	6.1	1.3	88	7.5	5.5	1.6	.90	.70	.50	.50	.30
26	3.4	6.1	.70	67	7.0	3.5	1.9	.90	.70	.50	.50	.30
27	3.4	6.1	.50	62	6.7	.80	2.5	.90	.70	.50	.40	.40
28	3.4	6.0	.40	54	6.8	.90	2.1	.90	.70	.50	.40	.30
29	3.4	5.9	.40	44	-----	1.4	1.8	.90	.70	.50	.40	.30
30	3.4	5.9	.30	36	-----	2.2	1.5	.90	.70	.50	.40	.30
31	3.4	-----	.30	32	-----	2.5	-----	.90	-----	.50	.40	-----
TOTAL	92.0	173.9	115.20	1,282.80	292.3	247.10	67.6	32.20	26.00	16.60	14.50	11.20
MEAN	2.97	5.80	3.72	41.4	10.4	7.97	2.25	1.04	.87	.54	.47	.37
MAX	3.4	6.6	5.9	317	28	12	2.7	1.4	1.0	.60	.50	.40
MIN	2.5	3.4	.30	.30	6.7	.80	1.5	.90	.70	.50	.40	.30
AC--FT	182	345	229	2,540	580	490	134	64	52	33	29	22

CAL YR 1969 TOTAL 2,945.00 MEAN 8.07 MAX 182 MIN .30 ACFT 5,840  
WAT YR 1970 TOTAL 2,371.40 MEAN 6.50 MAX 317 MIN .30 ACFT 4,700

## 11426400 NORTH SHIRTTAIL CREEK NEAR DUTCH FLAT, CALIF.

LOCATION.--Lat 39°07'49", long 120°47'44", in SE $\frac{1}{4}$  sec.24, T.15 N., R.10 E., Placer County, Tahoe National Forest, on right bank 200 ft downstream from Forbes Creek and 7.0 miles southeast of Dutch Flat.

DRAINAGE AREA.--9.10 sq mi.

PERIOD OF RECORD.--July 1956 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,500 ft (from topographic map).

AVERAGE DISCHARGE.--14 years, 20.9 cfs (15,140 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,060 cfs Jan. 21 (gage height, 5.88 ft); minimum daily, 0.10 cfs many days.

Period of record: Maximum discharge, 1,780 cfs Dec. 22, 1964 (gage height, 7.56 ft), from rating curve extended above 590 cfs on basis of slope-area measurement at gage height 6.36 ft; minimum daily, 0.10 cfs many days in 1970.

Flood of Dec. 23, 1955, reached a stage of 7.30 ft, from floodmarks (discharge, 1,650 cfs).

REMARKS.--Flow slightly regulated by Big Reservoir (capacity, 2,200 acre-ft).

COOPERATION.--Records furnished by Bureau of Reclamation and reviewed by Geological Survey.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.80	1.5	6.1	18	103	72	14	5.7	2.2	.80	.20	.10
2	.80	1.4	6.1	16	93	60	14	5.3	2.1	.80	.20	.10
3	.90	1.4	5.8	14	87	51	12	5.0	1.9	.70	.20	.10
4	.90	1.4	5.6	13	82	48	10	4.7	1.8	.60	.20	.10
5	.90	4.3	5.6	12	68	46	9.7	4.2	1.7	.60	.20	.10
6	.90	16	5.8	11	54	43	9.4	4.2	1.7	.60	.20	.10
7	.90	10	5.6	11	50	42	9.4	4.1	1.6	.60	.20	.10
8	1.2	8.5	6.3	11	45	61	8.8	4.1	1.8	.50	.20	.10
9	1.0	7.0	6.3	27	43	56	8.5	4.1	2.9	.50	.20	.10
10	1.0	6.1	6.5	61	40	57	8.5	4.2	2.6	.50	.20	.10
11	1.1	5.8	14	41	40	55	8.2	4.0	2.1	.50	.20	.10
12	1.1	5.2	11	46	42	52	8.0	3.7	2.0	.50	.20	.10
13	1.1	5.2	29	85	46	47	8.8	3.6	1.9	.40	.20	.10
14	1.3	4.8	17	224	45	45	10	3.4	2.0	.40	.20	.10
15	4.4	5.4	7.5	149	41	43	9.7	3.1	1.9	.40	.20	.10
16	13	5.2	6.7	325	51	40	9.7	3.1	1.8	.40	.20	.10
17	8.1	4.8	6.3	348	66	37	9.3	3.0	1.5	.40	.10	.10
18	3.0	5.6	6.1	200	52	34	8.7	2.8	1.5	.40	.10	.10
19	2.3	7.2	17	190	45	32	10	2.8	1.3	.30	.10	.10
20	2.0	6.7	48	186	43	29	8.8	2.8	1.2	.30	.10	.10
21	1.8	6.5	81	647	40	28	8.0	2.8	1.1	.30	.10	.10
22	1.8	6.5	38	579	37	26	7.6	2.7	1.0	.30	.10	.10
23	1.7	6.5	44	373	35	24	7.3	2.6	1.0	.30	.10	.10
24	1.7	6.5	198	364	34	23	6.5	2.6	.90	.30	.10	.10
25	1.7	6.5	108	267	32	21	5.7	2.4	.90	.30	.10	.10
26	1.6	6.3	65	209	31	19	7.0	2.6	1.0	.30	.10	.10
27	1.6	6.3	42	255	29	16	7.7	2.6	1.1	.30	.10	.10
28	1.6	6.3	32	190	31	15	7.2	2.5	1.2	.30	.10	.10
29	1.6	6.1	26	159	-----	15	6.9	2.4	1.1	.30	.10	.10
30	1.5	6.1	22	135	-----	15	6.2	2.5	1.0	.20	.10	.10
31	1.5	-----	20	114	-----	14	-----	2.3	-----	.20	.10	-----
TOTAL	64.80	177.1	898.3	5,280	1,405	1,166	265.6	105.9	47.80	13.30	4.70	3.00
MEAN	2.09	5.90	29.0	170	50.2	37.6	8.85	3.42	1.59	.43	.15	.10
MAX	13	16	198	647	103	72	14	5.7	2.9	.80	.20	.10
MIN	.80	1.4	5.6	11	29	14	5.7	2.3	.90	.20	.10	.10
AC-FT	129	351	1,780	10,470	2,790	2,310	527	210	95	26	9.3	6.0

CAL YR 1969 TOTAL 13,353.00 MEAN 36.6 MAX 997 MIN .50 AC-FT 26,490  
WTR YR 1970 TOTAL 9,431.50 MEAN 25.8 MAX 647 MIN .10 AC-FT 18,710

PEAK DISCHARGE (BASE, 180 CFS)  
DATE TIME G.H. DISCHARGE DATE TIME G.H. DISCHARGE  
12-24 0500 3.75 328 1-16 0900 4.07 431  
1-14 1100 3.89 370 1-21 1800 5.88 1,060

## SACRAMENTO RIVER BASIN

## 11427000 NORTH FORK AMERICAN RIVER AT NORTH FORK DAM, CALIF.

LOCATION.--Lat 38°56'10", long 121°01'22", in SW $\frac{1}{4}$  sec.31, T.13 N., R.9 E., Placer County, on left bank 50 ft upstream from spillway of North Fork Dam, 2 miles upstream from Middle Fork, and 4 miles northeast of Auburn.

DRAINAGE AREA.--342 sq mi.

PERIOD OF RECORD.--October 1941 to current year.

GAGE.--Water-stage recorder. Datum of gage is 715.0 ft above mean sea level (levels by Corps of Engineers).

AVERAGE DISCHARGE.--29 years, 827 cfs (599,200 acre-ft per year); median of yearly mean discharges, 730 cfs (529,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 38,200 cfs Jan. 21 (gage height, 9.04 ft); minimum daily, 40 cfs Sept. 24-28.

Period of record: Maximum discharge, 65,400 cfs Dec. 23, 1964 (gage height, 11.87 ft), from rating curve extended above 24,000 cfs on basis of computed flow over spillway of dam at gage height 10.22 ft; no flow Aug. 27-30, Sept. 2-11, 1944, Oct. 5, 6, 1963, Nov. 7-10, 1965, caused by operation of valve in North Fork Dam.

REMARKS.--Records good. Minor regulation by Lake Clementine (usable capacity, 12,800 acre-ft) formed by North Fork Dam. Storage in Big Reservoir and Lake Valley Reservoir (combined capacity, 10,300 acre-ft) above station. Lake Valley Canal (see sta 11426190) diverts from North Fork of North Fork American River into Bear River basin for power development in powerhouses of Pacific Gas and Electric Co. Combined storage and diversion have small effect on natural flow. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58	81	89	665	2,060	1,770	665	629	684	188	65	52
2	58	81	89	593	1,830	1,820	665	703	694	176	65	52
3	55	81	89	530	1,670	1,400	674	830	684	165	65	49
4	52	81	89	476	1,530	1,250	674	1,040	665	165	65	49
5	52	129	89	434	1,430	1,190	694	1,120	611	165	65	46
6	52	334	85	400	1,300	1,100	760	1,240	566	160	61	52
7	52	234	85	385	1,210	1,080	790	1,060	512	155	61	52
8	55	182	93	378	1,150	1,640	770	959	476	141	61	52
9	65	155	116	629	1,100	1,670	760	970	575	141	58	49
10	61	145	121	2,940	1,050	1,540	810	1,100	647	136	58	49
11	55	131	194	1,620	1,010	1,380	820	882	476	131	58	46
12	52	131	231	1,500	1,100	1,240	800	722	400	126	58	43
13	52	131	225	2,860	1,410	1,210	760	656	370	116	58	43
14	55	136	263	8,350	1,680	1,370	741	770	348	116	55	43
15	81	136	206	5,300	1,360	1,520	656	992	340	111	55	43
16	284	145	170	14,300	1,270	1,310	620	1,210	318	106	55	46
17	553	194	155	12,600	2,140	1,250	593	1,500	311	101	55	43
18	263	155	145	6,850	1,680	1,100	575	1,560	304	97	55	43
19	165	131	226	4,600	1,410	992	611	1,420	311	93	55	43
20	126	121	3,840	6,390	1,240	915	638	1,150	332	85	55	43
21	111	116	7,550	21,100	1,130	882	566	959	325	85	52	43
22	101	111	3,330	20,900	1,050	882	530	1,000	304	81	52	43
23	97	106	1,850	9,230	981	904	512	1,040	290	81	52	43
24	97	101	9,730	10,800	948	937	512	1,040	277	81	49	40
25	93	101	6,110	6,380	915	992	512	1,010	256	77	49	40
26	89	101	3,200	4,580	882	948	593	1,060	244	73	49	40
27	85	97	1,880	7,020	871	860	638	1,020	270	73	49	40
28	85	93	1,340	4,750	882	790	566	840	270	69	49	40
29	85	93	1,050	3,570	-----	800	521	732	237	69	49	43
30	85	89	871	2,880	-----	780	548	703	213	69	49	46
31	81	-----	750	2,360	-----	722	-----	722	-----	69	52	-----
TOTAL	3,255	3,922	44,261	165,370	36,289	36,244	19,574	30,639	12,310	3,501	1,734	1,356
MEAN	105	131	1,428	5,335	1,296	1,169	652	988	410	113	55.9	45.2
MAX	553	334	9,730	21,100	2,140	1,820	820	1,560	694	188	65	52
MIN	52	81	85	378	871	722	512	629	213	69	49	40
AC-FT	6,460	7,780	87,790	328,000	71,980	71,890	38,830	60,770	24,420	6,940	3,440	2,690
CAL YR 1969	TOTAL	520,924	MEAN	1,427	MAX	22,700	MIN	52	ACFT	1,033,000		
WAT YR 1970	TOTAL	358,455	MEAN	982	MAX	21,100	MIN	40	ACFT	711,000		

## PEAK DISCHARGE (BASE, 4,300 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1730	5.86	15,000	1-16	1400	7.12	23,000
12-24	0900	5.58	13,400	1-21	2300	9.04	38,200
1-10	0530	3.50	4,320	1-24	0500	5.93	15,400
1-14	1530	5.80	14,700	1-27	1000	4.83	9,520

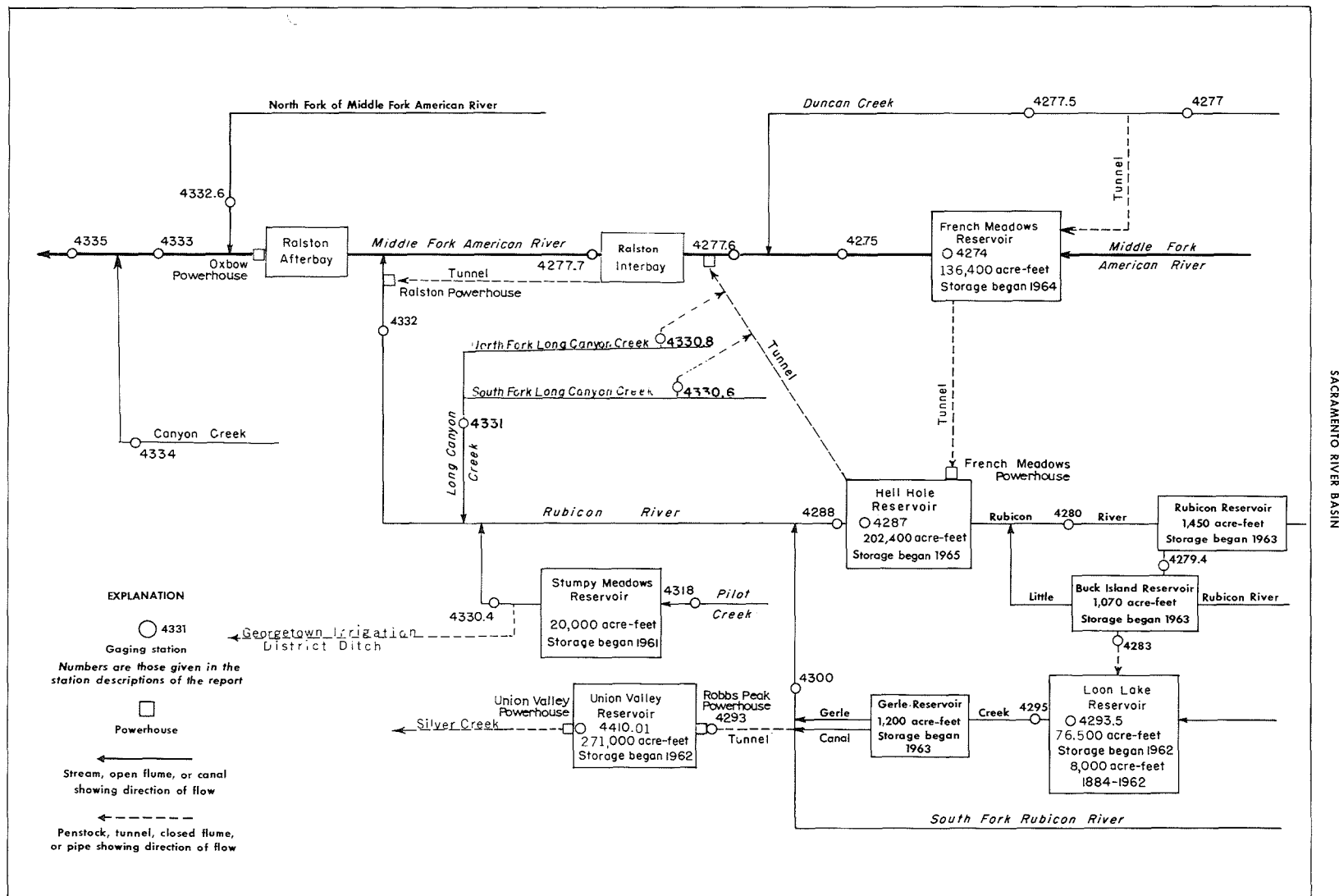


FIGURE 16.--Schematic diagram showing diversions and storage in Middle Fork American and Rubicon river basins.

## SACRAMENTO RIVER BASIN

## 11427400 FRENCH MEADOWS RESERVOIR NEAR FORESTHILL, CALIF.

LOCATION.--Lat 39°06'32", long 120°25'49", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.32, T.15 N., R.14 E., Placer County, Tahoe National Forest, on left bank 2.2 miles upstream from dam on Middle Fork American River, 6.9 miles upstream from Chipmunk Creek, and 21 miles northeast of Foresthill.

DRAINAGE AREA.--47.0 sq mi.

PERIOD OF RECORD.--December 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Placer County Water Agency).

EXTREMES.--Current year: Maximum contents, 127,100 acre-ft June 29, 30 (elevation, 5,256.3 ft); minimum, 50,300 acre-ft Dec. 18 (elevation, 5,186.6 ft).

Period of record: Maximum contents, 137,700 acre-ft May 19, 1966 (elevation, 5,263.9 ft); minimum since reservoir first filled, 46,400 acre-ft Apr. 11, 1969 (elevation, 5,181.9 ft).

REMARKS.--Reservoir is formed by rockfill dam with earth core. Storage began Dec. 21, 1964. Usable capacity, 125,600 acre-ft between elevations 5,125 ft (minimum operating level) and 5,263 ft (top of radial gates). Dead storage, 10,800 acre-ft. Reservoir is used to store water for hydroelectric power. Up to 400 cfs is diverted in reservoir through tunnel from Duncan Creek. Water is released through tunnel to French Meadows powerplant and then into Hell Hole Reservoir on Rubicon River; releases began Dec. 13, 1965. Records, including extremes, represent total contents at 2400 hours. See schematic diagram of Middle Fork American and Rubicon River basins.

REVISIONS (WATER YEARS).--WRD Calif. 1966: 1965.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

5,125	10,800	5,200	62,400
5,130	13,100	5,230	94,100
5,150	23,700	5,270	146,500
5,170	37,100		

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	81,300	66,600	55,200	61,700	101,900	91,100	84,700	93,000	119,200	127,000	114,400	94,200
2	80,500	66,600	54,800	61,300	101,600	90,700	84,700	93,500	119,900	126,700	113,800	94,000
3	79,700	65,900	54,300	61,000	101,300	90,300	84,700	94,100	120,500	126,700	113,000	92,900
4	79,600	65,100	54,000	60,700	100,900	89,800	85,000	94,800	121,200	126,700	112,400	92,100
5	79,500	64,600	53,600	60,300	100,500	89,400	85,500	95,700	121,700	126,600	111,700	91,500
6	78,900	63,800	53,500	60,400	100,200	88,800	85,800	96,600	122,200	126,600	111,100	90,900
7	78,100	63,200	53,400	60,500	99,700	88,400	86,000	97,300	122,600	126,400	110,500	90,200
8	77,900	62,500	53,100	60,700	99,400	87,900	86,400	98,100	123,300	126,400	109,800	89,500
9	77,800	61,800	52,800	61,700	99,000	87,400	86,700	98,900	124,000	126,300	109,300	88,800
10	77,700	61,300	52,400	62,500	98,600	86,800	87,000	99,700	124,300	126,300	108,700	88,000
11	77,600	60,800	52,100	63,100	98,300	86,400	87,500	100,200	124,500	126,100	108,100	87,400
12	77,500	60,300	51,800	63,800	98,100	85,700	88,000	100,800	124,800	126,000	107,500	86,700
13	76,700	59,800	51,800	64,600	97,900	85,300	88,500	101,300	124,900	125,600	106,900	86,000
14	76,200	59,400	51,900	66,300	97,500	85,000	88,700	102,000	125,100	125,200	106,100	85,500
15	75,800	59,400	51,500	67,100	97,100	84,700	89,000	103,000	125,200	124,800	105,500	84,800
16	75,800	59,400	51,200	73,600	96,800	84,300	89,300	104,200	125,300	124,400	104,800	84,200
17	75,300	59,200	50,800	76,000	96,400	83,900	89,400	105,500	125,500	124,000	104,000	83,400
18	75,300	59,100	50,300	72,100	95,900	83,500	89,700	106,900	125,600	123,400	103,300	82,600
19	75,200	58,900	50,800	78,500	95,400	83,100	90,100	108,000	125,700	123,000	102,700	82,000
20	74,700	58,400	52,900	80,700	94,900	82,800	90,300	109,000	126,000	122,500	102,100	81,300
21	73,900	58,100	56,100	91,300	94,400	83,100	90,500	110,000	126,100	121,800	101,400	80,600
22	73,200	58,000	56,600	96,400	93,800	83,400	90,700	111,000	126,400	121,200	100,700	79,900
23	72,500	58,000	57,100	98,300	93,400	83,400	91,000	111,900	126,400	120,500	100,300	79,200
24	71,800	57,600	60,000	100,800	93,000	83,600	91,200	113,000	126,600	119,900	99,600	78,400
25	71,100	57,100	62,100	101,400	92,500	83,700	91,400	113,800	126,700	119,200	99,000	77,800
26	70,400	56,700	62,500	101,600	92,000	83,800	91,800	114,000	126,800	118,400	98,300	77,100
27	69,600	56,100	62,700	102,600	91,500	83,900	92,000	115,700	126,800	117,800	97,600	76,400
28	68,900	55,700	62,600	102,600	91,200	84,300	92,200	116,300	127,000	117,100	96,900	75,700
29	68,200	55,600	62,500	102,500	-----	84,700	92,500	117,100	127,100	116,500	96,300	75,000
30	67,400	55,600	62,400	102,400	-----	84,800	92,700	117,800	127,100	115,800	95,600	74,400
31	66,700	-----	62,000	102,100	-----	84,800	-----	118,400	-----	115,000	94,900	-----
MAX	81,300	66,600	62,700	102,600	101,900	91,100	92,700	118,400	127,100	127,000	114,400	94,200
MIN	66,700	55,600	50,300	60,300	91,200	82,800	84,700	93,000	119,200	115,000	94,900	74,400
(a)	5,204.4	5,192.6	5,199.5	5,236.8	5,227.5	5,221.8	5,228.8	5,249.8	5,256.3	5,247.2	5,230.7	5,212.0
(b)	-15,400	-11,100	+6,400	+40,100	-10,900	-6,400	+7,900	+25,700	+8,700	-12,100	-20,100	-20,500
CAL YR 1969	MAX 136,500	MIN 46,400	b +200									
WAT YR 1970	MAX 127,100	MIN 50,300	b -7,700									

a Elevation, in feet, at end of month.  
b Change in contents, in acre-feet.

## 11427500 MIDDLE FORK AMERICAN RIVER AT FRENCH MEADOWS, CALIF.

LOCATION.--Lat 39°06'35", long 120°28'49", in W $\frac{1}{2}$ NW $\frac{1}{4}$  sec.36, T.15 N., R.13 E., Placer County, Tahoe National Forest, on left bank 0.6 mile downstream from French Meadows Dam, 4.1 miles upstream from Chipmunk Creek, and 14 miles south of Cisco.

DRAINAGE AREA.--47.9 sq mi.

PERIOD OF RECORD.--October 1951 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,920 ft (from topographic map). Prior to Oct. 1, 1962, at site 0.8 mile upstream at different datum.

AVERAGE DISCHARGE (prior to regulation by French Meadows Reservoir).--13 years (1952-64), 149 cfs (107,900 acre-ft per year); 6 years (1965-70), 35.4 cfs (25,650 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 143 cfs Jan. 21 (gage height, 5.34 ft); minimum daily, 8.1 cfs Oct. 2-7, Dec. 4-11, 15-18.

Period of record: Maximum discharge, 21,500 cfs Jan. 31, 1963 (gage height, 14.20 ft), from rating curve extended above 1,100 cfs on basis of maximum flow at former site; minimum, 0.3 cfs Oct. 4, 5, 21-25, 1960, Oct. 5, 6, 1961. Maximum discharge since construction of French Meadows Dam in 1964, 1,310 cfs Apr. 30, 1965 (gage height, 7.68 ft); minimum daily, 0.8 cfs Oct. 22, 25, 1964.

REMARKS.--Records good. Flow regulated by French Meadows Reservoir 0.6 mile upstream beginning in December 1964 (see sta 11427400). Diversions from Duncan Creek to French Meadows Reservoir since December 1964 and from French Meadows Reservoir to Hell Hole Reservoir since December 1965. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records collected by Placer County Water Agency, under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.4	9.0	8.4	10	15	14	11	9.3	11	11	11	10
2	8.1	9.0	8.4	10	14	13	11	9.3	11	11	11	10
3	8.1	9.0	8.4	10	14	13	11	9.0	11	11	11	10
4	8.1	9.0	8.1	9.7	13	13	11	8.7	11	11	11	10
5	8.1	9.3	8.1	9.7	13	13	11	9.0	11	11	11	10
6	8.1	9.3	8.1	9.7	13	13	11	9.0	11	11	11	10
7	8.1	9.0	8.1	9.3	13	13	11	9.0	11	11	11	10
8	8.7	9.0	8.1	9.7	13	13	10	9.0	11	11	11	10
9	8.7	9.0	8.1	17	13	13	10	9.0	12	11	11	10
10	8.7	8.7	8.1	17	13	13	10	9.3	11	11	11	9.7
11	8.4	8.7	8.1	14	12	13	10	9.3	11	11	11	8.8
12	8.4	8.7	8.4	17	13	13	10	9.7	11	11	11	9.7
13	8.4	8.7	8.4	23	13	13	10	9.7	11	11	11	9.7
14	8.7	8.7	8.4	49	13	14	10	9.0	11	12	11	9.7
15	10	8.7	8.1	23	13	14	10	9.0	11	12	11	9.0
16	10	8.7	8.1	79	13	13	10	9.7	11	12	11	9.7
17	9.3	8.7	8.1	52	14	13	9.7	9.3	11	12	11	9.3
18	9.0	8.7	8.1	25	13	13	10	9.7	11	12	11	9.3
19	9.0	8.7	12	29	13	13	10	10	11	12	11	9.3
20	9.0	8.7	18	29	13	12	10	10	11	12	11	9.3
21	9.0	8.7	27	101	13	12	9.7	10	11	12	10	9.3
22	9.0	8.4	13	45	13	12	9.7	10	11	12	10	9.3
23	8.7	8.4	20	26	13	12	10	10	11	12	10	9.3
24	8.7	8.4	48	29	13	12	10	10	11	12	10	9.0
25	8.7	8.4	28	21	12	12	10	10	11	12	11	9.0
26	8.7	8.4	17	19	12	12	10	12	11	12	11	9.0
27	8.7	8.4	13	35	12	11	9.3	11	11	12	10	9.0
28	8.7	8.4	12	21	13	11	9.3	11	11	12	10	9.0
29	8.7	8.4	11	17	-----	11	9.3	11	11	11	10	9.0
30	8.7	8.4	11	17	-----	11	9.3	11	11	11	10	8.7
31	8.7	-----	11	15	-----	11	-----	11	-----	11	10	-----
TOTAL	269.6	261.6	388.6	798.1	365	389	303.3	303.0	331	356	332	284.1
MEAN	8.70	8.72	12.5	25.7	13.0	12.5	10.1	9.77	11.0	11.5	10.7	9.47
MAX	10	9.3	48	101	15	14	11	12	12	12	11	10
MIN	8.1	8.4	8.1	9.3	12	11	9.3	8.7	11	11	10	8.7
AC-FT	535	519	771	1,580	724	772	602	601	657	706	659	564
(a)	15,670	10,820	10,560	14,460	21,920	17,060	2,840	0	1,090	11,450	20,550	19,680
CAL YR 1969	TOTAL 7,067.7 MEAN 19.4 MAX 506 MIN 8.1 AC-FT 14,020											
WTR YR 1970	TOTAL 4,381.3 MEAN 12.0 MAX 101 MIN 8.1 AC-FT 8,690											

a Diversion, in acre-feet, from French Meadows Reservoir to Hell Hole Reservoir through French Meadows powerplant.

## SACRAMENTO RIVER BASIN

## 11427700 DUNCAN CREEK NEAR FRENCH MEADOWS, CALIF.

LOCATION.--Lat 39°08'09", long 120°28'39", in NE $\frac{1}{4}$  sec.24, T.15 N., R.13 E., Placer County, Tahoe National Forest, on left bank 0.2 mile upstream from diversion dam, 0.5 mile downstream from Little Duncan Creek, 2 miles northwest of French Meadows, and 20 miles northeast of Foresthill.

DRAINAGE AREA.--9.94 sq mi.

PERIOD OF RECORD.--August 1960 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 5,270 ft (from topographic map). Prior to Sept. 3, 1965, at site 150 ft upstream at datum 9.56 ft higher.

AVERAGE DISCHARGE.--10 years, 36.2 cfs (26,230 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,910 cfs Jan. 21 (gage height, 9.48 ft), from rating curve extended as explained below; minimum daily, 0.39 cfs Sept. 29, 30.  
Period of record: Maximum discharge, 3,650 cfs Dec. 22, 1964 (gage height, 10.6 ft, from floodmarks), from rating curve extended above 400 cfs on basis of computation of flow over diversion dam; minimum daily, 0.2 cfs Sept. 23-25, 1964.

REMARKS.--Records good. No storage or diversion above station. See schematic diagram of Middle Fork American and Rubicon River basins.

REVISIONS (WATER YEARS).--WRD Calif. 1965: 1963.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.60	1.6	2.5	32	60	28	37	41	52	7.0	1.4	.56
2	.60	1.5	2.4	27	54	28	41	51	51	6.4	1.3	.56
3	.60	1.5	2.4	25	49	25	40	65	44	6.1	1.3	.56
4	.60	1.5	2.5	24	45	25	42	78	40	5.5	1.1	.63
5	.66	3.1	2.5	23	42	25	45	95	35	4.9	1.1	.95
6	.66	4.2	2.1	22	39	26	49	95	30	4.7	1.1	.78
7	.66	3.5	2.4	18	38	26	49	85	27	4.4	1.0	.70
8	1.0	3.7	2.4	22	37	26	48	84	33	4.2	.95	.63
9	1.2	4.4	2.4	73	36	24	52	95	51	3.9	.95	.63
10	.92	4.9	6.6	64	35	24	53	90	34	3.7	.95	.56
11	.85	6.0	14	46	36	23	54	74	28	3.5	.86	.50
12	.85	6.6	11	62	44	24	53	68	24	3.5	.86	.44
13	.92	6.0	13	78	41	28	48	72	23	3.3	.78	.44
14	1.3	5.5	7.5	169	39	38	43	81	22	3.1	.78	.50
15	24	7.2	5.8	133	38	36	41	99	20	2.7	.78	.50
16	41	16	5.2	788	36	36	38	128	19	2.5	.78	.56
17	13	7.5	5.5	273	34	37	36	142	17	2.4	.78	.50
18	7.2	5.5	5.2	169	32	34	35	142	16	2.4	.78	.50
19	5.8	4.9	102	225	29	31	37	128	15	2.2	.78	.50
20	4.9	4.4	301	250	28	32	33	109	14	2.0	.78	.50
21	4.4	4.4	409	1,210	28	34	31	101	13	2.0	.70	.56
22	3.9	3.9	115	690	28	37	29	101	11	1.9	.70	.56
23	3.3	3.5	137	349	27	41	28	99	11	1.9	.63	.50
24	3.1	3.3	454	309	27	46	29	96	9.5	1.7	.63	.50
25	2.9	3.3	358	190	26	49	32	93	8.8	1.7	.63	.50
26	2.5	3.1	146	146	27	48	33	91	9.2	1.6	.63	.50
27	2.4	2.9	97	193	28	45	29	82	8.8	1.5	.63	.44
28	2.4	2.5	70	130	30	46	29	70	9.2	1.5	.63	.44
29	2.1	2.7	55	103	-----	46	29	64	9.2	1.5	.63	.39
30	1.7	2.4	44	84	-----	42	34	59	8.2	1.4	.63	.39
31	1.7	-----	38	70	-----	39	-----	55	-----	1.4	.56	-----
TOTAL	137.72	131.5	2,421.4	5,997	1,013	1,049	1,177	2,733	692.9	96.5	26.11	16.28
MEAN	4.44	4.38	78.1	193	36.2	33.8	39.2	88.2	23.1	3.11	.84	.54
MAX	41	16	454	1,210	60	49	54	142	52	7.0	1.4	.95
MIN	.60	1.5	2.1	18	26	23	28	41	8.2	1.4	.56	.39
AC-FT	273	261	4,800	11,900	2,010	2,080	2,330	5,420	1,370	191	52	32

CAL YR 1969 TOTAL 21,627.35 MEAN 59.3 MAX 752 MIN .60 AC-FT 42,900  
WTR YR 1970 TOTAL 15,491.41 MEAN 42.4 MAX 1,210 MIN .39 AC-FT 30,730

## PEAK DISCHARGE (BASE, 250 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	0830	8.40	858	1-21	1915	9.48	1,910
12-24	0545	8.08	647	1-27	0415	7.30	298
1-16	0545	9.23	1,610				



## 11427750 DUNCAN CREEK BELOW DIVERSION DAM, NEAR FRENCH MEADOWS, CALIF.

LOCATION.--Lat 39°07'59", long 120°28'58", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.23, T.15 N., R.13 E., Placer County, Tahoe National Forest, on right bank 800 ft downstream from unnamed right bank tributary, 1,000 ft downstream from Duncan Creek diversion dam, and 20 miles northeast of Foresthill.

DRAINAGE AREA.--10.5 sq mi.

PERIOD OF RECORD.--October 1964 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 5,210 ft (from topographic map).

AVERAGE DISCHARGE.--6 years, 18.5 cfs (13,400 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,680 cfs Jan. 21 (gage height, 6.50 ft), from rating curve extended as explained below; minimum daily, 0.40 cfs Sept. 11-13.

Period of record: Maximum discharge, 3,640 cfs Dec. 22, 1964 (gage height, 8.74 ft, in gage well, 10.0 ft, from floodmarks), from rating curve extended above 400 cfs on basis of computation of flow over diversion dam of maximum flow; no flow at times in 1964-66.

REMARKS.--Records good. Flow is diverted above station through Duncan Creek diversion tunnel to French Meadows Reservoir (see sta 11427400). Maximum design flow of tunnel is 400 cfs. See schematic diagram of Middle Fork American and Rubicon River basins.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.96	1.7	3.6	6.6	20	7.0	3.8	14	13	6.3	1.2	.44
2	1.0	1.7	2.6	6.3	15	7.0	3.4	14	13	5.9	1.1	.44
3	1.0	1.6	2.9	6.1	11	6.2	3.6	14	13	5.2	1.0	.44
4	1.0	1.5	2.7	6.1	10	6.2	3.8	15	13	4.8	.96	.48
5	1.1	1.9	2.9	6.1	9.0	6.2	3.8	15	12	4.5	.96	.72
6	1.1	2.3	2.7	5.9	8.4	6.4	3.8	15	12	4.1	.89	.57
7	1.1	2.3	2.7	5.9	8.1	6.5	3.8	14	12	3.9	.89	.52
8	1.3	2.5	2.9	6.6	8.4	6.5	3.8	14	12	3.6	.83	.48
9	1.6	2.5	3.1	9.0	8.1	6.0	3.8	14	13	3.3	.83	.48
10	1.3	2.5	2.7	10	7.6	5.8	3.6	14	13	3.1	.83	.44
11	1.1	2.5	3.3	9.0	7.6	5.8	3.8	14	12	3.0	.77	.40
12	1.1	2.5	5.4	11	8.1	6.0	3.6	14	12	2.9	.72	.40
13	1.2	2.5	9.3	12	7.8	6.6	3.6	14	12	2.7	.66	.40
14	1.4	2.5	8.4	31	7.6	7.6	3.4	14	12	2.5	.66	.44
15	4.1	2.5	7.6	18	7.3	7.6	3.8	14	12	2.3	.66	.48
16	7.1	2.6	6.6	679	7.3	7.6	3.6	14	11	2.2	.61	.48
17	6.1	2.3	6.3	337	7.1	7.8	3.6	14	11	2.1	.66	.44
18	4.5	2.3	6.6	190	6.8	7.3	3.6	14	11	2.0	.66	.44
19	3.3	2.2	15	177	6.6	6.8	3.9	14	11	1.9	.66	.44
20	2.7	3.1	190	212	6.6	6.6	11	14	11	1.8	.61	.48
21	2.3	4.6	340	989	6.3	6.6	13	14	11	2.3	.57	.52
22	2.0	4.1	72	716	6.1	6.6	13	14	9.9	1.2	.57	.52
23	1.8	3.8	15	392	6.1	6.6	13	13	9.0	1.6	.52	.48
24	1.6	3.6	358	348	6.2	6.6	13	14	8.4	1.6	.52	.48
25	1.5	3.3	283	201	6.4	6.6	13	14	7.8	1.5	.52	.48
26	1.4	3.3	83	147	6.6	5.9	13	14	7.8	1.3	.52	.44
27	1.3	3.0	22	210	6.8	5.4	13	13	7.6	1.3	.52	.44
28	1.5	2.9	9.0	141	7.2	5.0	13	13	8.1	1.3	.52	.44
29	2.2	2.7	7.8	93	-----	4.6	13	13	7.8	1.3	.48	.44
30	2.0	2.6	7.3	41	-----	4.5	13	13	7.1	1.3	.44	.44
31	1.8	-----	6.8	29	-----	4.3	-----	13	-----	1.2	.44	-----
TOTAL	63.46	79.4	1,491.2	5,051.6	230.1	196.2	211.1	431	325.5	84.0	21.78	14.09
MEAN	2.05	2.65	48.1	163	8.22	6.33	7.04	13.9	10.9	2.71	.70	.47
MAX	7.1	4.6	358	989	20	7.8	13	15	13	6.3	1.2	.72
MIN	.96	1.5	2.6	5.9	6.1	4.3	3.4	13	7.1	1.2	.44	.40
AC-FT	126	157	2,960	10,020	456	389	419	855	646	167	43	28
CAL YR 1969	TOTAL	11,184.71	MEAN	30.6	MAX	634	MIN	.74	AC-FT	22,180		
WTR YR 1970	TOTAL	8,199.43	MEAN	22.5	MAX	989	MIN	.40	AC-FT	16,260		

## SACRAMENTO RIVER BASIN

11427760 MIDDLE FORK AMERICAN RIVER ABOVE MIDDLE FORK POWERHOUSE, NEAR FORESTHILL, CALIF.

LOCATION.--Lat 39°01'31", long 120°35'40", in NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.36, T.14 N., R.12 E., Placer County, Tahoe National Forest, on right bank 300 ft upstream from Middle Fork powerhouse, 3.7 miles upstream from Big Mosquito Creek, and 11 miles east of Foresthill.

DRAINAGE AREA.--87.8 sq mi.

PERIOD OF RECORD.--August 1965 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,540 ft (from topographic map).

AVERAGE DISCHARGE.--5 years, 108 cfs (78,250 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 3,900 cfs Jan. 21 (gage height, 8.00 ft); minimum daily, 15 cfs Oct. 3.

Period of record: Maximum discharge, 3,900 cfs Jan. 21, 1970 (gage height, 8.00 ft); minimum daily, 12 cfs Aug. 31, 1966.

REMARKS.--Records good. Flow regulated by French Meadows Reservoir (see sta 11427400). See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records collected by Placer County Water Agency, under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

REVISIONS (WATER YEARS).--WRD Calif. 1968: 1967(M).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	21	22	70	277	177	94	77	51	35	24	18
2	17	21	22	72	243	142	91	77	51	34	24	18
3	15	21	21	67	218	132	86	76	51	34	23	18
4	17	21	21	63	203	131	84	74	50	33	23	18
5	17	31	21	59	188	126	81	73	49	33	23	19
6	17	43	22	55	177	125	79	76	48	32	23	19
7	17	30	21	55	165	126	77	73	47	32	22	19
8	18	28	24	57	154	149	74	73	50	31	22	19
9	18	26	24	126	146	142	72	73	61	31	22	18
10	18	25	26	187	137	147	71	74	51	31	22	19
11	17	25	33	112	132	137	69	71	48	31	21	18
12	17	24	29	137	147	134	67	69	47	30	22	18
13	17	24	39	223	154	142	68	68	47	30	21	19
14	18	24	32	927	142	162	71	68	47	30	20	19
15	35	24	30	538	136	167	66	66	46	29	20	18
16	58	28	28	2,340	147	165	70	65	45	29	20	19
17	43	25	27	1,830	193	165	67	65	44	29	20	19
18	30	24	27	1,130	158	156	66	64	43	28	20	19
19	26	23	65	960	146	147	78	64	42	28	20	19
20	25	23	451	1,040	137	141	71	64	41	28	20	19
21	24	24	759	2,730	132	134	76	62	41	27	20	19
22	23	24	191	1,790	128	131	76	61	40	28	20	20
23	23	24	111	1,110	124	128	72	59	39	26	19	19
24	23	23	1,050	1,110	122	126	70	58	38	26	19	19
25	22	23	682	815	119	125	70	58	37	26	19	19
26	22	23	272	662	118	122	79	58	37	26	19	19
27	22	23	134	880	118	116	74	57	38	25	18	19
28	22	22	92	662	124	111	72	56	38	25	18	19
29	22	22	76	529	-----	107	73	55	39	25	18	19
30	22	22	71	407	-----	104	77	53	37	24	18	19
31	22	-----	69	331	-----	99	-----	52	-----	24	18	-----
TOTAL	704	741	4,492	21,074	4,385	4,216	2,241	2,039	1,343	900	638	563
MEAN	22.7	24.7	145	680	157	136	74.7	65.8	44.8	29.0	20.6	18.8
MAX	58	43	1,050	2,730	277	177	94	77	61	35	24	20
MIN	15	21	21	55	118	99	66	52	37	24	18	18
AC-FT	1,400	1,470	8,910	41,800	8,700	8,360	4,450	4,040	2,660	1,790	1,270	1,120
CAL YR 1969	TOTAL	57,936	MEAN	159	MAX	2,080	MIN	15	AC-FT	114,900		
WTR YR 1970	TOTAL	43,336	MEAN	119	MAX	2,730	MIN	15	AC-FT	85,960		

## 11427770 MIDDLE FORK AMERICAN RIVER BELOW INTERBAY DAM, NEAR FORESTHILL, CALIF.

LOCATION.--Lat 39°01'35", long 120°36'09", in SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.26, T.14 N., R.12 E., Placer County, Tahoe National Forest, on right bank 500 ft downstream from Interbay Dam, 3.3 miles upstream from Big Mosquito Creek, and 10.6 miles east of Foresthill.

DRAINAGE AREA.--89.1 sq mi.

PERIOD OF RECORD.--October 1965 to current year.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Altitude of gage is 2,470 ft (from topographic map).

AVERAGE DISCHARGE.--5 years, 73.9 cfs (53,540 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 3,910 cfs Jan. 21 (gage height, 6.95 ft); minimum daily, 7.4 cfs Mar. 28, 29, April 4, 5.

Period of record: Maximum discharge, 3,910 cfs Jan. 21, 1970 (gage height, 6.95 ft); minimum daily, 1.0 cfs Oct. 25-30, 1966, Jan. 19, 1967.

REMARKS.--Records good except those above 500 cfs, which are poor. Flow regulated by French Meadows Reservoir (see sta 11427400) and after Aug. 22, 1966, by Interbay Reservoir (capacity, 130 acre-ft between normal operating limits of 2,502.0 and 2,526.0 ft). Water is diverted from Hell Hole Reservoir through tunnel to Interbay powerplant and re-diverted to Ralston powerplant. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records collected by Placer County Water Agency, under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	18	19	25	25	24	7.8	28	28	20	21	20
2	24	18	19	25	25	24	7.8	28	28	20	21	20
3	24	18	19	25	25	24	7.8	28	28	21	21	19
4	24	18	19	25	24	24	7.4	28	28	21	21	20
5	24	18	19	25	24	24	7.4	28	28	21	21	20
6	21	18	19	25	25	24	7.8	28	29	21	20	20
7	18	18	19	25	25	24	7.8	28	29	21	20	20
8	18	18	21	25	25	24	7.8	28	27	21	20	20
9	18	18	23	25	24	24	7.8	28	28	21	20	20
10	18	18	23	25	24	24	20	28	28	21	20	20
11	18	18	23	24	24	24	44	28	28	21	20	20
12	18	18	23	25	24	24	28	28	28	21	20	19
13	18	18	23	25	24	24	28	28	28	21	20	20
14	18	18	23	294	25	24	28	28	28	21	20	20
15	18	18	23	21	24	24	28	28	28	21	20	20
16	18	18	23	1,430	24	119	28	28	28	21	20	20
17	18	18	23	929	25	182	28	28	28	21	20	20
18	17	18	23	111	24	166	28	28	28	21	20	20
19	18	18	23	62	25	109	28	28	28	21	20	20
20	18	18	23	94	25	25	28	28	28	21	20	20
21	18	19	147	2,150	25	24	28	28	28	21	20	20
22	18	19	32	1,120	25	24	28	28	39	21	20	20
23	18	19	24	815	25	25	28	28	44	21	20	20
24	18	19	287	710	25	17	28	28	43	21	20	20
25	18	19	49	402	74	7.8	28	28	32	21	20	20
26	18	19	24	402	24	7.8	28	28	19	21	20	20
27	18	19	25	540	24	7.8	28	28	20	21	20	20
28	18	19	25	453	24	7.4	28	28	20	21	20	20
29	18	19	25	140	-----	7.4	28	28	20	21	20	20
30	18	19	25	25	-----	7.8	28	28	20	21	20	20
31	18	-----	25	25	-----	7.8	-----	28	-----	21	20	-----
TOTAL	590	550	1,118	10,047	736	1,104.8	665.4	868	846	649	625	598
MEAN	19.0	18.3	36.1	324	26.3	35.6	22.2	28.0	28.2	20.9	20.2	19.9
MAX	24	19	287	2,150	74	182	44	28	44	21	21	20
MIN	17	18	19	21	24	7.4	7.4	28	19	20	20	19
AC-FT	1,170	1,090	2,220	19,930	1,460	2,190	1,320	1,720	1,680	1,290	1,240	1,190
(a)	37,630	53,940	34,520	48,610	47,310	33,360	10,460	6,790	29,060	21,450	50,200	52,940
CAL YR 1969	TOTAL 39,650.0 MEAN 109 MAX 1,810 MIN 17 AC-FT 78,650											
WTR YR 1970	TOTAL 18,397.2 MEAN 50.4 MAX 2,150 MIN 7.4 AC-FT 36,490											

a Diversion, in acre-feet, to Ralston powerplant, furnished by Placer County Water Agency.

## SACRAMENTO RIVER BASIN

## 11427940 RUBICON-ROCKBOUND TUNNEL NEAR MEEKS BAY, CALIF.

LOCATION.--Lat 38°59'20", long 120°13'31", in SE $\frac{1}{4}$  sec.8, T.13 N., R.16 E., El Dorado County, Eldorado National Forest, on right bank at tunnel intake 100 ft upstream from diversion dam on Rubicon River, 2.5 miles upstream from Rubicon Springs, and 6.5 miles southwest of Meeks Bay.

PERIOD OF RECORD.--December 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is 6,533.23 ft above mean sea level (levels by Sacramento Municipal Utility District). Auxiliary water-stage recorder since Aug. 26, 1966, 300 ft downstream from tunnel outlet at different datum.

AVERAGE DISCHARGE.--7 years, 108 cfs (78,250 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 1,120 cfs Dec. 23, 1964; no flow at times each year.

REMARKS.--Records good. Tunnel diverts water from Rubicon River to Rockbound Lake. See schematic diagram of Middle Fork American and Rubicon River basins.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	5.9	6.2	36	57	39	47	84	436	116	12	2.8
2	0	5.6	5.9	32	51	36	54	147	490	129	10	2.8
3	0	5.3	5.3	29	49	32	74	238	530	149	8.5	2.6
4	0	4.6	4.0	27	49	30	81	315	502	149	7.7	2.5
5	0	6.2	3.0	25	49	28	113	367	436	157	6.6	2.3
6	0	23	2.8	23	45	27	151	367	445	145	5.6	2.1
7	0	28	2.5	22	44	30	157	280	427	111	5.0	2.0
8	0	30	2.3	23	48	34	147	258	448	99	5.0	1.9
9	0	30	2.5	44	49	31	147	292	642	66	5.0	1.7
10	0	29	2.6	72	46	28	181	288	379	5.3	4.8	1.6
11	0	31	3.0	46	47	27	161	171	232	19	4.8	1.5
12	0	35	3.6	35	53	28	147	127	195	49	4.6	1.3
13	0	36	6.6	31	52	40	124	165	167	68	4.6	1.1
14	0	37	10	60	43	75	88	290	171	64	4.6	1.0
15	15	36	9.5	64	42	84	64	397	131	67	4.6	.86
16	321	52	8.5	718	38	64	54	538	141	63	4.6	.62
17	161	41	7.3	830	36	64	46	660	183	52	4.3	.30
18	71	28	6.9	400	36	51	45	667	240	41	4.3	.20
19	36	21	136	227	37	43	56	604	310	41	4.3	.20
20	28	18	733	439	36	38	50	466	385	41	4.3	.20
21	27	17	911	898	34	43	43	424	424	38	4.0	.16
22	31	16	584	969	31	52	40	469	373	35	4.0	.16
23	33	14	276	680	31	72	36	499	343	30	3.8	.16
24	28	12	177	347	32	96	36	499	308	25	3.6	.16
25	22	11	240	191	34	120	56	524	280	22	3.4	.16
26	17	10	153	137	36	108	76	586	321	20	3.4	.16
27	14	9.0	86	143	40	92	60	555	541	17	3.2	.16
28	12	8.1	60	108	40	79	47	436	278	14	3.2	.16
29	9.5	7.3	50	80	-----	90	43	394	165	14	3.2	.16
30	7.7	6.9	45	72	-----	80	52	409	126	14	3.2	.16
31	6.9	-----	41	62	-----	60	-----	427	-----	13	3.0	-----
TOTAL	840.1	613.9	3,534.5	6,870	1,185	1,721	2,476	11,943	10,049	1,873.3	153.2	31.18
MEAN	27.1	20.5	114	222	42.3	55.5	82.5	385	335	60.4	4.94	1.04
MAX	321	52	911	969	57	120	181	667	642	157	12	2.8
MIN	0	4.6	2.3	22	31	27	36	84	126	5.3	3.0	.16
AC-FT	1,670	1,220	7,010	13,630	2,350	3,410	4,910	23,690	19,930	3,720	304	62

CAL YR 1969 TOTAL 57,747.07 MEAN 158 MAX 911 MIN 0 ACFT 114,500  
WAT YR 1970 TOTAL 41,290.18 MEAN 113 MAX 969 MIN 0 ACFT 81,900

## 11428000 RUBICON RIVER AT RUBICON SPRINGS, NEAR MEEKS BAY, CALIF.

LOCATION.--Lat 39°01'10", long 120°14'46", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.31, T.14 N., R.16 E., El Dorado County, El Dorado National Forest, on right bank 200 ft downstream from Rubicon Springs, 0.7 mile upstream from Miller Creek, and 7 miles west of Meeks Bay.

DRAINAGE AREA.--31.4 sq mi.

PERIOD OF RECORD.--February 1910 to March 1914 (published as "at Rubicon Springs"), October 1956 to current year.

GAGE.--Water-stage recorder. Datum of gage is 6,052.97 ft above mean sea level. Feb. 1, 1910, to Mar. 31, 1914, nonrecording gage or water-stage recorder at site 0.4 mile downstream at different datum.

AVERAGE DISCHARGE (adjusted for diversion into Rubicon-Rockbound tunnel).--17 years (1910-13, 1956-70), 121 cfs (87,660 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 3,470 cfs Jan. 21 (gage height, 8.74 ft), from rating curve extended as explained below; minimum daily, 2.4 cfs Oct. 21.

Period of record: Maximum discharge, 11,500 cfs Feb. 1, 1963 (gage height, 14.28 ft), from rating curve extended above 1,200 cfs on basis of slope-conveyance computation of maximum flow; no flow at times in some years.

Flood of December 1955 reached a stage of 13.0 ft, from floodmarks, present site and datum (discharge, 9,270 cfs).

REMARKS.--Records good. Low summer flow, beginning in 1950, augmented by release from streamflow maintenance dams on Lakes Clyde, Lois, Middle Velma, and Schmidell (total controlled capacity, 555 acre-ft). Flow below 1,200 cfs controlled by Rubicon diversion dam 5.5 miles upstream. Diversion to Rubicon-Rockbound tunnel began Dec. 26, 1963. (See sta 11427940). See schematic diagram of Middle Fork American and Rubicon River basins.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	3.3	2.9	10	15	17	14	30	11	7.3	6.0	4.9
2	2.7	3.3	2.7	9.0	15	16	19	37	11	6.7	5.8	4.9
3	2.6	3.3	2.7	8.7	14	14	19	46	11	6.2	5.8	4.7
4	2.6	3.3	4.7	8.1	15	13	21	46	11	6.0	5.8	4.7
5	2.6	5.1	5.1	7.8	15	13	28	45	10	6.0	5.8	5.1
6	2.6	13	5.1	7.5	16	13	30	37	9.3	5.8	5.8	4.9
7	2.6	7.5	5.1	7.8	16	15	30	30	8.7	5.8	5.5	4.9
8	2.6	6.5	5.3	8.4	20	17	29	28	12	5.8	5.5	4.9
9	2.6	5.8	5.5	43	20	14	33	32	19	5.5	5.5	4.9
10	2.6	5.5	5.5	40	19	13	33	32	13	5.8	5.3	4.7
11	2.6	5.8	5.5	17	21	12	28	22	10	6.0	5.3	4.7
12	2.6	5.3	6.0	17	24	13	24	20	12	6.2	5.1	4.7
13	2.7	5.1	9.3	16	20	20	23	26	12	6.2	5.1	4.9
14	2.9	4.9	7.5	78	17	39	17	30	12	6.2	5.1	4.9
15	6.3	4.7	6.7	32	16	36	16	36	11	6.0	5.1	4.9
16	24	11	6.2	867	14	26	15	39	9.6	6.0	5.1	4.9
17	9.6	6.0	6.0	209	14	27	14	42	9.3	6.0	5.1	4.9
18	4.9	4.7	6.2	48	14	19	16	37	8.7	6.0	5.1	4.9
19	3.2	4.3	82	56	12	15	20	30	8.1	6.0	5.1	5.1
20	2.6	4.1	769	111	12	15	16	25	10	6.0	5.1	4.7
21	2.4	3.9	835	1,590	12	17	14	22	11	5.5	5.3	4.9
22	2.7	3.7	56	1,610	12	22	16	23	8.4	5.5	5.1	5.1
23	2.7	3.5	33	102	12	28	14	21	8.1	5.8	4.9	5.1
24	2.7	3.3	124	102	13	34	14	20	7.8	5.8	4.9	5.1
25	2.7	3.2	134	41	14	32	20	19	7.8	5.8	4.9	5.5
26	2.9	3.2	35	31	15	27	23	19	19	6.5	4.9	4.9
27	3.0	3.0	19	87	16	25	19	17	21	6.5	5.3	4.7
28	3.0	3.0	14	33	18	22	17	14	10	6.2	5.3	4.5
29	3.2	3.0	12	23	-----	26	19	14	8.7	6.2	5.1	4.5
30	3.2	2.9	11	20	-----	19	24	13	7.5	6.2	4.9	4.5
31	3.2	-----	10	17	-----	14	-----	12	-----	6.2	4.9	-----
TOTAL	119.3	145.2	2,232.0	5,257.3	441	633	625	864	328.0	187.7	163.5	146.0
MEAN	3.85	4.84	72.0	170	15.8	20.4	20.8	27.9	10.9	6.05	5.27	4.87
MAX	24	13	835	1,610	24	39	33	46	21	7.3	6.0	5.5
MIN	2.4	2.9	2.7	7.5	12	12	14	12	7.5	5.5	4.9	4.5
AC-FT	237	288	4,430	10,430	875	1,260	1,240	1,710	651	372	324	290
MEAN a	32.0	25.4	186	391	58.0	75.9	103	413	346	66.5	10.2	5.93
AC-FTa	1,970	1,510	11,440	24,060	3,220	4,670	6,150	25,400	20,580	4,090	628	353

CAL YR 1969 TOTAL 10,797.08 MEAN 29.6 MAX 835 MIN .72 ACFT 21,420 MEAN a 188 AC-FTa 136,000  
WAT YR 1970 TOTAL 11,142.0 MEAN 30.5 MAX 1,610 MIN 2.4 ACFT 22,100 MEAN a 144 AC-FTa 104,100

a Adjusted for diversion to Rubicon-Rockbound tunnel.

## SACRAMENTO RIVER BASIN

11428300 BUCK-LOON TUNNEL NEAR MEEKS BAY, CALIF.

LOCATION.--Lat 39°00'15", long 120°15'20", in NW $\frac{1}{4}$  sec.6, T.13 N., R.16 E., El Dorado County, Eldorado National Forest, on right bank at tunnel intake near left abutment of diversion dam, 7.6 miles southwest of Meeks Bay.

PERIOD OF RECORD.--November 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is 6,425.0 ft above mean sea level (levels by Sacramento Municipal Utility District).

AVERAGE DISCHARGE.--7 years, 138 cfs (99,980 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 1,240 cfs Dec. 23, 1964; no flow many days in each year.

REMARKS.--Records good except those for period of indefinite stage discharge relation, which are fair. Tunnel diverts from Buck Island Lake and discharges into Loon Lake. Stop logs are normally installed in the tunnel entrance in the summer and removed each fall to raise the level of Buck Island Lake for recreation purposes.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	5.9	8.2	51	70	67	75	90	548	166	8.3	.30
2	0	4.8	7.8	45	64	57	71	152	581	167	7.7	.30
3	0	4.0	7.4	40	58	48	89	268	666	188	6.5	.30
4	0	3.4	7.0	36	57	42	104	407	659	205	5.6	.30
5	0	4.5	5.9	34	56	40	130	484	581	215	4.7	.30
6	0	19	5.0	30	55	37	177	534	560	216	3.9	.30
7	0	32	4.8	29	52	38	203	423	540	176	3.1	.30
8	0	38	5.0	29	54	44	200	372	534	148	2.5	.30
9	0	40	5.6	51	57	44	190	397	802	134	2.1	.30
10	0	40	7.4	110	55	42	229	458	655	37	1.8	.30
11	0	40	9.8	85	55	38	232	294	383	.30	1.7	.30
12	0	44	9.4	61	64	36	205	298	282	.30	1.6	.30
13	0	48	12	54	72	40	180	291	235	2.5	1.4	.30
14	0	50	17	87	66	72	145	337	229	40	1.3	.30
15	0	50	19	107	57	116	107	485	193	58	1.2	.30
16	245	66	19	697	51	102	86	431	183	60	1.2	.30
17	336	67	17	1,120	54	93	73	882	218	54	1.2	.30
18	152	48	16	688	48	81	66	946	279	42	1.2	.30
19	75	35	82	324	42	66	71	879	374	34	1.1	.34
20	47	28	915	556	39	57	74	664	445	33	1.0	.52
21	36	23	1,190	1,040	40	55	67	553	575	30	1.0	.17
22	37	21	931	1,190	42	62	61	592	535	28	.80	2.0
23	41	19	414	1,030	42	81	55	638	491	24	.45	.70
24	38	16	263	619	44	111	51	657	440	20	.30	.32
25	32	15	360	291	45	147	61	650	387	17	.30	.09
26	26	14	264	188	48	149	102	748	360	14	.30	0
27	20	12	144	185	51	133	104	767	654	12	.30	0
28	16	11	96	153	56	114	79	611	488	10	.30	0
29	12	9.4	72	111	-----	114	66	521	276	9.8	.30	0
30	9.4	9.0	63	93	-----	115	66	515	192	9.2	.30	0
31	7.4	-----	56	79	-----	97	-----	551	-----	8.9	.30	-----
TOTAL	1,129.8	817.0	5,033.3	9,213	1,494	2,338	3,419	15,895	13,345	2,159.00	63.75	111.51
MEAN	36.4	27.2	162	297	53.4	75.4	114	513	445	69.6	2.06	3.72
MAX	336	67	1,190	1,190	72	149	232	946	802	216	8.3	.52
MIN	0	3.4	4.8	29	39	36	51	90	183	.30	.30	0
AC-FT	2,240	1,620	9,980	18,270	2,960	4,640	6,780	31,530	26,470	4,280	126	221
CAL YR 1969	TOTAL 77,007.54		MEAN 211	MAX 1,190	MIN 0	ACFT 152,700						
MAY YR 1970	TOTAL 55,018.36		MEAN 151	MAX 1,190	MIN 0	ACFT 109,100						

NOTE.--Stage-discharge relation indefinite July 10 to Sept. 20.

## 11428700 HELL HOLE RESERVOIR NEAR MEEKS BAY, CALIF.

LOCATION.--Lat 39°03'54", long 120°24'50", in SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.16, T.14 N., R.14 E., Placer County, Eldorado National Forest, on right bank 0.3 mile upstream from Hell Hole Dam on Rubicon River, and 15.6 miles west of Meeks Bay.

DRAINAGE AREA.--114 sq mi.

PERIOD OF RECORD.--December 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Placer County Water Agency).

EXTREMES.--Current year: Maximum contents, 206,800 acre-ft June 7 (elevation, 4,629.4 ft); minimum, 54,200 acre-ft Dec. 18 (elevation, 4,457.6 ft).

Period of record: Maximum contents, 209,500 acre-ft June 17, 1967 (elevation, 4,631.5 ft); minimum since reservoir first filled, 54,200 acre-ft Dec. 18, 1969 (elevation, 4,457.6 ft).

REMARKS.--Reservoir is formed by rockfill dam with earth core. Storage began Dec. 6, 1965. Usable capacity, 202,400 acre-ft between elevations 4,340.0 ft (minimum operating level) and 4,630.0 ft (crest of ogee spillway) above mean sea level. Dead storage, 248 acre-ft. Records represent total contents. See schematic diagram of Middle Fork American and Rubicon River basins.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

4,340	5,220	4,500	83,000
4,360	9,840	4,550	127,700
4,380	16,200	4,600	171,900
4,400	24,200	4,650	233,400
4,450	49,600		

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122,700	100,900	59,800	75,400	146,600	142,900	150,200	164,600	205,500	199,000	190,100	158,300
2	121,600	99,000	58,900	74,700	146,600	142,400	150,100	165,500	206,200	198,900	189,600	157,100
3	120,400	97,700	58,800	73,700	146,500	141,900	150,100	166,700	206,500	199,200	189,100	155,900
4	120,400	96,600	58,500	72,600	146,900	141,300	150,700	168,200	206,600	199,300	188,300	154,700
5	120,400	95,800	58,700	71,600	147,400	141,100	151,400	169,700	206,100	199,500	187,200	153,500
6	119,500	95,300	58,900	70,100	147,600	140,700	151,700	171,100	206,600	199,700	186,200	152,400
7	118,700	94,400	59,000	68,600	147,400	140,200	152,400	172,100	206,800	199,800	185,100	151,300
8	118,800	93,400	58,700	67,200	147,100	139,900	152,800	173,200	206,100	199,500	184,000	150,000
9	118,800	92,300	58,300	67,000	147,300	139,600	153,600	174,300	206,000	199,700	182,900	148,800
10	118,800	91,100	57,800	68,300	147,700	139,700	154,600	175,500	205,300	199,400	181,800	147,700
11	118,700	89,800	57,100	68,900	147,900	139,600	155,400	176,400	204,500	199,400	180,900	146,500
12	118,700	88,500	56,600	68,900	147,800	139,500	156,200	177,000	203,500	199,700	179,900	146,200
13	118,000	87,000	57,000	69,000	148,100	139,700	156,800	177,800	203,000	199,800	178,900	145,000
14	116,900	85,800	56,800	72,200	147,500	140,100	157,500	178,800	203,000	199,800	178,000	143,600
15	116,100	84,100	56,300	73,900	147,200	141,600	157,900	180,400	202,500	200,100	177,100	142,400
16	116,100	82,400	55,700	86,700	147,100	143,000	158,400	182,400	201,300	200,600	176,100	141,100
17	115,400	80,900	54,800	91,900	147,000	144,500	158,900	184,800	200,100	200,600	174,900	139,900
18	115,400	79,400	54,200	93,800	146,600	145,900	159,300	186,800	198,800	200,300	173,900	138,800
19	115,300	77,900	54,800	96,600	146,200	146,600	159,900	188,800	197,700	200,300	172,900	137,600
20	114,700	76,600	59,400	100,800	145,700	146,700	160,200	190,100	197,700	199,500	172,000	136,300
21	113,600	75,000	64,900	120,800	145,300	147,200	160,700	191,400	198,200	198,900	170,500	135,000
22	112,700	73,200	70,000	133,800	144,800	147,800	160,900	192,800	198,800	198,100	169,400	133,700
23	111,500	71,500	70,500	137,100	144,500	148,000	161,100	194,700	199,200	197,100	168,200	132,500
24	110,600	70,100	74,600	139,600	143,700	148,300	161,300	196,400	199,700	196,400	167,100	131,400
25	109,500	68,800	78,400	140,900	144,200	148,700	161,700	197,800	200,000	195,400	166,000	130,000
26	108,400	67,500	79,100	141,800	143,800	148,900	162,500	199,400	199,900	194,800	164,900	128,800
27	107,300	66,200	78,900	143,900	143,300	149,000	162,900	200,600	200,400	193,900	163,800	127,600
28	106,200	64,900	78,400	144,500	143,000	149,600	163,100	201,700	200,500	193,500	162,600	126,300
29	105,100	63,100	77,800	146,400	-----	150,300	163,300	202,900	199,900	192,400	161,500	125,100
30	104,000	61,200	77,100	146,000	-----	150,500	163,800	203,800	199,400	191,600	160,500	123,700
31	102,800	-----	76,300	146,400	-----	150,400	-----	204,700	-----	191,000	159,400	-----
MAX	122,700	100,900	79,100	146,400	148,100	150,500	163,800	204,700	206,800	200,600	190,100	158,300
MIN	102,800	61,200	54,200	67,000	143,000	139,500	150,100	164,600	197,700	191,000	159,400	123,700
(a)	4,525.8	4,468.6	4,490.7	4,575.9	4,572.4	4,579.9	4,592.7	4,627.7	4,623.4	4,616.5	4,588.6	4,551.2
(b)	-21,000	-41,600	+15,100	+70,100	-3,400	+7,400	+13,400	+40,900	-5,300	-8,400	-31,600	-35,700
CAL YR 1969	MAX 208,300	MIN 54,200	b -22,900									
WAT YR 1970	MAX 206,800	MIN 54,200	b -100									

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

## SACRAMENTO RIVER BASIN

11428800 RUBICON RIVER BELOW HELL HOLE DAM, NEAR MEEKS BAY, CALIF.

LOCATION.--Lat 39°03'24", long 120°24'25", in NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.21, T.14 N., R.14 E., Placer County, Eldorado National Forest, on right bank 600 ft downstream from outlet of dam, 2.4 miles downstream from Cottonwood Creek, and 15.3 miles west of Meeks Bay.

DRAINAGE AREA.--120 sq mi (revised).

PERIOD OF RECORD.--November 1965 to current year.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 4,231.52 ft above mean sea level (levels by Placer County Water Agency).

EXTREMES.--Current year: Maximum discharge, 123 cfs Jan. 21 (gage height, 4.99 ft); minimum daily, 7.1 cfs Oct. 7-10, 13, 14, 18-21.  
Period of record: Maximum discharge, 2,290 cfs June 18, 1967, including flow over spillway; minimum, no flow Aug. 25 to Sept. 11, 1966.

REMARKS.--Records excellent. Flow regulated by Hell Hole Reservoir beginning December 1965 (see sta 11428700). Water is diverted out of the basin above the station through Buck-Loon tunnel (see sta 11428300). Water is diverted from Middle Fork American River basin by tunnel from French Meadows Reservoir (see sta 11427400) to Hell Hole Reservoir. Water is diverted from Hell Hole Reservoir through a tunnel to Middle Fork powerplant. See schematic diagram of Middle Fork American and Rubicon River basins. During years when Hell Hole Dam spills, records include flow which bypass the station.

COOPERATION.--Records collected by Placer County Water Agency, under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.5	16	13	16	19	16	22	22	22	21	15	11
2	7.5	16	13	15	19	16	22	22	22	21	15	11
3	7.5	16	13	15	18	16	22	22	22	21	15	11
4	7.5	16	13	15	17	16	22	22	22	21	15	11
5	7.5	16	13	15	17	16	22	23	22	21	15	11
6	7.5	16	13	15	17	16	22	23	22	21	14	11
7	7.1	15	13	15	17	16	22	22	22	21	11	11
8	7.1	15	13	15	17	17	22	22	22	21	11	11
9	7.1	15	13	21	16	16	22	22	22	21	11	11
10	7.1	15	13	21	16	16	22	22	22	21	11	11
11	7.5	15	13	17	16	15	22	22	22	21	11	11
12	7.5	15	13	19	16	15	22	22	22	21	11	11
13	7.1	15	13	22	17	16	22	22	22	21	11	11
14	7.1	15	13	38	17	16	22	23	22	21	11	10
15	7.5	15	13	23	17	16	22	24	22	21	11	10
16	7.8	15	13	61	17	16	22	24	21	21	11	10
17	7.5	15	13	43	18	16	22	24	21	21	11	10
18	7.1	14	13	28	17	15	22	24	21	21	11	10
19	7.1	14	15	29	16	15	22	24	21	21	11	10
20	7.1	14	22	31	16	15	21	23	21	21	11	10
21	7.1	14	26	88	16	15	21	23	21	21	11	10
22	13	14	17	49	16	15	21	23	21	21	11	10
23	17	14	20	36	16	15	21	23	21	21	11	10
24	17	14	30	40	16	15	21	23	21	21	11	10
25	16	14	26	31	16	15	21	23	21	21	11	10
26	16	14	19	29	16	16	21	23	21	21	11	10
27	16	13	17	40	15	22	21	22	21	18	11	9.7
28	16	13	16	25	16	22	22	22	21	15	11	9.7
29	16	13	16	21	-----	22	21	22	21	15	11	9.7
30	16	13	16	20	-----	22	22	22	21	15	11	9.7
31	16	-----	16	19	-----	22	-----	22	-----	15	11	-----
TOTAL	312.8	439	490	872	467	517	651	702	645	624	364	311.8
MEAN	10.1	14.6	15.8	28.1	16.7	16.7	21.7	22.6	21.5	20.1	11.7	10.4
MAX	17	16	30	88	19	22	22	24	22	21	15	11
MIN	7.1	13	13	15	15	15	21	22	21	15	11	9.7
AC-FT	620	871	972	1,730	926	1,030	1,290	1,390	1,280	1,240	722	618
(a)	37,340	52,320	25,480	31,080	41,510	27,810	8,030	4,870	28,830	21,920	52,220	54,420
CAL YR 1969	TOTAL 11,258.4	MEAN 30.8	MAX 646	MIN 7.1	AC-FT 22,330							
WTR YR 1970	TOTAL 6,395.6	MEAN 17.5	MAX 88	MIN 7.1	AC-FT 12,690							

a Diversion, in acre-feet, from Hell Hole Reservoir to Middle Fork powerplant, furnished by Placer County Water Agency.



## 945

LOCATION.--Lat 38°53'46", long 120°22'40", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.11, T.12 N., R.14 E., El Dorado County, Eldorado National Forest, in powerhouse on shore of Union Valley Reservoir, 9.5 miles northwest of Kyburz.

GAGE.--Discharge computed from powerplant output. Altitude of gage is 4,880 ft (from topographic map). Prior to October 1965, water-stage recorder and concrete control in abandoned section of canal 0.5 mile upstream at different datum.

**EXTREMES**--Period of record: Maximum daily discharge, 1,440 cfs Dec. 22-24, 1964; no flow many days during 1965-70.

REMARKS.--Tunnel diverts at South Fork Rubicon River diversion dam in NE 1/4 sec. 27, T. 13 N., R. 14 E., and discharges into Union Valley Reservoir (see sta 11441001). Water is imported from Rubicon River basin via Rubicon-Rockbound tunnel and Buck-Loon tunnel to Loon Lake, thence via Gerle Creek and Robbs Peak tunnel and powerplant to South Fork American River basin for power development. See schematic diagrams of Middle Fork American and Rubicon River basins and South Fork American River basin.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	342	329	71	187	501	331	217	334	416	387	
2	0	342	4.5	125	163	523	341	195	488	409	378	
3	0	341	0	365	171	499	356	250	449	411	382	
4	0	339	71	389	171	476	349	260	447	394	373	
5	0	354	341	380	171	470	349	252	425	410	373	
6	0	369	347	376	158	470	377	287	421	407	366	
7	0	349	342	376	151	498	389	208	416	414	352	
8	0	347	340	381	235	498	380	181	435	402	363	
9	0	349	309	515	103	495	376	193	623	406	358	
10	0	350	28	448	12	470	401	304	500	406	361	
11	0	353	0	220	260	459	397	151	473	406	339	
12	0	338	0	268	582	459	376	139	453	406	339	
13	0	342	0	344	557	495	367	126	453	406	332	
14	5.0	361	65	802	540	580	338	199	445	400	269	
15	53	350	0	396	527	582	334	246	454	412	0	
16	380	370	0	509	522	527	355	266	458	401	0	
17	381	353	48	464	530	546	335	280	438	407	0	
18	359	350	11	466	503	508	352	274	438	401	0	
19	344	350	117	433	492	459	365	239	416	404	183	
20	355	349	619	338	480	440	352	205	332	405	10	
21	343	349	453	0	480	351	338	152	314	403	0	
22	352	349	248	0	466	368	330	202	316	409	0	
23	338	349	195	0	480	393	324	202	397	399	0	
24	351	349	547	0	486	415	341	191	402	402	0	
25	340	355	450	0	481	422	337	166	397	404	0	
26	348	349	290	266	495	415	343	195	395	404	0	
27	335	348	212	446	508	381	338	177	393	392	0	
28	352	346	122	353	516	363	319	116	340	411	0	
29	349	349	117	266	-----	373	329	135	391	397	0	
30	349	338	117	270	-----	386	351	304	417	397	0	
31	361	-----	80	213	-----	375	-----	316	-----	397	0	-----
TOTAL	5,695.0	10,479	5,802.5	9,480	10,427	14,197	10,570	6,628	12,660	12,538	5,165	0
MEAN	184	349	187	306	372	458	352	214	422	404	167	0
MAX	381	370	619	802	582	582	401	316	623	416	387	0
MIN	0	338	0	0	12	351	319	116	314	392	0	0
AC-FT	11,300	20,790	11,510	18,800	20,680	28,160	20,970	13,150	25,110	24,870	10,240	0
CAL YR 1969	TOTAL	143,681.5	MEAN	394	MAX	1,020	MIN	0	ACFT	285,000		
WAT YR 1970	TOTAL	103,641.5	MEAN	284	MAX	802	MIN	0	ACFT	205,600		

## SACRAMENTO RIVER BASIN

## 11429350 LOON LAKE NEAR MEEKS BAY, CALIF.

LOCATION.--Lat 39°00'17", long 120°18'30", in SW¼NW¼ sec.4, T.13 N., R.15 E., El Dorado County, Eldorado National Forest, on right bank at Loon Lake Dam on Gerle Creek, 2.3 miles upstream from Jerrett Creek, and 11 miles southwest of town of Meeks Bay.

DRAINAGE AREA.--7.94 sq mi.

PERIOD OF RECORD.--December 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Sacramento Municipal Utility District).

EXTREMES.--Current year: Maximum contents, 45,200 acre-ft June 10 (elevation, 6,386.0 ft); minimum, 4,500 acre-ft Sept. 30 (elevation, 6,333.0 ft).  
Period of record: Maximum contents, 77,700 acre-ft June 6, 1969 (elevation, 6,411.1 ft); minimum since reservoir first filled, 4,500 acre-ft Sept. 30, 1970 (elevation, 6,333.0 ft).

REMARKS.--Reservoir is formed by an earthfill dam completed Dec. 27, 1963. Storage began Dec. 5, 1963. Usable capacity, 74,100 acre-ft between elevations 6,325 ft (invert of fishwater release valve) and 6,410 ft (crest of spillway) above mean sea level. Dead storage, 2,360 acre-ft. Prior to September 1962, reservoir was formed by granite-block dam built in 1884, capacity, 8,000 acre-ft. See schematic diagram of Middle Fork American and Rubicon River basins.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

6,330	3,600
6,340	7,200
6,350	12,500
6,360	19,600
6,370	28,500
6,390	50,000
6,412	79,000

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40,500	29,700	9,620	18,400	40,000	28,300	12,600	7,340	41,500	41,700	-	5,040
2	40,500	28,900	9,680	18,000	40,200	27,600	12,300	7,940	41,900	41,000	-	5,010
3	40,400	28,300	9,680	17,300	40,300	26,800	12,100	8,950	42,500	40,500	-	5,010
4	40,300	27,400	9,220	16,600	40,400	26,100	11,800	10,100	42,900	40,000	-	4,980
5	40,300	26,800	8,400	15,800	40,500	25,400	11,800	11,400	43,200	39,500	-	4,950
6	40,300	25,300	7,430	15,100	40,800	24,700	11,800	12,600	43,600	38,900	-	4,890
7	40,300	24,700	6,570	14,600	40,900	23,900	11,800	13,500	43,700	38,500	-	4,860
8	40,200	24,200	5,690	14,100	41,000	23,100	11,800	14,200	44,000	37,600	-	4,860
9	40,200	23,600	5,270	14,100	41,200	22,300	11,800	15,000	44,800	37,000	-	4,830
10	40,100	23,000	5,270	14,400	41,300	21,500	11,900	16,000	45,200	36,100	-	4,800
11	40,100	22,400	5,310	15,100	41,100	20,800	12,000	16,700	45,000	35,100	8,120	4,770
12	40,100	21,900	5,350	15,800	40,400	20,100	12,100	17,200	44,600	34,100	-	4,740
13	40,000	21,400	5,350	16,500	39,900	19,400	12,000	17,700	44,100	33,200	-	4,710
14	40,000	20,900	5,390	17,200	39,200	18,700	11,900	18,600	43,700	32,300	5,560	4,680
15	39,900	20,200	5,390	17,900	38,200	18,100	11,700	19,900	43,200	31,600	-	4,650
16	39,800	19,600	5,390	18,600	37,600	17,600	11,400	21,400	42,700	30,800	-	4,620
17	39,800	19,000	5,390	21,300	36,900	17,000	11,100	23,100	42,200	30,000	-	4,620
18	39,400	18,400	5,440	22,600	36,200	16,300	10,700	25,100	41,900	29,200	-	4,590
19	38,900	17,600	5,810	22,500	35,400	15,600	10,400	26,900	41,900	28,200	5,440	4,560
20	38,000	16,900	8,810	24,900	34,600	15,200	10,000	28,200	42,300	27,400	5,390	4,650
21	37,200	16,200	12,300	29,000	33,800	14,900	9,680	29,500	42,700	26,700	5,390	4,680
22	36,700	15,400	13,900	33,400	33,000	14,700	9,320	30,700	42,900	25,700	5,350	4,680
23	36,100	14,800	14,700	35,800	32,300	14,400	8,950	32,100	43,000	25,000	5,310	4,680
24	35,400	14,200	15,500	37,100	31,600	14,300	8,580	33,300	43,000	23,600	5,270	4,650
25	34,700	13,600	16,800	37,800	30,900	14,200	8,260	34,800	42,900	22,700	5,270	4,620
26	34,000	13,000	17,400	38,500	30,100	14,100	7,890	36,300	42,700	21,800	5,230	4,590
27	33,300	12,300	17,700	38,900	29,500	13,900	7,570	37,900	43,100	20,800	5,180	4,590
28	32,500	11,600	17,900	39,100	28,800	13,800	7,250	38,900	43,100	19,900	5,140	4,560
29	32,000	10,800	18,100	39,500	-----	13,600	6,950	39,800	42,800	19,700	5,140	4,530
30	31,200	10,100	18,200	39,700	-----	13,100	6,950	40,400	42,300	17,300	5,100	4,500
31	30,400	-----	18,300	39,900	-----	12,800	-----	41,100	-----	17,100	5,070	-----
MAX	40,500	29,700	18,300	39,900	41,300	28,300	12,600	41,100	45,200	41,700	-	5,040
MIN	30,400	10,100	5,270	14,100	28,800	12,800	6,950	7,340	41,500	17,100	-	4,500
(a)	6,372.0	6,346.0	6,358.4	6,381.2	6,370.3	6,350.5	6,339.4	6,382.3	6,383.4	6,357.0	6,334.9	6,333.0
(b)	-10,300	-20,300	+8,200	+21,600	-11,100	-16,000	-5,850	+34,200	+1,200	-25,200	-12,030	-570
CAL YR 1969	MAX 77,700	MIN 5,270	b -5,900									
WTR YR 1970	MAX 45,200	MIN 4,500	b-36,200									

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

## 11429500 GERLE CREEK BELOW LOON LAKE DAM, NEAR MEEKS BAY, CALIF.

LOCATION.--Lat 39°00'20", long 120°18'52", in NE $\frac{1}{4}$  sec.5, T.13 N., R.15 E., El Dorado County, Eldorado National Forest, on right bank 0.3 mile downstream from Loon Lake Dam and 11 miles southwest of Meeks Bay.

DRAINAGE AREA.--8.01 sq mi.

PERIOD OF RECORD.--July 1910 to April 1914 (fragmentary), August 1962 to current year. Prior to August 1962, published as "near Rubicon Springs."

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Altitude of gage is 6,250 ft (from topographic map). Prior to August 1962, nonrecording gage at site about 1,400 ft upstream at different datum.

AVERAGE DISCHARGE.--9 years (1911, 1962-70), 132 cfs (95,630 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 477 cfs June 8 (gage height, 6.45 ft); minimum daily, 6.0 cfs Dec. 2, 3.

Period of record: Maximum discharge, 3,240 cfs (unregulated) Feb. 1, 1963 (gage height, 12.65 ft), from rating curve extended above 600 cfs on basis of slope-area measurement of maximum flow; no flow Oct. 15, 1913. Maximum discharge since construction of Loon Lake Dam in 1963, 1,050 cfs June 5, 1969 (gage height, 6.45 ft); minimum daily, 6.0 cfs Dec. 2, 3, 1969.

REMARKS.--Records excellent. Beginning in 1884, flow regulated by Loon Lake (see sta 11429350). Original dam was dismantled during September and October 1962 to permit construction of a new earthfill dam which was completed Dec. 27, 1963. Storage began Dec. 5, 1963. Loon Lake receives water from Rubicon River via Rubicon-Rockbound tunnel to Buck Island Lake and from Buck Island Lake to Loon Lake via Buck-Loon tunnel (see sta 11427940 and 11428300). See schematic diagram of Middle Fork American and Rubicon River basins.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.9	352	204	7.9	10	418	255	11	321	454	436	8.5
2	7.9	352	6.0	188	10	416	254	11	403	450	428	8.5
3	7.9	352	6.0	339	10	418	252	12	401	448	425	8.2
4	7.9	352	187	338	10	414	250	12	405	446	419	8.5
5	7.9	350	342	333	9.8	414	250	12	405	446	410	8.5
6	7.9	350	336	332	8.2	414	249	12	407	450	403	8.5
7	7.9	352	327	332	7.9	419	249	13	407	454	398	8.2
8	7.9	350	327	330	7.9	414	249	14	434	448	389	8.2
9	7.9	346	159	160	7.9	410	250	14	459	448	382	8.5
10	7.9	348	6.2	9.2	7.9	409	250	14	461	450	376	8.5
11	7.9	350	6.2	8.5	173	400	250	13	461	450	367	8.2
12	7.9	352	6.5	8.7	409	400	250	13	461	448	358	8.2
13	7.9	356	6.7	8.7	412	396	250	14	457	450	350	8.2
14	8.2	352	6.2	9.8	414	394	249	14	457	455	121	8.5
15	174	348	6.5	9.8	416	392	248	14	455	450	10	8.2
16	351	348	6.7	16	418	389	246	14	454	448	10	8.2
17	351	348	6.7	9.5	421	387	244	14	452	450	10	7.9
18	351	348	7.0	9.5	423	382	243	13	452	448	9.5	8.5
19	351	348	16	11	423	380	242	13	347	446	9.0	8.2
20	350	351	20	11	418	304	239	12	278	446	8.5	8.2
21	350	352	18	20	416	244	236	12	278	450	8.5	8.2
22	351	352	9.3	14	410	243	235	11	350	450	8.5	8.2
23	351	348	8.2	12	409	243	233	10	405	448	8.5	7.9
24	350	350	17	12	407	244	230	10	405	450	8.5	7.9
25	346	354	15	11	407	255	227	10	407	452	8.5	7.9
26	345	354	9.0	11	401	261	226	9.5	407	450	8.5	7.9
27	351	350	8.5	12	410	260	223	9.0	405	455	8.5	7.9
28	352	346	8.2	11	418	260	221	9.0	405	457	8.5	7.9
29	352	340	8.2	11	-----	258	218	120	429	454	8.5	7.9
30	354	338	7.9	10	-----	256	135	200	457	445	8.5	7.9
31	354	-----	7.9	10	-----	256	-----	200	-----	439	8.5	-----
TOTAL	5,894.9	10,489	2,105.9	2,605.6	7,294.6	10,750	7,153	859.5	12,325	13,935	5,412.5	246.0
MEAN	190	350	67.9	84.1	261	347	238	27.7	411	450	175	8.20
MAX	354	356	342	339	423	419	255	200	461	457	436	8.5
MIN	7.9	338	6.0	7.9	7.9	243	135	9.0	278	439	8.5	7.9
AC-FT	11,690	20,800	4,180	5,170	14,470	21,320	14,190	1,700	24,450	27,640	10,740	488
CAL YR 1969	TOTAL 89,804.8		MEAN 246	MAX 1,030	MIN 6.0	ACFT 178,100						
WAT YR 1970	TOTAL 79,071.0		MEAN 217	MAX 461	MIN 6.0	ACFT 156,800						

## SACRAMENTO RIVER BASIN

11430000 SOUTH FORK RUBICON RIVER BELOW GERLE CREEK, NEAR GEORGETOWN, CALIF.

LOCATION.--Lat 38°57'17", long 120°24'02", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.22, T.13 N., R.14 E., El Dorado County, Eldorado National Forest, on left bank 600 ft downstream from Gerle Creek and 18 miles east of Georgetown.

DRAINAGE AREA.--47.6 sq mi.

PERIOD OF RECORD.--February 1910 to June 1914 (published as Little South Fork Rubicon River below Gerle Creek near Quintette), August 1961 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,970 ft (from topographic map). Feb. 1, 1910, to June 21, 1914, nonrecording gage at site about 700 ft downstream at different datum.

AVERAGE DISCHARGE (unadjusted).--8 years (1962-70), 27.4 cfs (19,850 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 5,350 cfs Jan. 21 (gage height, 9.83 ft), from rating curve extended as explained below; minimum daily, 4.8 cfs Apr. 10-12.

Period of record: Maximum discharge, 11,500 cfs Jan. 31, 1963 (gage height, 12.32 ft), from rating curve extended above 2,500 cfs on basis of slope-area measurement of maximum flow; minimum, 0.8 cfs Sept. 21, 1962.

REMARKS.--Records good. Beginning in 1884, flow regulated by Loon Lake (see sta 11429350). Original dam was dismantled during September and October 1962 to permit construction of a new earthfill dam which was completed Dec. 27, 1963. Loon Lake receives water from Rubicon River via Rubicon-Rockbound tunnel to Buck Island Lake and from Buck Island Lake to Loon Lake via Buck-Loon tunnel (see sta 11427940 and 11428300). Prior to Dec. 3, 1961, water was diverted out of the basin in Georgetown Divide ditch. Robbs Peak tunnel 1.2 miles upstream (see sta 11429800) began diversion of up to 1,320 cfs to Silver Creek basin October 1962. See schematic diagram of Middle Fork American and Rubicon River basins.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	9.2	6.0	6.2	7.6	8.4	5.5	5.5	9.9	9.8	11	10
2	7.0	9.2	6.0	5.9	7.2	11	5.2	5.3	10	9.8	11	11
3	7.0	9.2	6.0	5.8	7.0	7.1	5.2	5.1	9.9	9.8	11	11
4	7.0	9.2	6.0	5.7	6.7	6.7	5.2	5.1	9.8	9.8	11	11
5	7.0	10	6.0	5.5	6.5	6.6	5.2	5.8	9.8	9.8	11	11
6	7.0	8.4	6.0	5.5	6.3	6.7	5.1	8.0	9.6	9.8	11	11
7	7.0	7.9	6.0	5.4	6.2	6.8	5.0	8.3	10	9.8	11	11
8	7.2	7.2	6.2	5.9	6.0	7.3	5.0	8.3	11	9.8	11	11
9	8.2	7.1	6.1	12	28	7.0	4.9	8.3	11	9.7	11	11
10	9.6	6.7	6.1	14	59	6.8	4.8	8.3	10	9.6	11	11
11	9.5	6.3	6.5	9.9	9.9	6.6	4.8	8.2	9.9	9.4	11	10
12	9.7	6.2	6.6	11	9.6	6.7	4.8	8.2	9.9	9.6	11	10
13	9.7	6.2	6.7	16	9.9	7.1	5.0	8.2	9.8	9.6	11	10
14	9.8	6.2	6.3	103	9.5	7.6	5.0	8.2	10	9.4	11	10
15	11	6.3	6.0	17	9.4	7.5	5.0	8.2	9.9	10	11	10
16	11	6.7	6.0	2,290	10	7.3	5.2	8.2	12	10	11	10
17	11	6.3	6.0	797	12	7.2	5.1	8.1	9.7	10	11	10
18	10	6.2	5.6	132	9.4	6.7	5.0	8.1	9.7	10	11	10
19	9.9	6.2	8.5	60	7.3	6.5	5.5	8.0	9.5	10	10	10
20	9.9	6.2	336	456	6.8	6.4	5.2	8.0	9.5	11	8.9	10
21	9.8	6.2	817	3,480	6.6	6.2	5.3	8.2	9.5	11	8.8	10
22	9.7	6.2	81	2,030	6.4	6.2	5.4	9.0	9.5	11	8.2	10
23	9.5	6.2	35	753	6.4	6.2	5.3	9.4	9.4	11	7.9	11
24	9.3	6.1	500	956	6.4	6.2	5.2	9.3	9.4	11	7.8	11
25	9.2	6.0	553	432	6.3	6.1	5.1	9.4	9.4	11	7.7	11
26	9.2	6.0	62	246	6.3	6.0	5.6	9.4	9.7	11	8.9	11
27	9.2	6.0	9.3	333	6.3	5.9	5.4	9.6	9.9	11	10	11
28	9.2	6.0	8.0	70	6.9	5.8	5.3	9.7	9.9	11	10	11
29	9.2	6.0	7.3	10	-----	5.8	5.4	9.8	9.8	11	10	11
30	9.2	6.0	6.8	9.0	-----	5.7	5.5	9.8	9.9	11	10	11
31	9.2	-----	10	8.1	-----	5.6	-----	9.8	-----	11	10	-----
TOTAL	278.0	207.6	2,544.0	12,290.9	285.9	209.7	155.2	252.8	297.3	317.7	316.2	317
MEAN	8.97	6.92	82.1	396	10.2	6.76	5.17	8.15	9.91	10.2	10.2	10.6
MAX	11	10	817	3,480	59	11	5.6	9.8	12	11	11	11
MIN	6.8	6.0	5.6	5.4	6.0	5.6	4.8	5.1	9.4	9.4	7.7	10
AC-FT	551	412	5,050	24,380	567	416	308	501	590	630	627	629
CAL YR 1969	TOTAL 14,172.7		MEAN 38.8		MAX 2,040	MIN 5.4		AC-FT 28,110				
WTR YR 1970	TOTAL 17,472.3		MEAN 47.9		MAX 3,480	MIN 4.8		AC-FT 34,660				

## 11431800 PILOT CREEK ABOVE STUMPY MEADOWS RESERVOIR, CALIF.

LOCATION.--Lat 38°53'41", long 120°34'02", in NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.18, T.12 N., R.13 E., El Dorado County, on right bank 2.1 miles upstream from Stumpy Meadows Dam and 12.5 miles east of Georgetown.

DRAINAGE AREA.--11.7 sq mi.

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,280 ft (from topographic map).

AVERAGE DISCHARGE.--10 years, 25.8 cfs (18,690 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 876 cfs Jan. 16 (gage height, 4.26 ft), from rating curve extended as explained below; minimum daily, 3.2 cfs Aug. 25, 29, Sept. 1-4 11-13.

Period of record: Maximum discharge, 2,380 cfs Dec. 23, 1964 (gage height, 5.92 ft, in gage well, 6.6 ft, from floodmarks), from rating curve extended above 170 cfs on basis of slope-area measurement of maximum flow; maximum gage height, 8.05 ft Jan. 31, 1963; minimum daily discharge, 1.9 cfs Aug. 20-26, Sept. 4-7, 10, 1966.

REMARKS.--Records good. No regulation or diversion above station. See schematic diagram of Middle Fork American and Rubicon River basins.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.9	6.0	6.4	28	92	53	29	22	12	8.6	4.6	3.2
2	5.1	6.0	6.4	24	79	46	28	21	11	8.2	4.5	3.2
3	5.1	6.0	6.4	22	70	43	27	20	11	7.9	4.4	3.2
4	5.1	5.8	6.4	20	64	42	26	19	11	7.7	4.4	3.2
5	5.3	14	6.0	19	58	41	26	19	11	7.2	4.3	3.6
6	5.3	24	6.0	19	55	42	25	19	11	7.0	4.3	3.6
7	5.3	12	6.0	17	51	41	24	19	11	6.9	4.2	3.7
8	5.6	10	7.1	18	48	46	24	19	12	6.8	4.0	3.5
9	6.0	9.1	7.1	39	45	45	24	18	16	6.7	4.0	3.4
10	5.6	8.7	7.7	86	43	44	23	18	13	6.7	3.9	3.3
11	5.3	8.4	12	64	42	43	22	18	12	6.6	3.7	3.2
12	5.3	8.1	11	69	45	43	22	17	12	6.6	3.7	3.2
13	5.3	7.7	13	111	47	44	23	17	12	6.3	3.6	3.2
14	5.8	7.4	10	373	45	47	24	16	12	6.2	3.8	3.6
15	16	7.4	8.7	226	42	48	24	16	12	6.0	3.7	3.7
16	22	9.4	8.4	591	48	48	24	15	11	5.8	3.7	3.6
17	15	8.7	7.7	559	65	48	24	15	11	5.8	3.7	3.5
18	9.4	7.4	7.4	264	52	46	24	15	11	5.6	3.7	3.3
19	8.4	7.4	32	190	48	45	26	15	10	5.4	3.6	3.7
20	7.7	7.1	110	171	46	44	24	15	9.7	5.2	3.6	4.0
21	7.1	7.1	149	545	44	43	23	14	9.4	5.1	3.5	4.0
22	6.7	7.1	75	462	43	42	23	14	9.2	5.1	3.4	3.8
23	6.7	6.7	65	247	42	40	22	14	8.9	5.1	3.4	3.7
24	6.7	6.7	234	260	39	39	22	13	8.8	4.9	3.4	3.7
25	6.7	6.4	168	192	38	38	21	13	8.6	4.8	3.2	3.5
26	6.4	6.4	108	151	38	36	23	13	9.3	4.7	3.4	3.5
27	6.4	6.4	74	242	37	35	22	13	9.5	4.6	3.5	3.5
28	6.4	6.4	56	178	40	33	22	13	9.6	4.6	3.4	3.4
29	6.0	6.4	46	145	-----	32	22	13	9.6	4.6	3.2	3.4
30	6.0	6.4	37	121	-----	31	22	12	9.0	4.7	3.3	3.3
31	6.0	-----	31	106	-----	30	-----	12	-----	4.7	3.3	-----
TOTAL	224.6	246.6	1,328.7	5,559	1,406	1,298	715	497	323.6	186.1	116.4	104.7
MEAN	7.25	8.22	42.9	179	50.2	41.9	23.8	16.0	10.8	6.00	3.75	3.49
MAX	22	24	234	591	92	53	29	22	16	8.6	4.6	4.0
MIN	4.9	5.8	6.0	17	37	30	21	12	8.6	4.6	3.2	3.2
AC-FT	445	489	2,640	11,030	2,790	2,570	1,420	986	642	369	231	208

CAL YR 1969 TOTAL 15,471.0 MEAN 42.4 MAX 906 MIN 4.9 AC-FT 30,690  
WTR YR 1970 TOTAL 12,005.7 MEAN 32.9 MAX 591 MIN 3.2 AC-FT 23,810

## PEAK DISCHARGE (BASE, 100 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1430	2.96	282	1-16	1030	4.26	876
12-24	0630	3.03	306	1-21	2030	4.21	846
1-10	0200	2.24	120	1-27	0730	3.18	323
1-14	1300	3.76	590				

## SACRAMENTO RIVER BASIN

11433040 PILOT CREEK BELOW MUTTON CANYON, NEAR GEORGETOWN, CALIF.

LOCATION.--Lat 38°55'25", long 120°38'27", in NE¼NW¼ sec.4, T.12 N., R.12 E., El Dorado County, Eldorado National Forest, on left bank 450 ft downstream from Mutton Canyon, 500 ft downstream from Georgetown Divide diversion dam, 2.5 miles downstream from Stumpy Meadows Dam, and 10 miles east of Georgetown.

DRAINAGE AREA.--21.1 sq mi.

PERIOD OF RECORD.--June 1961 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,760 ft (from topographic map).

AVERAGE DISCHARGE.--9 years, 32.0 cfs (23,180 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,410 cfs Jan. 21 (gage height, 7.36 ft), from rating curve extended above 300 cfs on basis of slope-area measurement at gage height 10.06 ft; minimum daily, 0.87 cfs Sept. 30.

Period of record: Maximum discharge, 5,430 cfs Dec. 22, 1964 (gage height, 9.60 ft), from rating curve extended above 150 cfs on basis of slope-area measurement at gage height 5.00 ft; maximum gage height, 10.06 ft Dec. 23, 1964; minimum daily discharge, 0.20 cfs Sept. 24, Nov. 1-5, 1966.

REMARKS.--Records good. Flow regulated by Stumpy Meadows Reservoir (usable capacity, 20,000 acre-ft) completed in November 1961. Georgetown Irrigation District ditch (capacity, about 20 cfs) diverts water out of Pilot Creek, 500 ft above station. See schematic diagram of Middle Fork American and Rubicon River basins.

REVISIONS (WATER YEARS).--WRD Calif. 1965: 1962.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	1.4	8.4	8.0	198	144	48	19	8.4	4.5	1.9	2.3
2	5.2	1.4	8.4	7.2	173	106	47	18	8.5	4.4	2.0	2.5
3	5.2	1.4	8.4	6.8	156	87	36	17	9.1	4.2	1.8	2.4
4	5.6	1.4	8.4	6.4	144	88	21	16	9.0	4.1	1.6	2.4
5	5.6	4.7	8.4	6.0	131	86	20	9.1	8.9	4.1	1.3	2.5
6	4.9	13	8.4	6.0	121	81	18	5.5	8.0	3.9	1.3	2.4
7	4.9	12	8.4	5.6	114	80	17	5.1	7.2	4.5	1.2	2.4
8	6.4	11	9.2	6.0	105	96	16	5.3	8.6	5.2	1.3	2.5
9	4.0	9.6	9.6	16	101	87	15	5.9	11	5.2	1.6	2.7
10	2.6	9.2	11	33	94	90	15	5.9	8.8	5.1	1.5	2.7
11	4.6	9.2	14	16	93	82	14	4.5	8.1	5.1	1.5	2.7
12	2.6	8.8	5.0	18	100	80	13	3.5	7.9	5.0	1.4	2.7
13	1.3	8.8	5.2	26	109	79	18	3.4	7.8	4.2	1.4	2.8
14	1.4	8.8	2.4	84	107	80	24	3.5	7.8	3.9	1.4	2.8
15	10	8.8	2.2	217	92	81	17	3.1	7.6	3.6	1.4	2.8
16	16	9.6	2.0	811	90	80	28	3.0	7.4	3.5	1.4	1.9
17	16	9.2	2.0	1,040	137	79	39	3.0	7.2	3.5	1.4	.97
18	14	8.8	1.8	587	106	76	38	3.0	7.0	3.5	1.9	.96
19	13	8.8	12	392	94	73	48	3.0	6.8	3.5	2.4	1.0
20	12	8.8	38	335	88	71	40	5.2	6.7	3.3	2.4	1.0
21	12	8.8	46	881	83	69	36	5.7	6.5	3.2	2.4	.98
22	6.1	8.8	16	946	80	68	36	4.5	6.4	3.3	2.4	.95
23	1.5	8.4	20	485	76	66	34	3.8	5.8	3.3	2.3	.95
24	1.5	8.4	79	506	73	64	33	3.3	4.8	3.2	2.9	.96
25	1.5	8.4	44	360	70	63	32	3.1	4.8	3.2	2.5	.93
26	1.4	8.4	24	295	69	61	38	5.9	5.0	3.2	1.7	.93
27	1.4	8.4	16	431	68	57	39	9.0	5.0	3.0	1.7	.91
28	1.4	8.4	12	342	72	55	35	8.9	5.1	2.5	1.6	.90
29	1.4	8.4	10	288	-----	54	21	8.9	5.0	2.0	1.7	.88
30	1.4	8.4	9.6	255	-----	53	21	8.7	4.7	2.0	1.7	.87
31	1.4	-----	8.8	224	-----	51	-----	8.5	-----	1.9	1.8	-----
TOTAL	173.1	239.5	458.6	8,640.0	2,944	2,387	857	212.3	214.9	115.1	54.8	53.69
MEAN	5.58	7.98	14.8	279	105	77.0	28.6	6.85	7.16	3.71	1.77	1.79
MAX	16	13	79	1,040	198	144	48	19	11	5.2	2.9	2.8
MIN	1.3	1.4	1.8	5.6	68	51	13	3.0	4.7	1.9	1.2	.87
AC-FT	343	475	910	17,140	5,840	4,730	1,700	421	426	228	109	106
CAL YR 1969	TOTAL 20,875.7		MEAN 57.2		MAX 1,010		MIN 1.3		AC-FT 41,410			
WTR YR 1970	TOTAL 16,349.99		MEAN 44.8		MAX 1,040		MIN .87		AC-FT 32,430			

## 11433060 SOUTH FORK LONG CANYON CREEK DIVERSION TUNNEL NEAR VOLCANOVILLE, CALIF.

LOCATION.--Lat 39°03'04", long 120°28'14", in SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.24, T.14 N., R.13 E., Placer County, Eldorado National Forest, on right bank at diversion dam, 3.3 miles upstream from confluence with North and South Forks Long Canyon Creek, and 17.2 miles east of Volcanoville.

PERIOD OF RECORD.--October 1965 to current year.

GAGE.--Water-stage recorder and sharp-crested weir. Altitude of gage is 4,630 ft (from topographic map).

AVERAGE DISCHARGE.--5 years, 8.41 cfs (6,090 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 166 cfs Apr. 18, 1969; no flow for part of each year.

REMARKS.--Records good. Tunnel completed in September 1965; diversion began in February 1966. Flow is diverted from South Fork Long Canyon Creek to a tunnel from Hell Hole Reservoir to Middle Fork powerplant on the Middle Fork American River. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Recorder chart and one discharge measurement furnished by Placer County Water Agency.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	0	6.5	26	11	7.6	7.2	5.0			
2	0	0	0	4.6	23	9.2	7.6	6.8	4.6			
3	0	0	0	3.6	21	6.8	3.0	7.2	3.8			
4	0	0	0	2.8	19	3.1	.95	7.9	3.3			
5	0	.06	0	1.9	16	.98	1.5	8.2	2.6			
6	0	.08	0	1.3	14	1.7	1.0	8.5	2.1			
7	0	0	0	1.3	12	2.6	.20	8.8	1.9			
8	0	0	0	2.1	11	5.0	.50	9.9	2.3			
9	0	0	0	28	9.6	12	.65	12	6.2			
10	0	0	0	37	9.2	13	5.2	11	3.6			
11	0	0	0	25	8.5	11	9.6	11	2.6			
12	0	0	0	39	12	13	8.8	10	2.1			
13	0	0	0	55	11	18	9.6	9.9	1.9			
14	0	0	0	46	9.9	24	9.2	9.9	1.7			
15	0	0	0	18	10	22	9.6	11	1.5			
16	.04	0	0	5.6	11	20	9.6	12	1.1			
17	.04	0	0	.95	15	20	9.2	13	.65			
18	0	0	0	1.1	11	16	8.8	16	.27			
19	0	0	6.4	20	8.8	14	11	16	0			
20	0	0	40	45	7.6	12	9.2	15	0			
21	0	0	45	12	7.2	12	8.2	14	0			
22	0	0	20	.80	6.8	12	7.9	12	0			
23	0	0	25	24	7.2	12	7.2	12	0			
24	0	0	51	8.5	6.8	13	6.5	11	0			
25	0	0	35	6.2	6.5	12	6.2	11	0			
26	0	0	30	5.8	6.5	11	7.2	10	0			
27	0	0	23	2.8	6.8	11	6.5	9.6	0			
28	0	0	16	0	9.2	9.9	6.2	8.5	0			
29	0	0	12	23	-----	9.9	6.5	7.9	0			
30	0	0	9.9	35	-----	9.2	7.2	6.8	0			
31	0	-----	7.9	31	-----	8.2	-----	5.8	-----			
TOTAL	.08	.14	321.2	493.85	322.6	355.58	192.40	319.9	47.22	0	0	0
MEAN	.002	.004	10.4	15.9	11.5	11.5	6.41	10.3	1.57	0	0	0
MAX	.04	.08	51	55	26	24	11	16	6.2	0	0	0
MIN	0	0	0	0	6.5	.98	.20	5.8	0	0	0	0
AC-FT	.2	.3	637	980	640	705	382	635	94	0	0	0
CAL YR 1969	TOTAL 3,172.01			MEAN 8.69	MAX 166	MIN 0	ACFT 6,290					
WAT YR 1970	TOTAL 2,052.97			MEAN 5.62	MAX 55	MIN 0	ACFT 4,070					

## SACRAMENTO RIVER BASIN

11433080 NORTH FORK LONG CANYON CREEK DIVERSION TUNNEL NEAR VOLCANOVILLE, CALIF.

LOCATION.--Lat 39°02'57", long 120°28'56", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.24, T.14 N., R.13 E., Placer County, Eldorado National Forest, on left bank at diversion dam, 3.2 miles upstream from confluence of North and South Forks Long Canyon Creek, and 16.9 miles east of Volcanoville.

PERIOD OF RECORD.--October 1965 to current year.

GAGE.--Water-stage recorder and Parshall flume. Altitude of gage is 4,700 ft (from topographic map).

AVERAGE DISCHARGE.--5 years, 3.42 cfs (2,480 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 54 cfs May 27, 1967; no flow for part of each year.

REMARKS.--Records good. No regulation or diversion above station. Tunnel completed in September 1965 and diversions began in February 1966. Flow is diverted from North Fork Long Canyon Creek to a tunnel from Hell Hole Reservoir to Middle Fork powerplant on the Middle Fork American River. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Gage-height record and one discharge measurement furnished by Placer County Water Agency.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0		0	.21	11	3.1	2.4	3.6	.21	.08		
2	0		0	.08	9.7	1.8	1.1	3.1	.21	.08		
3	0		0	.05	8.5	1.2	1.1	2.9	.21	.08		
4	0		0	.05	7.5	.96	2.0	2.8	.16	.12		
5	0		0	.05	6.2	1.3	2.3	2.5	.16	.12		
6	0		0	.05	5.4	1.8	2.6	2.3	.16	.16		
7	0		0	0	4.7	1.8	2.5	1.9	.16	.16		
8	0		0	.22	4.2	2.0	2.5	2.3	.38	.21		
9	0		0	7.3	3.5	1.4	2.5	2.6	1.8	.21		
10	0		0	3.1	2.8	.96	2.5	2.3	.68	.11		
11	0		0	3.1	2.6	.86	2.3	1.7	.32	0		
12	0		0	2.4	4.5	2.2	1.8	1.4	.21	0		
13	0		0	2.3	3.8	4.9	1.7	1.4	.16	0		
14	0		0	1.2	3.3	8.5	1.6	1.2	.21	0		
15	.46		0	.77	3.6	7.3	1.8	.86	.16	0		
16	1.5		0	.32	3.5	6.8	1.9	.77	.16	0		
17	.32		0	.16	5.0	5.5	2.2	.60	.16	0		
18	.08		0	.12	3.1	3.2	2.2	.60	.16	0		
19	.05		8.9	.16	2.3	2.0	4.1	.86	.12	0		
20	.05		7.4	5.8	1.9	1.7	2.5	.60	.12	0		
21	.05		2.9	3.9	1.8	1.7	1.9	.45	.12	0		
22	.05		3.8	.52	2.0	1.9	1.6	.32	.12	0		
23	.05		10	7.2	2.2	2.3	1.3	.26	.12	0		
24	.05		4.4	0	1.9	2.6	1.3	.21	.12	0		
25	.05		2.5	0	2.0	2.3	1.5	.21	.12	0		
26	.05		2.0	0	2.2	1.5	1.5	.16	.12	0		
27	.02		1.9	0	1.9	.60	1.3	.16	.12	0		
28	.02		1.8	0	2.6	.60	1.5	.12	.12	0		
29	.02		1.1	9.2	-----	.38	3.4	.16	.08	0		
30	.01		.60	18	-----	.21	4.5	.26	.08	0		
31	.01	-----	.32	14	-----	1.3	-----	.26	-----	0	-----	-----
TOTAL	2.84	0	47.62	80.26	113.7	74.67	63.4	38.86	7.03	1.33	0	0
MEAN	.092	0	1.54	2.59	4.06	2.41	2.11	1.25	.23	.043	0	0
MAX	1.5	0	10	18	11	8.5	4.5	3.6	1.8	.21	0	0
MIN	0	0	0	0	1.8	.21	1.1	.12	.08	0	0	0
AC-FT	5.6	0	94	159	226	148	126	77	14	2.6	0	0
CAL YR 1969	TOTAL	1,610.83	MEAN	4.41	MAX	47	MIN	0	ACFT	3,200		
WAT YR 1970	TOTAL	429.71	MEAN	1.18	MAX	18	MIN	0	ACFT	852		



## 11433100 LONG CANYON CREEK NEAR FRENCH MEADOWS, CALIF.

LOCATION.--Lat 39°01'16", long 120°30'53", in SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.34, T.14 N., R.13 E., Placer County, Eldorado National Forest, on right bank 75 ft downstream from North Fork Long Canyon, 6.5 miles south of French Meadows, and 18 miles east of Foresthill.

DRAINAGE AREA.--18.0 sq mi.

PERIOD OF RECORD.--August 1960 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,100 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 2,410 cfs Jan. 21 (gage height, 9.16 ft), from rating curve extended as explained below; minimum daily, 0.65 cfs Sept. 30.

Period of record: Maximum discharge, 4,690 cfs Dec. 23, 1964 (gage height, 11.20 ft), from rating curve extended above 300 cfs on basis of slope-area measurements at gage heights 6.62 and 10.27 ft; minimum daily, 0.08 cfs Sept. 27, 28, 1968.

REMARKS.--Records good except those for period of indefinite stage-discharge relationship, which are fair. Water is diverted above this station to a diversion tunnel from Hell Hole Reservoir to Middle Fork American River powerplant via South Fork and North Fork Long Canyon diversion tunnels (see sta 11433060 and 11433080); diversions began in February 1966. See schematic diagram of Middle Fork American and Rubicon River basins.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	1.7	1.6	23	79	60	34	19	9.7	4.3	1.9	1.1
2	1.0	1.7	1.6	21	70	52	32	18	9.7	3.9	1.9	1.1
3	1.1	1.7	1.8	20	65	50	31	18	9.7	3.7	1.9	1.1
4	1.2	1.7	1.9	19	61	48	30	17	9.2	3.5	1.9	1.0
5	1.2	4.5	1.9	17	57	47	29	17	8.8	3.4	1.8	1.0
6	1.2	7.9	1.9	17	53	45	30	16	8.8	3.2	1.8	1.0
7	1.3	4.7	1.9	17	49	47	31	16	8.8	3.1	1.8	1.0
8	1.5	3.8	2.3	17	46	53	31	16	11	3.1	1.7	.96
9	1.6	3.3	2.2	50	44	54	30	16	11	2.9	1.7	.96
10	1.5	3.5	2.7	99	43	58	30	16	9.7	2.9	1.7	.96
11	1.4	3.6	3.6	69	45	53	29	16	9.2	2.9	1.6	.96
12	1.5	3.5	4.3	78	47	52	28	15	9.2	2.8	1.6	1.0
13	1.5	3.0	5.6	110	48	53	28	15	9.2	2.8	1.6	1.0
14	1.7	2.7	4.4	500	45	57	29	14	9.2	2.7	1.5	.96
15	3.9	2.5	3.7	250	44	59	30	14	9.2	2.7	1.5	.96
16	9.6	3.8	3.3	1,030	54	56	30	13	8.8	2.5	1.5	.96
17	6.9	3.2	3.3	746	65	54	30	13	8.5	2.5	1.5	.96
18	3.6	2.7	3.3	462	54	51	30	13	8.5	2.4	1.5	.96
19	2.7	2.5	15	373	52	50	31	13	8.1	2.4	1.4	1.1
20	2.3	2.4	76	370	50	48	30	13	7.4	2.4	1.4	1.1
21	2.1	2.2	150	1,470	48	46	28	13	6.8	2.3	1.4	1.1
22	2.0	2.2	28	841	47	45	26	13	6.5	2.3	1.4	1.1
23	1.9	2.1	33	506	45	43	25	14	6.2	2.2	1.3	1.0
24	1.9	2.1	338	395	43	42	23	13	5.9	2.2	1.3	.96
25	1.9	2.0	232	264	42	41	22	12	5.7	2.2	1.3	.96
26	1.9	1.9	88	184	41	41	23	12	5.7	2.1	1.2	.87
27	2.0	1.9	47	245	42	39	23	11	5.7	2.1	1.2	.77
28	1.8	1.9	34	161	47	38	22	11	5.9	2.1	1.2	.70
29	1.8	1.8	29	131	-----	37	21	11	5.7	2.0	1.1	.70
30	1.8	1.7	26	109	-----	36	20	10	4.7	2.0	1.1	.65
31	1.7	-----	24	92	-----	35	-----	9.7	-----	2.0	1.2	-----
TOTAL	68.7	84.2	1,171.3	8,686	1,426	1,490	836	437.7	242.5	83.6	46.9	28.95
MEAN	2.22	2.81	37.8	280	50.9	48.1	27.9	14.1	8.08	2.70	1.51	.97
MAX	9.6	7.9	338	1,470	79	60	34	19	11	4.3	1.9	1.1
MIN	1.0	1.7	1.6	17	41	35	20	9.7	4.7	2.0	1.1	.65
AC-FT	136	167	2,320	17,230	2,830	2,960	1,660	868	481	166	93	57

CAL YR 1969 TOTAL 22,003.50 MEAN 60.3 MAX 1,330 MIN 1.0 AC-FT 43,640  
 WTR YR 1970 TOTAL 14,601.85 MEAN 46.0 MAX 1,470 MIN .65 AC-FT 28,960

NOTE.--Stage-discharge relation indefinite Jan. 22 to May 22.

## SACRAMENTO RIVER BASIN

## 11433200 RUBICON RIVER NEAR FORESTHILL, CALIF.

LOCATION.--Lat 38°59'33", long 120°43'14", in SE¼NW¼ sec.11, T.13 N., R.11 E., Placer County, Eldorado National Forest, on right bank 0.6 mile upstream from Ralston powerhouse, 1.2 miles upstream from confluence of Rubicon River and Middle Fork American River, and 5.6 miles southeast of Foresthill.

DRAINAGE AREA.--315 sq mi.

PERIOD OF RECORD.--October 1958 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,200 ft (from topographic map). October 1958 to May 17, 1963, at site 2.0 miles upstream, 150 ft downstream from Ralston Bridge, and May 17, 1963, to Mar. 30, 1965, at site 2.1 miles upstream, 100 ft upstream from Ralston Bridge at datum 1,362.20 ft above mean sea level.

AVERAGE DISCHARGE (since construction of Hell Hole Dam).--5 years (1966-70), 326 cfs (236,200 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 15,100 cfs Jan. 21 (gage height, 14.60 ft); minimum daily, 37 cfs Aug. 24-27.

Period of record: Maximum discharge, unknown Dec. 23, 1964 (gage height, 55.4 ft, from floodmarks), result of failure of the partly constructed Hell Hole Dam; next highest peak discharge, 83,000 cfs Feb. 1, 1963 (gage height, 35.0 ft, former site and datum); minimum daily, 10 cfs Sept. 20-27, 1962. Maximum discharge since construction of Hell Hole Dam in 1965, 15,100 cfs Jan. 21, 1970 (gage height, 14.60 ft); minimum daily, 24 cfs Sept. 12, 1966.

Floods of December 1937, November 1950, and December 1955, had approximate discharges of 44,000, 56,000, and 73,000 cfs respectively, on basis of 1958-64 stage-discharge relation and U.S. Forest Service flood-marks.

REMARKS.--Records good. Flow regulated by Hell Hole Reservoir (see sta 11428700), Loon Lake (see sta 11429350), and Stumpy Meadows Reservoir (capacity, 20,000 acre-ft). Water is imported from French Meadows Reservoir on Middle Fork American River through tunnel to French Meadows powerplant on shore of Hell Hole Reservoir. Water is diverted from Hell Hole Reservoir through tunnel to Middle Fork powerplant on Middle Fork American River. Robbs Peak tunnel and powerplant (see sta 11429800) divert water to South Fork American River basin. See schematic diagram of Middle Fork American and Rubicon River basins.

REVISIONS (WATER YEARS).--WRD Calif. 1968: 1967(M).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	60	62	174	1,030	870	345	206	118	87	49	38
2	41	60	62	160	904	717	334	202	115	85	51	40
3	40	62	61	150	816	599	325	198	115	82	51	41
4	39	59	60	143	744	577	310	191	114	82	52	40
5	39	95	60	137	676	590	284	184	112	79	48	41
6	40	205	60	132	613	569	278	178	109	79	49	43
7	39	114	60	130	568	555	260	178	109	76	49	43
8	43	92	67	133	523	686	249	174	108	73	48	43
9	48	81	76	225	486	654	239	176	148	73	46	43
10	42	77	83	786	512	662	234	176	130	73	46	43
11	46	74	135	476	484	646	223	174	117	73	46	41
12	50	72	100	455	504	606	214	166	112	73	46	40
13	42	76	107	647	600	606	213	165	109	73	46	40
14	42	69	91	2,160	606	622	249	161	109	70	43	40
15	75	68	78	1,570	525	622	232	157	110	70	43	40
16	169	82	72	6,610	551	590	260	153	109	70	43	40
17	141	81	72	5,650	937	614	262	150	108	67	43	40
18	95	73	70	2,700	711	590	261	145	103	67	44	40
19	74	70	142	1,660	617	555	293	141	103	67	46	40
20	67	68	863	2,020	561	534	271	137	100	67	45	43
21	64	68	1,660	8,570	521	513	248	137	95	67	40	43
22	61	68	799	8,180	489	499	243	134	94	67	40	43
23	53	66	340	3,870	463	513	237	133	91	64	39	43
24	58	66	1,700	4,570	440	499	226	129	88	64	37	43
25	60	66	1,480	2,880	418	476	224	124	88	61	37	43
26	60	66	767	2,290	398	437	245	124	88	61	37	43
27	50	64	412	3,010	384	418	262	126	88	61	37	43
28	60	64	297	2,090	398	403	234	124	88	58	39	43
29	60	64	240	1,630	-----	394	222	124	91	47	40	43
30	60	62	202	1,370	-----	380	212	124	90	45	40	43
31	60	-----	185	1,180	-----	365	-----	120	-----	50	40	-----
TOTAL	1,872	2,286	10,469	65,760	16,479	17,361	7,694	4,811	3,159	2,131	1,360	1,249
MEAN	60.4	76.2	338	2,121	589	560	256	155	105	68.7	43.9	41.6
MAX	169	205	1,700	8,570	1,030	870	345	206	148	87	52	43
MIN	39	59	60	130	384	365	212	120	88	45	37	38
AC-FT	3,710	4,530	20,770	130,400	32,690	34,440	15,260	9,540	6,270	4,230	2,700	2,480
CAL YR 1969	TOTAL 185,405			MEAN 508	MAX 9,810	MIN 39	AC-FT 367,800					
FIS YR 1970	TOTAL 134,631			MEAN 369	MAX 8,570	MIN 37	AC-FT 267,000					

## 11433260 NORTH FORK OF MIDDLE FORK AMERICAN RIVER NEAR FORESTHILL, CALIF.

LOCATION.--Lat 39°01'27", long 120°43'03", in NE1/4 sec.35, T.14 N., R.11 E., Placer County, Tahoe National Forest, on right bank 1.0 mile downstream from El Dorado Canyon and 4.8 miles east of Foresthill.

DRAINAGE AREA.--88.9 sq mi.

PERIOD OF RECORD.--July 1965 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,300 ft (from topographic map).

AVERAGE DISCHARGE.--5 years, 263 cfs (190,500 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 13,600 cfs Jan. 21 (gage height, 12.80 ft, 13.5 ft, from floodmarks); minimum daily, 22 cfs Sept. 11.

Period of record: Maximum discharge, 13,600 cfs Jan. 21, 1970 (gage height, 12.80 ft, 13.5 ft, from floodmarks); minimum daily, 17 cfs Oct. 23 to Nov. 5, 1967.

REMARKS.--Records good. No storage or diversion above station. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records collected by Placer County Water Agency, under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	37	38	248	632	443	241	182	90	57	31	23
2	28	37	38	215	522	394	233	182	86	54	31	23
3	28	36	38	198	479	358	226	188	86	52	30	23
4	28	36	38	182	455	353	222	195	82	51	30	23
5	28	58	38	167	421	338	219	195	80	49	30	25
6	28	150	38	155	394	334	219	195	79	46	30	26
7	28	90	38	147	368	334	215	182	77	46	30	25
8	31	75	43	147	343	432	212	179	79	46	29	24
9	39	64	47	256	329	426	208	179	119	45	29	23
10	32	58	52	772	315	432	208	182	100	45	28	23
11	30	54	98	443	297	404	205	170	86	44	27	22
12	30	52	82	568	324	388	198	158	82	43	27	23
13	30	51	117	1,270	368	404	201	153	80	43	26	23
14	31	50	86	4,130	358	455	205	153	80	41	26	23
15	70	49	70	1,950	334	455	188	155	79	40	26	24
16	237	62	62	5,290	343	438	192	158	77	39	26	24
17	188	61	57	4,260	542	426	182	158	75	39	25	23
18	88	51	55	1,840	443	399	182	150	72	38	26	23
19	62	47	311	1,130	410	373	205	144	69	37	26	24
20	52	46	1,490	1,490	378	353	182	137	67	37	26	25
21	47	45	2,440	7,070	353	338	176	132	64	37	25	25
22	45	44	874	3,900	334	329	173	127	62	35	25	24
23	44	43	772	2,510	320	320	164	122	61	34	24	24
24	42	42	4,420	2,790	311	315	161	119	59	34	24	24
25	41	41	2,400	1,900	302	315	155	115	58	33	24	23
26	40	40	1,170	1,460	293	306	176	110	58	33	24	24
27	39	40	669	2,220	289	293	170	108	61	33	24	24
28	39	39	443	1,610	302	285	158	104	59	32	24	24
29	38	39	363	1,260	-----	276	161	100	62	32	24	24
30	38	39	315	931	-----	268	170	98	59	32	24	23
31	38	-----	276	772	-----	256	-----	94	-----	31	23	-----
TOTAL	1,567	1,576	16,978	51,281	10,559	11,240	5,807	4,624	2,248	1,258	824	711
MEAN	50.5	52.5	548	1,654	377	363	194	149	74.9	40.6	26.6	23.7
MAX	237	150	4,420	7,070	632	455	241	195	119	57	31	26
MIN	28	36	38	147	289	256	155	94	58	31	23	22
AC-FT	3,110	3,130	33,680	101,700	20,940	22,290	11,520	9,170	4,460	2,500	1,630	1,410
CAL YR 1969	TOTAL 152,090	MEAN 417	MAX 6,400	MIN 28	AC-FT 301,700							
WTR YR 1970	TOTAL 108,673	MEAN 298	MAX 7,070	MIN 22	AC-FT 215,600							

PEAK DISCHARGE (BASE, 1,600 CFS)						NOTE.--No gage-height record Jan. 21 to Feb. 2.	
DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1500	9.28	5,580	1-16	1000	10.55	8,330
12-24	0600	9.55	6,150	1-21	1900	12.80	13,600
1-14	1300	9.80	6,680				

## SACRAMENTO RIVER BASIN

## 11433300 MIDDLE FORK AMERICAN RIVER NEAR FORESTHILL, CALIF.

LOCATION.--Lat 39°00'23", long 120°45'40", in NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.4, T.13 N., R.11 E., Placer County, Tahoe National Forest, on right bank 1.7 miles downstream from Oxbow powerhouse and 3.2 miles east of Foresthill.

DRAINAGE AREA.--524 sq mi.

PERIOD OF RECORD.--October 1958 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,060 ft (from topographic map). Prior to Oct. 22, 1965, at site 3.2 miles downstream at different datum.

AVERAGE DISCHARGE.--12 years, 1,099 cfs (796,200 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 34,600 cfs Jan. 21 (gage height, 16.71 ft); minimum daily, 48 cfs Oct. 11, 12.

Period of record: Maximum discharge, 310,000 cfs Dec. 23, 1964 (gage height, 69.0 ft, from floodmarks, site and datum then in use), caused by overtopping the partly constructed Hell Hole Dam on the Rubicon River, from rating curve extended above 28,000 cfs on basis of slope-area measurement at gage height 38.0 ft, and slope-conveyance study at gage height 69.0 ft at site and datum then in use; next highest peak, 113,000 cfs Feb. 1, 1963 (gage height, 38.00 ft, site and datum then in use); minimum, 35 cfs Oct. 19, 20, 1961.

REMARKS.--Records good. Flow regulated by French Meadows Reservoir (see sta 11427400), Hell Hole Reservoir (see sta 11428700), Loon Lake (see sta 11429350), Stumpy Meadows Reservoir (usable capacity, 20,000 acre-ft), and Ralston and Oxbow powerplants. Robbs Peak tunnel (see sta 11429800) and Georgetown Divide ditch (capacity, about 25 cfs) divert water out of basin above station. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records collected by Placer County Water Agency, under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	963	881	1,010	1,380	2,830	2,480	901	491	524	633	989	1,000
2	906	881	839	1,330	2,600	2,240	1,090	483	556	548	715	1,020
3	906	888	434	1,300	2,440	2,080	1,080	483	971	197	875	1,020
4	102	970	474	1,270	2,070	2,040	495	483	816	171	810	1,020
5	88	1,060	171	1,260	1,860	1,800	472	483	1,280	176	970	1,000
6	694	1,180	133	1,240	1,850	1,980	909	591	584	171	989	1,030
7	976	1,100	118	1,240	2,000	1,960	628	570	658	148	989	1,020
8	407	1,090	504	1,240	1,900	2,220	665	556	1,380	263	989	1,030
9	56	1,080	543	1,480	1,620	2,120	727	456	1,470	363	989	1,030
10	50	1,040	699	1,980	1,490	1,960	696	456	1,300	355	963	1,030
11	48	1,050	804	1,220	1,610	1,880	591	535	1,410	355	931	1,030
12	48	976	787	1,760	1,900	1,810	507	520	1,400	345	1,050	585
13	373	1,080	272	2,880	2,040	1,800	719	491	1,050	212	1,130	1,050
14	828	1,040	235	7,740	2,060	1,910	696	556	620	118	1,040	1,040
15	919	1,040	715	4,470	1,930	1,330	658	487	980	120	653	1,040
16	804	1,060	737	14,500	1,970	1,150	696	434	1,410	176	931	1,040
17	1,090	1,060	705	10,000	2,730	1,160	696	399	1,410	504	919	1,040
18	219	1,040	689	4,960	2,290	1,070	606	528	1,410	684	1,000	1,020
19	133	1,040	919	3,340	2,140	1,280	613	495	1,420	474	996	1,040
20	653	1,030	2,710	4,180	2,060	1,540	628	499	563	833	1,010	1,040
21	900	1,030	4,950	19,100	1,970	989	650	479	212	888	1,040	1,040
22	875	1,020	2,460	17,300	1,910	944	681	483	260	950	1,000	1,040
23	875	1,020	1,960	8,980	1,870	1,450	628	338	217	1,030	1,020	1,040
24	822	1,020	7,600	10,300	1,820	1,480	650	335	202	1,080	1,010	1,040
25	888	1,020	4,980	6,830	1,210	1,420	483	452	197	1,020	1,040	1,040
26	881	1,020	2,990	4,860	1,760	1,370	520	449	470	857	1,030	1,040
27	881	1,020	2,070	7,640	1,760	1,400	643	487	275	900	1,100	1,050
28	881	1,020	1,740	5,400	1,780	759	620	487	249	804	1,150	1,020
29	881	1,010	1,590	4,180	-----	735	743	468	828	1,020	1,140	1,060
30	881	1,010	1,480	3,540	-----	1,120	487	452	616	869	881	1,050
31	888	-----	1,430	3,130	-----	1,160	-----	449	-----	833	863	-----
TOTAL	19,916	30,776	46,748	160,030	55,470	48,637	20,178	14,875	24,738	17,097	30,212	30,545
MEAN	642	1,026	1,508	5,162	1,981	1,569	673	480	825	552	975	1,018
MAX	1,090	1,180	7,600	19,100	2,830	2,480	1,090	591	1,470	1,080	1,150	1,060
MIN	48	881	118	1,220	1,210	735	472	335	197	118	653	585
AC-FT	39,500	61,040	92,720	317,400	110,000	96,470	40,020	29,500	49,070	33,910	59,930	60,590

CAL YR 1969 TOTAL 672,848 MEAN 1,843 MAX 18,500 MIN 48 AC-FT 1,335,000  
WTR YR 1970 TOTAL 499,222 MEAN 1,368 MAX 19,100 MIN 48 AC-FT 990,200

## 11433400 CANYON CREEK NEAR GEORGETOWN, CALIF.

LOCATION.--Lat 38°56'03", long 120°52'21", in SW $\frac{1}{4}$  sec.33, T.13 N., R.10 E., El Dorado County, Eldorado National Forest, on right bank 0.7 mile downstream from West Canyon and 2.6 miles northwest of Georgetown.

DRAINAGE AREA.--12.5 sq mi.

PERIOD OF RECORD.--July 1966 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,995 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 1,300 cfs Jan. 21 (gage height, 11.01 ft); minimum daily, 2.8 cfs Oct. 13, Sept. 29, 30.

Period of record: Maximum discharge, 1,300 cfs Jan. 21, 1970 (gage height, 11.01 ft); minimum daily, 1.8 cfs Oct. 1, 4-12, 1966.

REMARKS.--Records excellent. Small diversions above station for irrigation and domestic purposes. See schematic diagram of Middle Fork American and Rubicon River basins. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	9.5	8.9	20	45	83	18	15	7.7	8.4	4.2	4.0
2	4.1	8.3	8.9	18	39	61	17	13	7.5	8.1	4.0	3.8
3	6.9	8.6	8.9	18	35	42	17	12	7.7	7.7	3.9	3.9
4	7.7	8.0	8.9	17	33	43	16	12	7.4	7.4	3.9	4.1
5	7.5	19	8.9	16	30	42	23	11	7.3	7.4	3.8	4.3
6	7.6	32	8.9	16	28	36	26	11	7.4	6.9	3.9	4.1
7	5.4	9.2	8.8	16	29	33	24	11	7.7	6.8	4.3	4.1
8	3.5	9.0	10	17	28	89	29	12	8.5	6.5	3.9	3.8
9	5.9	11	11	26	26	67	28	12	10	6.0	4.5	3.9
10	5.6	10	14	53	26	75	27	12	8.1	5.7	4.9	4.0
11	4.3	9.6	23	25	25	63	26	13	7.4	5.4	5.2	3.9
12	2.9	9.4	13	28	27	52	26	12	7.5	5.1	4.9	3.8
13	2.8	9.2	11	52	54	45	28	12	7.8	5.0	4.5	3.9
14	2.9	9.1	12	384	73	41	29	11	7.9	6.2	4.4	4.1
15	11	9.0	10	102	42	38	21	11	7.7	6.2	4.5	4.1
16	24	9.6	9.2	485	57	36	16	10	7.8	5.8	4.5	4.1
17	11	9.2	8.6	328	118	34	14	10	8.0	5.8	4.3	4.3
18	15	9.0	8.4	114	64	31	14	10	8.0	5.5	4.0	4.6
19	6.4	9.1	32	81	50	29	15	9.9	7.7	5.1	4.1	4.9
20	3.9	9.1	117	95	43	28	14	9.3	6.9	5.0	4.4	5.3
21	4.7	9.1	117	665	37	26	14	9.3	6.8	4.9	4.6	4.7
22	4.3	9.1	37	303	33	25	13	9.5	7.2	4.9	4.5	3.5
23	5.8	8.9	52	132	31	24	13	8.9	7.1	4.7	4.5	3.3
24	5.7	8.9	269	161	29	24	13	8.6	6.9	4.4	4.7	3.1
25	5.4	8.9	86	113	27	23	12	8.4	7.0	4.5	3.9	3.0
26	5.9	8.9	42	82	25	22	13	8.3	7.8	4.1	3.8	2.9
27	5.8	8.8	30	164	24	20	14	8.4	7.9	3.9	4.1	2.9
28	5.7	8.6	22	104	26	20	13	8.4	8.0	3.9	4.2	2.9
29	5.6	8.6	18	77	-----	20	12	8.4	8.4	4.2	4.3	2.8
30	5.9	8.9	15	64	-----	19	15	8.3	8.6	4.2	4.2	2.8
31	9.7	-----	15	53	-----	18	-----	7.9	-----	4.1	4.1	-----
TOTAL	206.5	305.6	1,044.4	3,829	1,104	1,214	560	323.6	231.7	173.8	133.0	114.9
MEAN	6.66	10.2	33.7	124	39.4	39.2	18.7	10.4	7.72	5.61	4.29	3.83
MAX	24	32	269	665	118	89	29	15	10	8.4	5.2	5.3
MIN	2.8	8.0	8.4	16	24	18	12	7.9	6.8	3.9	3.8	2.8
AC-FT	410	606	2,070	7,590	2,190	2,410	1,110	642	460	345	264	228
CAL YR 1969	TOTAL	12,299.6		MEAN	33.7	MAX	747	MIN	2.8	AC-FT	24,400	
WTR YR 1970	TOTAL	9,240.5		MEAN	25.3	MAX	665	MIN	2.8	AC-FT	18,330	

## PEAK DISCHARGE (BASE, 170 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-20	1130	8.53	386	1-21	1845	11.01	1,300
12-24	0515	9.00	490	1-27	0600	7.49	223
1-14	1215	10.88	1,220	2-16	2315	7.37	209
1-16	1000	10.40	970				

## SACRAMENTO RIVER BASIN

11433500 MIDDLE FORK AMERICAN RIVER NEAR AUBURN, CALIF.

LOCATION.--Lat 38°55'05", long 121°00'51", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.6, T.12 N., R.9 E., Placer County, on right bank at Mountain Quarry Co. plant, 1.4 miles upstream from mouth, and 3.3 miles northeast of Auburn.

DRAINAGE AREA.--614 sq mi (revised).

PERIOD OF RECORD.--October 1911 to current year. Prior to October 1934, published as "near East Auburn."

GAGE.--Water-stage recorder. Datum of gage is 552.35 ft above mean sea level (levels by Murray Engineers). Prior to December 1930, nonrecording gages near present site at different datums. December 1930 to Mar. 1, 1963, water-stage recorder at site 0.4 mile upstream at different datum.

AVERAGE DISCHARGE.--59 years, 1,347 cfs (975,900 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 37,000 cfs Jan. 21 (gage height, 26.34 ft); minimum daily, 80 cfs Oct. 11, 12.

Period of record: Maximum discharge, 253,000 cfs Dec. 23, 1964 (gage height, 60.4 ft, from floodmarks), from rating curve extended above 69,000 cfs on basis of slope-area measurement of maximum flow (caused by overtopping of the partly constructed Hell Hole Dam); next highest peak, 121,000 cfs Feb. 1, 1963 (gage height, 43.1 ft, from floodmarks, site and datum then in use); minimum, 20 cfs Sept. 6, 1931, Sept. 19, 1934.

REMARKS.--Records good. Natural flow of stream affected by French Meadows Reservoir (see sta 11427400), Hell Hole Reservoir (see sta 11428700), Loon Lake (see sta 11429350), Stumpy Meadows Reservoir (usable capacity, 20,000 acre-ft), diversion dams on Rubicon and Little Rubicon River, and Ralston and Oxbow powerplants. Robbs Peak powerplant (see sta 11429300) diverts water out of basin. See schematic diagram of Middle Fork American and Rubicon River basins.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,020	1,040	1,030	1,610	3,100	2,790	1,550	510	481	732	826	987
2	1,030	1,040	1,030	1,550	2,820	2,650	1,020	505	550	583	836	1,030
3	1,020	1,050	480	1,490	2,620	2,310	1,230	500	704	378	450	1,010
4	175	1,050	600	1,480	2,320	2,260	910	500	706	222	778	1,000
5	170	1,110	200	1,460	2,060	2,060	706	530	1,060	221	922	1,010
6	900	1,260	180	1,430	1,970	2,150	942	520	796	209	922	1,010
7	1,050	1,150	170	1,410	2,150	2,110	856	620	323	216	922	1,020
8	550	1,120	620	1,420	2,070	2,680	896	580	1,140	209	934	1,000
9	100	1,100	750	1,550	1,840	2,600	818	520	1,230	376	940	1,020
10	90	1,100	870	2,430	1,660	2,290	704	500	1,140	380	934	1,020
11	80	1,070	980	1,640	1,690	2,220	768	570	1,180	372	904	1,020
12	80	1,050	860	1,750	1,980	2,110	610	550	1,180	371	928	837
13	400	1,070	330	2,970	2,230	2,040	704	530	1,090	346	1,090	754
14	1,000	1,070	300	8,960	2,470	2,110	703	580	622	201	1,010	1,040
15	1,090	1,070	800	6,270	2,160	1,750	697	520	698	200	814	1,050
16	940	1,070	760	16,300	2,140	1,420	697	450	1,160	200	656	1,050
17	1,370	1,060	740	16,100	3,300	1,390	717	430	1,170	210	911	1,050
18	450	1,060	720	8,620	2,700	1,320	751	540	1,170	547	923	1,040
19	200	1,060	1,200	5,200	2,430	1,310	630	520	1,170	467	952	1,030
20	800	1,050	2,920	6,510	2,280	1,760	646	520	640	644	948	1,040
21	1,050	1,050	5,210	20,300	2,170	1,230	658	510	474	814	983	1,050
22	1,060	1,040	3,510	20,100	2,070	1,090	665	440	301	893	956	1,040
23	1,050	1,040	2,210	10,600	2,010	1,290	687	370	255	971	975	1,040
24	976	1,040	8,740	10,900	1,970	1,540	706	400	252	802	971	1,030
25	1,060	1,040	5,630	7,720	1,470	1,380	569	480	248	916	982	1,040
26	1,050	1,040	3,810	5,560	1,830	1,420	548	490	323	820	982	1,030
27	1,050	1,030	2,550	8,320	1,850	1,380	616	530	430	760	991	1,030
28	1,050	1,030	2,100	6,340	1,570	1,120	681	460	330	760	1,100	998
29	1,040	1,030	1,900	4,810	-----	885	750	500	651	940	1,100	1,060
30	1,050	1,030	1,740	3,950	-----	1,110	550	417	567	832	1,070	1,030
31	1,050	-----	1,660	3,460	-----	1,230	-----	464	-----	868	575	-----

TOTAL	24,001	32,020	54,600	192,210	60,930	55,005	22,985	15,556	22,041	16,460	28,285	30,366
MEAN	774	1,067	1,761	6,200	2,176	1,774	766	502	735	531	912	1,012
MAX	1,370	1,260	8,740	20,300	3,300	2,790	1,550	620	1,230	971	1,100	1,060
MIN	80	1,030	170	1,410	1,470	885	548	370	248	200	450	754
AC-FT	47,610	63,510	108,300	381,200	120,900	109,100	45,590	30,860	43,720	32,650	56,100	60,230

CAL YR 1969 TOTAL 777,407 MEAN 2,130 MAX 23,400 MIN 80 AC-FT 1,542,000  
WTR YR 1970 TOTAL 554,459 MEAN 1,519 MAX 20,300 MIN 80 AC-FT 1,100,000

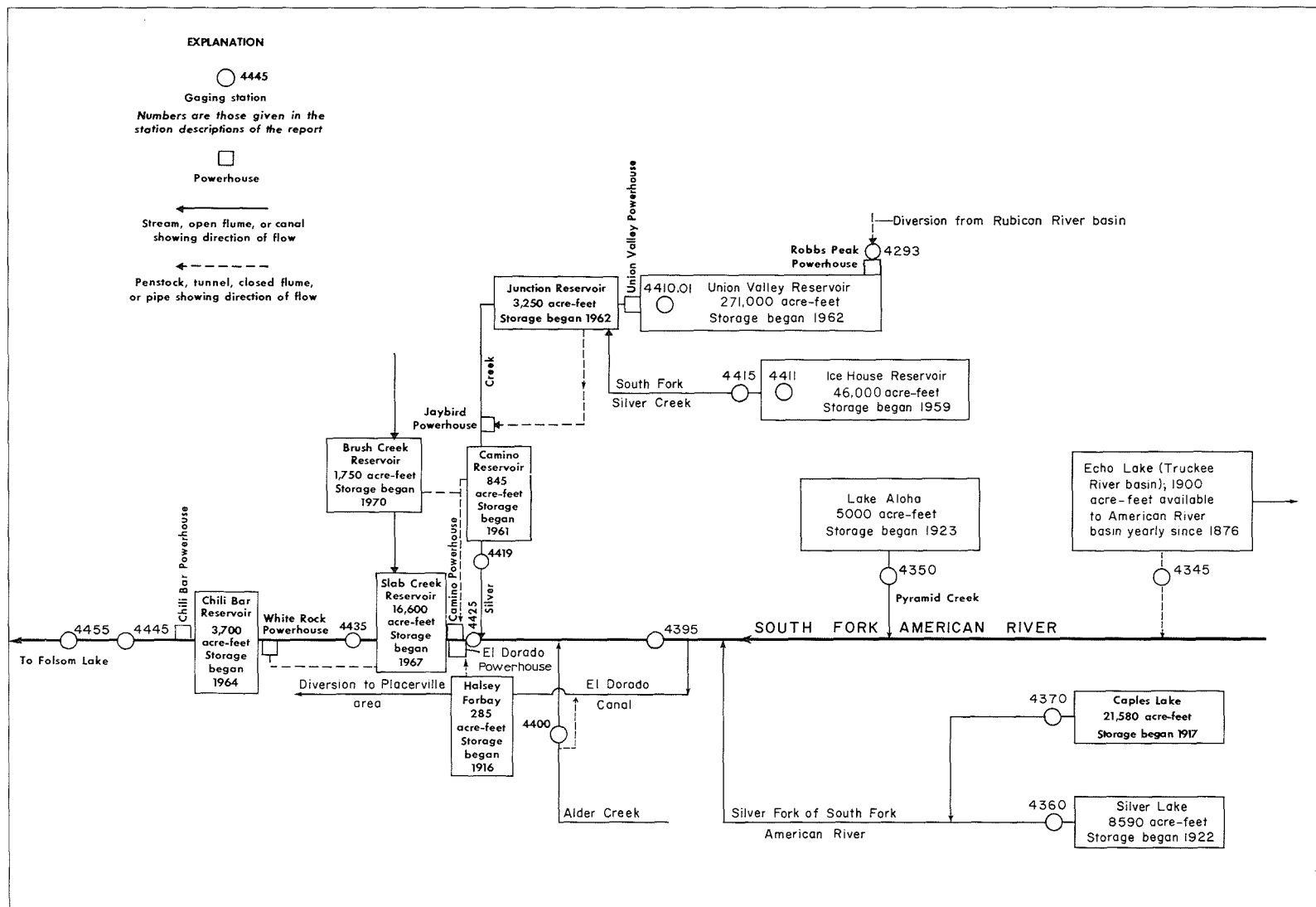


FIGURE 17.--Schematic diagram showing diversions and storage in South Fork American River basin.

## SACRAMENTO RIVER BASIN

11434500 ECHO LAKE CONDUIT NEAR PHILLIPS, CALIF.

LOCATION.--Lat 38°49'52", long 120°02'12", in NW $\frac{1}{4}$  sec.6, T.11 N., R.18 E., El Dorado County, Eldorado National Forest, on right bank in Berkeley Municipal Camp, 0.5 mile downstream from intake, and 2.4 miles northeast of Phillips.

PERIOD OF RECORD.--August 1923 to current year (diversion seasons only). Monthly discharge only for July 1933, published in WSP 1315-A. Published as Echo Lake flume near Vade prior to 1943 and as Echo Lake conduit near Vade for seasons 1944-53.

GAGE.--Water-stage recorder. Altitude of gage is 7,420 ft (from topographic map). Prior to July 16, 1929, nonrecording gage at site 0.4 mile upstream at different datum.

EXTREMES.--Period of record: Maximum daily discharge, 31 cfs Sept. 10, 1963; no flow for most of each year.

REMARKS.--No flow except during diversion season for which discharge is published. Conduit diverts from Echo Lake (capacity, 1,900 acre-ft) in Truckee River basin into basin of South Fork American River for power and irrigation. See schematic diagram of South Fork American River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

## DISCHARGE, IN CUBIC FEET PER SECOND, SEPTEMBER TO DECEMBER 1970

DAY	SEP	OCT	NOV	DEC
1		0	24	
2		0	24	
3		0	24	
4		0	24	
5		0	24	
6		0	24	
7		0	24	
8		0	24	
9		0	24	
10		0	24	
11		0	24	
12		0	24	
13		0	23	
14		0	22	
15		0	22	
16		0	21	
17		0	20	
18		0	19	
19		0	18	
20		0	16	
21		0	14	
22		9.8	14	
23		26	14	
24		25	15	
25		25	18	
26		25	18	
27		25	17	
28		22	8.9	
29		24	.25	
30		24	0	
31	-----	24	-----	-----
TOTAL	0	229.8	568.15	0
MEAN	0	7.41	18.9	0
MAX	0	26	24	0
MIN	0	0	0	0
AC-FT	0	456	1,130	0



## 11435000 PYRAMID CREEK NEAR PHILLIPS, CALIF.

LOCATION.--Lat 38°50'55", long 120°07'40", in N $\frac{1}{2}$  sec.32, T.12 N., R.17 E., El Dorado County, Eldorado National Forest, on left bank 0.9 mile southeast of Lake Aloha Dam, 1.6 miles east of Pyramid Peak, 3.4 miles northwest of Phillips, and 4.6 miles west of Echo Lake Resort.

DRAINAGE AREA.--3.73 sq mi.

PERIOD OF RECORD.--September 1922 to September 1970 (discontinued). Monthly discharge only for some periods, published in WSP 1315-A. Prior to October 1952, published as Medley Lakes Outlet near Wade and October 1952 to September 1955 as Medley Lakes Outlet near Phillips.

GAGE.--Water-stage recorder. Altitude of gage is 8,050 ft (from topographic map).

AVERAGE DISCHARGE.--48 years, 17.8 cfs (12,900 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 182 cfs June 26 (gage height, 3.24 ft); minimum daily recorded, 0.44 cfs Oct. 13, 14.

Period of record: Maximum discharge, 401 cfs Dec. 23, 1964 (gage height, 4.88 ft, from recorded range in stage), from rating curve extended above 130 cfs; maximum gage height, 5.4 ft Jan. 31, 1963 (backwater from ice); no flow at times in some years.

REMARKS.--Flow regulated by Lake Aloha (capacity, 5,000 acre-ft); no contents Sept. 30, 1969, and 151 acre-ft Sept. 30, 1970. See schematic diagram of South Fork American River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

REVISIONS (WATER YEARS).--WSP 1395: 1923(M), 1925. WSP 1931: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	5.1	5.1					25	41	51	9.5	81
2	1.6	5.1	5.1					30	42	36	9.5	80
3	1.4	5.1	5.1					40	45	34	9.0	79
4	1.2	5.1	5.1					50	45	50	8.5	80
5	1.1	6.3	5.1					58	45	62	8.3	78
6	1.0	7.9	5.1					62	47	61	8.2	77
7	.97	7.3	5.1					63	48	51	8.2	75
8	.84	7.0	5.8					63	47	48	8.2	76
9	.78	6.8	5.8					63	48	46	8.5	64
10	.73	6.5	6.3					65	40	44	8.5	43
11	.63	6.5	7.0					69	42	43	8.2	43
12	.53	6.8	5.8					71	41	43	8.2	42
13	.44	6.8	5.5					46	40	42	8.8	42
14	.44	6.8	5.5					24	40	42	8.5	42
15	10	6.5	5.5					24	39	45	8.5	41
16	22	7.6	5.5					27	41	42	8.2	40
17	9.7	6.8	5.5					29	42	36	8.2	39
18	7.0	6.0	7.0					29	43	30	8.2	39
19	6.3	5.8	9.0					26	52	31	7.9	39
20	6.5	5.8	14					24	49	30	8.2	39
21	6.8	5.8	20					25	68	28	8.2	39
22	7.6	5.8	15					26	83	25	8.2	38
23	7.0	5.5	10					27	92	22	8.2	37
24	6.3	5.5	8.0					26	93	20	16	37
25	6.0	5.5	7.0					28	89	18	41	36
26	5.5	5.5	7.0					29	117	16	61	36
27	5.5	5.3	6.0					26	143	15	63	28
28	5.3	5.3	5.0					32	91	12	73	8.0
29	5.3	5.3	4.0		-----			40	67	11	83	5.5
30	5.3	5.3	3.5		-----			42	54	10	82	5.3
31	5.1	-----	3.0		-----		-----	41	-----	10	81	-----
TOTAL	140.56	182.4	212.4	176.3	144.6	249.5	403	1,230	1,774	1,054	693.9	1,408.8
MEAN	4.53	6.08	6.85	5.69	5.16	8.05	13.4	39.7	59.1	34.0	22.4	47.0
MAX	22	7.9	20	--	--	--	--	71	143	62	83	81
MIN	.44	5.1	3.0	--	--	--	--	24	39	10	7.9	5.3
AC-FT	279	362	421	350	287	495	799	2,440	3,520	2,090	1,380	2,790

CAL YR 1969 TOTAL 10,904.46 MEAN 29.9 MAX 103 MIN 0 ACFT 21,630  
WTR YR 1970 TOTAL 7,669.46 MEAN 21.0 MAX 143 MIN 0.44 ACFT 15,210

NOTE.--No gage-height record Dec. 18 to May 6.

## SACRAMENTO RIVER BASIN

## 11436000 SILVER LAKE OUTLET NEAR KIRKWOOD, CALIF.

LOCATION.--Lat 38°40'17", long 120°07'18", in SW $\frac{1}{4}$  sec.32, T.10 N., R.17 E., Amador County, Eldorado National Forest, on right bank 1,000 ft downstream from Silver Lake Dam, and 3.5 miles southwest of Kirkwood.

DRAINAGE AREA.--15.2 sq mi.

PERIOD OF RECORD.--September 1922 to current year. Records for water year 1923 incomplete, yearly estimate published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is 7,199.5 ft above mean sea level, unadjusted.

AVERAGE DISCHARGE.--48 years, 34.2 cfs (24,780 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 376 cfs Jan. 22 (gage height, 4.08 ft); minimum daily, 1.6 cfs Aug. 5-8.

Period of record: Maximum discharge, 676 cfs Nov. 21, 1950 (gage height, 6.03 ft), from rating curve extended above 290 cfs; no flow for many days in February, March 1948, Jan. 13, 14, 1954, Nov. 3, 1959 to Feb. 5, 1960.

REMARKS.--Flow regulated by Silver Lake 1,000 ft upstream (capacity, 3,840 acre-ft at spillway level and 8,590 acre-ft with 11 ft of flashboards); contents in Silver Lake, 3,500 acre-ft Sept. 30, 1969, and 4,970 acre-ft Sept. 30, 1970. Some water, in addition to that released through dam and over spillway, escapes from Silver Lake through porous rock formation. See schematic diagram of South Fork American River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

REVISIONS.--WSP 1931: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	39	7.4	44	67	46	39	5.0	193	7.4	2.8	2.8
2	54	37	8.9	43	66	46	39	5.3	193	4.7	2.6	2.8
3	53	37	7.4	43	65	45	40	5.6	191	5.0	2.8	2.8
4	52	35	6.3	42	64	45	40	5.9	194	5.0	2.8	2.8
5	28	32	5.9	40	63	43	42	7.4	148	5.0	1.6	2.6
6	7.0	32	5.3	39	63	43	43	10	135	5.0	1.6	2.4
7	5.0	32	5.0	38	62	41	45	11	122	4.4	1.6	2.2
8	3.8	30	5.0	37	61	40	47	12	119	3.8	1.6	2.6
9	3.6	29	4.7	37	61	39	48	13	152	3.6	2.0	3.1
10	3.6	28	5.0	36	60	39	50	13	141	3.6	3.1	3.1
11	3.6	27	5.0	35	60	38	51	13	95	3.3	3.6	3.1
12	3.6	26	4.7	34	61	37	52	12	41	3.1	2.8	3.1
13	3.3	25	4.7	34	59	37	53	11	16	2.8	2.8	2.8
14	3.3	24	4.4	34	58	36	54	19	16	2.8	3.1	7.7
15	3.3	22	3.8	34	57	36	54	73	9.8	3.1	3.1	11
16	3.3	21	3.8	39	57	36	53	136	7.4	3.1	3.8	11
17	3.3	20	3.6	45	56	37	53	183	6.6	3.3	3.1	14
18	28	17	3.6	47	55	33	52	242	17	3.3	2.6	16
19	55	14	5.3	48	54	35	52	258	67	3.3	2.8	16
20	53	12	23	49	53	34	52	249	130	3.1	2.8	16
21	52	10	42	57	52	34	51	184	95	3.1	2.8	16
22	51	9.4	47	242	52	34	51	114	65	3.1	2.6	16
23	50	7.4	48	283	50	34	49	115	67	2.8	2.4	18
24	49	7.4	48	207	49	35	24	144	68	2.8	3.1	20
25	48	6.6	49	138	48	37	4.7	149	48	2.8	3.6	20
26	47	6.3	48	104	47	38	5.0	169	80	2.8	3.3	19
27	45	5.6	48	93	47	39	5.0	195	241	3.1	3.3	12
28	44	5.0	48	79	47	39	5.0	195	105	3.3	3.3	3.8
29	43	4.4	47	71	-----	39	5.0	193	32	3.3	3.1	3.6
30	42	3.8	46	68	-----	40	5.0	190	16	3.3	3.1	3.6
31	40	-----	45	67	-----	40	-----	190	-----	3.3	2.8	-----
TOTAL	935.7	604.9	638.8	2,207	1,594	1,195	1,163.7	3,122.2	2,810.8	112.4	86.4	259.9
MEAN	30.2	20.2	20.6	71.2	56.9	38.5	38.8	101	93.7	3.63	2.79	8.66
MAX	55	39	49	283	67	46	54	258	241	7.4	3.8	20
MIN	3.3	3.8	3.6	34	47	33	4.7	5.0	6.6	2.8	1.6	2.2
AC-FT	1,860	1,200	1,270	4,380	3,160	2,370	2,310	6,190	5,580	223	171	516
CAL YR 1969	TOTAL 23,429.83		MEAN 64.2	MAX 378	MIN .30	AC-FT 46,470						
WTR YR 1970	TOTAL 14,730.80		MEAN 40.4	MAX 283	MIN 1.6	AC-FT 29,220						

## SACRAMENTO RIVER BASIN

963

11437000 CAPLES LAKE OUTLET NEAR KIRKWOOD, CALIF.  
(Formerly published as Twin Lakes Outlet near Kirkwood)

LOCATION.--Lat 38°42'29", long 120°03'00", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.18, T.10 N., R.18 E., Alpine County, Eldorado National Forest, on right bank 500 ft downstream from main dam and outlet gate of Twin Lakes, and 1.3 miles east of Kirkwood.

DRAINAGE AREA.--13.5 sq mi.

PERIOD OF RECORD.--September 1922 to current year. Records for water year 1945 incomplete, yearly estimate published in WSP 1315-A. Prior to October 1969, published as Twin Lakes Outlet near Kirkwood.

GAGE.--Water-stage recorder and concrete control for outlet, and water-stage recorder for spillway. Altitude of gage is 7,700 ft (from topographic map).

AVERAGE DISCHARGE (including flow over Twin Lakes spillway).--48 years, 36.9 cfs (26,730 acre-ft per year).

EXTREMES.--Current year: Maximum combined daily discharge for outlet and spillway, 415 cfs June 27; minimum daily, 2.4 cfs Dec. 31, Jan. 1.

Period of record: Maximum combined daily discharge for outlet and spillway, 669 cfs June 3, 1969; minimum daily, 0.1 cfs Mar. 25-31, 1944, Nov. 27, 28, 1956.

REMARKS.--Flow regulated by Caples Lake (formerly Twin Lakes) 500 ft upstream (capacity, 19,750 acre-ft spillway level, 21,580 acre-ft with 3 ft of flashboards), contents of which were 18,600 acre-ft on Sept. 30, 1969, and 9,180 acre-ft on Sept. 30, 1970. Flow over Caples Lake (formerly Twin Lakes) spillway occurred May 28 to Aug. 4 and is included in table below. No diversion above station. See schematic diagram of South Fork American River basin.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

REVISIONS.--WSP 1931: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	74	113	2.4	16	17	17	3.4	31	5.7	96	58
2	71	73	113	8.7	16	17	19	3.7	71	6.1	93	60
3	78	73	112	14	17	17	17	3.7	128	79	99	64
4	81	73	112	14	17	17	17	3.7	172	89	106	65
5	47	73	117	14	17	17	17	4.1	185	91	107	65
6	3.7	40	120	14	17	17	17	3.7	185	91	110	64
7	4.1	36	118	14	16	16	17	3.7	183	78	112	64
8	4.1	62	118	14	16	16	17	3.7	184	71	112	69
9	3.7	62	117	14	16	16	17	4.1	197	70	112	82
10	3.4	62	117	14	16	17	17	3.7	194	55	113	95
11	3.4	62	117	14	16	17	17	3.7	151	46	115	96
12	3.4	62	113	14	17	17	17	3.7	110	46	113	98
13	3.4	60	112	14	17	17	17	4.1	101	30	115	96
14	3.4	52	112	14	17	17	17	4.1	101	11	117	96
15	3.7	47	110	14	17	17	17	4.4	73	36	115	95
16	3.7	47	109	17	17	17	17	4.4	23	47	115	95
17	3.4	46	107	15	17	17	17	4.4	6.1	30	118	95
18	3.4	64	106	15	16	17	17	4.4	29	26	120	92
19	3.4	75	106	15	16	17	17	4.4	98	27	120	91
20	24	78	106	15	16	17	17	4.1	129	39	118	91
21	36	82	106	20	16	17	11	64	140	45	122	89
22	37	82	106	17	16	17	3.4	37	179	45	123	88
23	37	81	104	16	17	17	3.4	15	176	58	122	86
24	46	88	104	16	17	17	3.7	15	175	68	115	85
25	52	99	104	16	17	17	4.1	15	168	69	91	85
26	52	104	102	16	17	17	3.7	15	353	68	68	88
27	59	102	101	16	17	17	3.7	15	415	78	56	55
28	63	112	106	16	17	17	3.9	17	264	82	50	2.7
29	63	115	102	16	-----	17	3.8	20	69	86	50	3.4
30	63	115	49	16	-----	17	3.6	25	10	92	50	3.4
31	69	-----	2.4	16	-----	17	-----	31	-----	96	56	-----
TOTAL	1,001.2	2,201	3,241.4	451.1	464	524	386.3	385.1	4,300.1	1,760.8	3,129	2,216.5
MEAN	32.3	73.4	105	14.6	16.6	16.9	12.9	12.4	143	56.8	101	73.9
MAX	81	115	120	20	17	17	19	64	415	96	123	98
MIN	3.4	36	2.4	2.4	16	16	3.4	3.4	6.1	5.7	50	2.7
AC-FT	1,990	4,370	6,430	895	920	1,040	766	764	8,530	3,490	6,210	4,400

CAL YR 1969 TOTAL 24,634.6 MEAN 67.5 MAX 669 MIN 2.4 AC-FT 48,860  
WTR YR 1970 TOTAL 20,060.5 MEAN 55.0 MAX 415 MIN 2.4 AC-FT 39,790

## SACRAMENTO RIVER BASIN

## 11439500 SOUTH FORK AMERICAN RIVER NEAR KYBURZ, CALIF.

LOCATION.--Lat 38°45'49", long 120°19'39", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.29, T.11 N., R.15 E., El Dorado County, Eldorado National Forest, on right bank beside U.S. Highway 50, 0.8 mile downstream from Silver Fork of South Fork, and 1.9 miles southwest of Kyburz.

DRAINAGE AREA.--193 sq mi.

PERIOD OF RECORD.--August to December 1907, October 1922 to current year. Prior to October 1956, records for river and El Dorado Canal published separately; combined flow only, October 1956 to September 1960.

GAGE.--Water-stage recorder on river; water-stage recorder for canal diversion. Altitude of gage is 3,840 ft (from topographic map). Prior to Oct. 1, 1962, at datum 1.00 ft higher.

AVERAGE DISCHARGE (River only).--48 years (1922-70), 291 cfs (210,800 acre-ft per year).

(Combined river and diversion).--48 years (1922-70), 404 cfs (292,700 acre-ft per year).

EXTREMES (River only).--Current year: Maximum discharge, 6,400 cfs Jan. 21 (gage height, unknown); minimum daily, 4.6 cfs Oct. 20.

Period of record: Maximum discharge, 17,400 cfs Dec. 23, 1964 (gage height, 10.92 ft), from rating curve extended above 6,300 cfs on basis of contracted-opening measurement at gage height 10.40 ft; minimum daily, 0.3 cfs Nov. 9-11, 1928.

(Combined flow).--Current year: Maximum discharge, 6,540 cfs Jan. 21; minimum daily, 30 cfs Oct. 11, 12.

Period of record: Maximum discharge, 17,500 cfs Dec. 23, 1964; minimum daily, 10 cfs Oct. 17, 19, 1929.

REMARKS.--Flow at low and medium stages greatly regulated by four reservoirs since beginning of record (total usable capacity, 37,100 acre-ft). See schematic diagram of South Fork American River basin. For records of combined discharge of river and canal, see following page. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

REVISIONS (WATER YEARS).--WSP 1445: 1923(M), 1925(M), 1927(M), 1928(river only), 1935-37(M). WSP 1515: 1928(combined). WSP 1931: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.1	5.0	6.0	76	493	313	310	425	1,120	198	8.4	7.6
2	6.2	5.0	10	54	452	289	339	536	1,160	165	7.6	7.6
3	5.2	5.0	6.7	45	429	260	363	701	1,190	151	7.9	7.6
4	9.2	5.0	5.4	40	417	252	366	834	1,200	241	7.9	8.7
5	8.4	23	5.6	35	402	241	432	777	1,110	228	8.1	8.1
6	43	66	11	40	380	243	506	799	1,050	218	7.9	7.9
7	37	6.9	7.6	45	377	265	514	744	1,020	176	9.8	7.6
8	33	14	10	50	380	280	489	722	1,130	138	11	7.9
9	31	17	8.9	113	373	254	514	799	1,480	134	8.4	7.6
10	31	15	9.5	265	359	246	591	805	1,000	121	7.9	9.2
11	30	17	14	140	359	228	559	640	811	92	10	6.0
12	30	24	12	136	425	225	527	596	655	79	8.7	6.0
13	31	26	16	149	406	277	502	696	550	67	7.9	6.0
14	31	20	12	452	366	363	429	913	554	34	7.9	6.0
15	55	6.4	6.7	313	359	384	380	1,130	460	26	8.1	6.9
16	323	30	6.0	3,220	349	353	363	1,440	391	55	7.9	6.9
17	90	9.5	5.4	1,840	349	377	339	1,630	356	32	7.9	6.0
18	4.8	5.2	5.4	1,040	320	320	333	1,660	398	6.2	8.4	7.4
19	4.8	5.2	119	820	295	292	363	1,520	554	5.6	8.9	6.2
20	4.6	5.0	1,050	1,170	280	277	320	1,340	711	5.2	8.1	6.0
21	5.2	5.0	1,520	4,030	271	289	298	1,320	680	6.4	8.1	6.0
22	8.1	5.0	568	3,700	263	320	268	1,330	645	5.2	7.9	6.0
23	5.4	4.8	346	2,000	260	373	254	1,290	635	5.2	8.1	6.0
24	4.8	5.4	489	1,800	263	436	326	1,280	611	5.6	7.9	6.0
25	4.8	5.0	817	951	260	485	339	1,330	554	5.6	11	6.0
26	4.8	5.0	417	957	271	464	398	1,380	788	5.2	9.2	6.0
27	4.8	5.0	289	1,100	286	425	326	1,290	1,580	5.4	10	6.0
28	5.0	5.2	233	805	289	398	295	1,160	864	5.6	8.1	47
29	4.8	11	228	685	-----	432	295	1,140	460	5.2	7.9	38
30	5.0	6.9	191	611	-----	402	342	1,140	265	5.4	7.9	31
31	5.0	-----	90	541	-----	339	-----	1,120	-----	7.4	7.9	-----
TOTAL	873.0	368.5	6,515.2	27,223	9,733	10,102	11,680	32,487	23,982	2,234.2	262.7	301.2
MEAN	28.2	12.3	210	878	348	326	389	1,048	799	72.1	8.47	10.0
MAX	323	66	1,520	4,030	493	485	591	1,660	1,580	241	11	47
MIN	4.6	4.8	5.4	35	260	225	254	425	265	5.2	7.6	6.0
AC-FT	1,730	731	12,920	54,000	19,310	20,040	23,170	64,440	47,570	4,430	521	597

CAL YR 1969 TOTAL 211,232.6 MEAN 579 MAX 3,420 MIN 4.6 AC-FT 419,000  
WTR YR 1970 TOTAL 125,761.8 MEAN 345 MAX 4,030 MIN 4.6 AC-FT 249,400

DATE	TIME	PEAK DISCHARGE (BASE, 2,000 CFS)				G.H.	DISCHARGE
		G.H.	DISCHARGE	DATE	TIME		
12-21	1315	7.06	3,800	5-17	2030	6.00	2,250
1-16	1215	7.73	5,040	6- 8	2330	5.84	2,070
1-21	unknown	-	6,400	6-27	0415	5.96	2,200

NOTE.--No gage-height record Jan. 19-25.

## 11439500 SOUTH FORK AMERICAN RIVER NEAR KYBURZ, CALIF.--Continued

COMBINED DISCHARGE, IN CUBIC FEET PER SECOND, OF SOUTH FORK AMERICAN RIVER  
AND EL DORADO CANAL NEAR KYBURZ, CALIF., WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	172	169	166	215	633	453	451	565	1,270	358	168	168
2	171	167	171	193	592	429	481	676	1,310	325	162	167
3	167	165	167	176	569	400	504	841	1,340	311	160	170
4	176	163	163	159	557	392	507	974	1,350	401	168	172
5	171	180	162	143	542	381	572	917	1,260	388	168	172
6	68	217	172	147	520	383	647	939	1,200	378	166	171
7	39	143	169	159	517	405	655	884	1,170	336	170	168
8	34	170	172	184	520	420	630	862	1,280	298	171	167
9	32	178	171	253	514	395	655	939	1,630	294	167	172
10	31	176	172	404	499	386	732	945	1,150	281	166	172
11	30	177	176	280	499	368	700	780	958	252	170	164
12	30	183	174	276	565	365	667	736	802	239	169	166
13	31	186	178	288	546	417	642	836	697	227	166	164
14	31	181	174	592	506	503	569	1,050	707	193	167	165
15	73	166	167	453	499	523	520	1,270	620	186	166	172
16	431	191	165	3,360	489	493	504	1,580	551	215	166	171
17	193	164	159	1,980	489	516	480	1,770	516	192	166	169
18	105	144	161	1,180	460	459	473	1,800	558	159	168	172
19	147	161	274	960	435	432	504	1,660	714	158	169	169
20	140	157	1,200	1,310	420	417	460	1,480	871	155	166	166
21	167	163	1,670	4,170	411	429	438	1,460	840	164	166	168
22	175	157	717	3,840	403	460	409	1,470	805	158	169	165
23	170	152	496	2,140	400	513	394	1,430	795	152	167	163
24	163	149	639	1,940	403	576	466	1,420	771	165	164	166
25	170	159	967	1,090	400	626	479	1,470	714	165	173	161
26	165	166	566	1,100	411	604	538	1,520	948	159	163	165
27	163	163	439	1,240	426	565	466	1,430	1,740	156	164	162
28	168	159	378	945	429	538	435	1,300	1,020	165	153	74
29	165	171	367	825	-----	572	435	1,280	620	161	165	41
30	163	168	330	751	-----	542	483	1,280	425	164	164	34
31	161	-----	229	680	-----	481	-----	1,260	-----	167	162	-----
TOTAL	4,102	5,045	11,311	31,433	13,654	14,443	15,896	36,824	28,632	7,122	5,149	4,676
MEAN	132	168	365	1,014	488	466	530	1,188	954	230	166	156
MAX	431	217	1,670	4,170	633	626	732	1,800	1,740	401	173	172
MIN	30	143	159	143	400	365	394	565	425	152	153	34
AC-FT	8,140	10,010	22,440	62,350	27,080	28,650	31,530	73,040	56,790	14,130	10,210	9,270
CAL YR 1969	TOTAL	262,828	MEAN	720	MAX	3,560	MIN	30	AC-FT	521,300		
WTR YR 1970	TOTAL	178,287	MEAN	488	MAX	4,170	MIN	30	AC-FT	353,600		

## SACRAMENTO RIVER BASIN

## 11440000 ALDER CREEK NEAR WHITE HALL, CALIF.

LOCATION.--Lat 38°45'19", long 120°22'17", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.35, T.11 N., R.14 E., El Dorado County, Eldorado National Forest, on right bank 0.9 mile upstream from mouth, and 2.2 miles southeast of White Hall.

DRAINAGE AREA.--22.1 sq mi.

PERIOD OF RECORD.--October 1922 to current year (includes diversions by pipeline).

GAGE.--Water-stage recorder. Broad-crested weir with V-notch since Aug. 28, 1964. Altitude of gage is 3,840 ft (from topographic map). Prior to July 23, 1924, nonrecording gage at same site and datum.

AVERAGE DISCHARGE (including diversions by pipeline).--48 years, 37.7 cfs (27,310 acre-ft per year).

EXTREMES (Creek only).--Current year: Maximum discharge, 1,350 cfs Jan. 21 (gage height, 5.56 ft); minimum daily, 0.03 cfs on many days.

Period of record: Maximum discharge, 5,500 cfs Dec. 23, 1955 (gage height, 8.40 ft from floodmarks); from rating curve extended above 500 cfs; no flow at times in several years.

REMARKS.--Records include computed flow in feeder pipeline that was diverted 1,300 ft above station into El Dorado Canal from Oct. 2 to June 14.

COOPERATION.--Records collected by Pacific Gas and Electric Co., under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

REVISIONS (WATER YEARS).--WSP 1215: 1928(M). WSP 1445: 1925(M), 1929, 1935-36(M), 1938(M), 1940-43(M), 1945(M). WSP 1931: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.86	1.5	1.5	30	124	71	47	49	20	4.3	1.3	.48
2	.98	1.5	1.4	26	110	67	45	53	20	3.9	1.3	.46
3	.85	1.5	1.4	23	99	61	44	59	18	3.3	1.3	.46
4	.84	1.5	1.4	21	92	58	43	63	15	3.3	1.2	.43
5	.84	3.6	1.4	21	85	57	43	69	14	3.0	1.2	.46
6	.72	11	1.4	20	79	57	44	73	13	3.0	1.1	.46
7	.94	7.1	1.4	20	74	60	44	69	12	2.7	1.1	.48
8	.94	6.1	1.4	19	70	66	44	66	14	2.7	1.1	.51
9	.91	5.1	2.6	48	66	65	44	65	22	2.3	1.1	.46
10	.84	4.3	3.2	108	63	63	47	63	15	2.3	1.1	.36
11	.83	3.9	3.7	83	63	58	45	60	14	2.3	1.0	.38
12	.82	3.9	3.6	91	74	58	45	56	13	2.3	.94	.36
13	.94	3.5	3.8	123	76	63	45	53	12	2.1	.86	.43
14	1.0	3.5	4.1	309	71	73	45	53	13	2.1	.82	.46
15	1.1	3.5	3.5	513	71	79	41	55	11	1.7	.79	.38
16	10	4.8	2.7	1,010	76	79	40	59	10	1.7	.75	.38
17	5.2	4.3	1.5	732	85	79	38	62	9.4	1.7	.79	.41
18	4.3	3.5	2.7	531	76	73	40	62	8.7	1.5	.79	.41
19	3.5	3.5	11	409	71	67	43	56	6.7	1.5	.75	.43
20	3.5	3.5	78	608	66	64	40	51	6.1	1.5	.72	.41
21	2.7	3.5	138	1,360	63	60	38	44	5.6	1.4	.65	.43
22	2.1	3.5	72	818	60	59	37	41	5.2	1.4	.62	.41
23	1.8	3.0	56	518	58	59	36	38	5.2	1.4	.59	.41
24	1.8	3.0	214	480	57	56	36	35	5.2	1.4	.59	.38
25	1.8	2.7	260	322	57	62	37	32	4.7	1.4	.59	.34
26	1.5	2.7	136	260	57	62	42	31	5.2	1.4	.59	.36
27	1.5	2.7	90	351	57	59	41	29	7.3	1.3	.59	.38
28	1.5	2.7	66	254	60	57	36	28	5.2	1.3	.59	.41
29	1.5	2.1	52	205	-----	56	40	25	5.2	1.3	.56	.41
30	1.5	1.5	44	171	-----	52	44	24	4.7	1.3	.51	.38
31	1.5	-----	36	143	-----	48	-----	22	-----	1.3	.48	-----
TOTAL	59.11	108.5	1,295.7	9,627	2,060	1,948	1,254	1,545	320.4	64.1	26.37	12.52
MEAN	1.91	3.62	41.8	311	73.6	62.8	41.8	49.8	10.7	2.07	.85	.42
MAX	10	11	260	1,360	124	79	47	73	22	4.3	1.3	.51
MIN	.72	1.5	1.4	19	57	48	36	22	4.7	1.3	.48	.34
AC-FT	117	215	2,570	19,100	4,090	3,860	2,490	3,060	636	127	52	25
CAL YR 1969	TOTAL 26,039.57	MEAN 71.3	MAX 862	MIN .72	AC-FT 51,650							
WTR YR 1970	TOTAL 18,320.70	MEAN 50.2	MAX 1,360	MIN .34	AC-FT 36,340							

PEAK DISCHARGE (BASE, 170 CFS, CREEK ONLY)							
DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	1515	3.72	339	1-21	unknown	5.56	1,350
12-25	1015	3.93	418	1-24	0145	4.52	686
1-16	unknown	-	unknown	1-27	0630	4.07	477

NOTE.--No gage-height record Jan. 13-23.

## 11441001 UNION VALLEY RESERVOIR NEAR RIVERTON, CALIF.

LOCATION.--Lat 38°51'52", long 120°26'19", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.20, T.12 N., R.14 E., El Dorado County, Eldorado National Forest, in valve control house near left bank at Union Valley Dam on Silver Creek, 0.6 mile upstream from Little Silver Creek, and 6.6 miles north of Riverton.

DRAINAGE AREA.--83.6 sq mi.

PERIOD OF RECORD.--October 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Sacramento Municipal Utility District).

EXTREMES.--Current year: Maximum contents, 269,900 acre-ft June 22, 23 (elevation, 4,869.6 ft); minimum, 176,000 acre-ft Dec. 19 (elevation, 4,830.9 ft).  
Period of record: Maximum contents, 270,400 acre-ft June 10, 1963 (elevation, 4,869.8 ft); minimum since reservoir first filled, 90,900 acre-ft Jan. 27, 1967 (elevation, 4,782.1 ft).

REMARKS.--Reservoir is formed by earthfill dam completed in December 1962. Storage began in May 1962. Usable capacity, 264,000 acre-ft between elevations 4,645.0 ft (minimum operating level) and 4,870.0 ft (top of radial spillway gates) above mean sea level. Dead storage, 7,000 acre-ft. Reservoir receives water from the South Fork Rubicon River via Robbs Peak powerplant (see sta 11429800). Water is used for power development in the South Fork American River basin. Records, including extremes, represent total contents at 2400 hours. See schematic diagram of Middle Fork American and Rubicon River basins and South Fork American River basin.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

4,700	25,000	4,800	117,000
4,720	35,000	4,820	153,000
4,740	48,000	4,840	196,000
4,760	65,000	4,870	271,000
4,780	88,000		

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	184,600	192,500	191,400	194,200	228,100	211,800	233,300	233,900	267,200	269,400	258,600	226,600
2	184,600	193,100	190,300	193,400	227,900	211,800	234,100	234,400	267,200	268,800	258,600	225,300
3	184,600	192,700	189,000	192,700	227,100	211,800	234,900	235,900	267,500	268,000	258,000	224,000
4	184,300	192,300	187,600	192,300	226,300	211,800	235,900	237,000	267,200	268,300	257,200	222,400
5	184,300	192,500	187,200	191,600	225,000	211,800	237,200	238,300	267,000	268,600	256,700	220,600
6	184,300	192,900	186,800	190,900	224,200	211,800	238,300	239,600	266,700	268,000	255,900	220,300
7	184,300	192,500	187,000	190,300	223,700	212,300	239,600	240,600	267,500	267,800	254,800	220,300
8	184,300	192,500	186,500	189,600	222,900	213,600	240,600	241,100	267,800	267,500	254,000	220,100
9	184,300	193,400	186,100	190,700	221,900	214,000	241,700	242,400	269,100	267,000	254,300	220,100
10	184,600	193,100	185,000	191,600	220,300	214,700	241,700	244,000	269,100	266,700	253,400	220,100
11	184,300	193,800	183,700	191,200	219,300	215,400	241,400	244,800	268,600	266,100	252,100	220,100
12	184,300	193,600	182,600	191,200	219,300	216,000	242,700	244,800	268,300	266,400	251,000	220,100
13	184,300	193,100	181,300	191,600	219,600	216,900	242,400	245,100	268,000	265,900	250,200	220,100
14	184,300	192,900	181,000	195,800	219,300	218,800	241,400	246,200	267,800	265,300	249,100	219,800
15	185,000	192,700	179,900	197,500	219,000	220,900	240,600	247,800	267,500	264,800	247,800	219,600
16	186,800	193,600	178,600	207,200	219,300	221,900	239,800	249,400	267,500	264,200	247,500	219,600
17	187,600	193,400	177,300	212,900	219,000	223,200	239,100	251,800	267,800	264,000	246,200	219,600
18	188,500	192,900	176,200	215,600	218,000	224,000	238,300	253,700	268,000	263,400	244,500	219,300
19	189,200	192,500	176,000	218,000	217,100	225,000	239,600	255,100	268,600	264,000	243,000	219,300
20	190,100	192,300	180,600	221,900	216,200	225,500	239,300	256,200	268,800	263,400	241,100	219,300
21	190,500	192,000	185,700	231,800	215,400	226,300	238,500	257,500	269,400	262,900	239,600	219,300
22	191,400	191,600	187,200	234,900	214,500	227,600	237,800	259,100	269,900	262,600	238,300	219,300
23	192,000	192,300	188,100	233,600	213,800	228,900	237,000	259,900	269,900	261,800	238,000	219,300
24	192,700	191,800	191,600	232,600	212,900	230,000	235,700	261,300	269,600	261,300	236,700	219,300
25	193,400	191,400	195,300	230,500	212,100	230,700	234,900	262,600	269,400	261,000	235,200	219,000
26	194,000	191,200	196,400	229,700	211,200	231,500	236,500	263,700	269,100	261,300	233,100	219,000
27	193,800	191,800	196,400	231,000	210,500	231,500	235,700	264,800	269,100	261,000	232,300	219,000
28	193,600	191,400	197,100	230,500	209,900	231,500	234,600	265,600	269,400	260,500	231,000	219,000
29	193,400	191,200	196,700	229,700	-----	232,800	234,100	265,600	269,400	260,200	229,400	219,000
30	193,400	192,000	196,000	228,700	-----	233,100	233,600	265,900	269,600	259,700	229,200	219,000
31	193,100	-----	195,100	228,400	-----	232,800	-----	267,200	-----	259,100	227,600	-----
MAX	194,000	193,800	197,100	234,900	228,100	233,100	242,700	267,200	269,900	269,400	258,600	226,600
MIN	184,300	191,200	176,000	189,600	209,900	211,800	233,300	233,900	266,700	259,100	227,600	219,000
(a)	4,838.7	4,838.2	4,839.6	4,854.0	4,846.3	4,855.7	4,856.0	4,868.6	4,869.5	4,865.6	4,853.7	4,850.4
(b)	+8,500	-1,100	+3,100	+33,300	-18,500	+22,900	+800	+33,600	+2,400	-10,500	-31,500	-8,600

CAL YR 1969 MAX 268,800 MIN 99,100 b +58,300  
WAT YR 1970 MAX 269,900 MIN 176,000 b +34,400

a Elevation, in feet, at end of month.  
b Change in contents, in acre-feet.

## SACRAMENTO RIVER BASIN

## 11441100 ICE HOUSE RESERVOIR NEAR KYBURZ, CALIF.

LOCATION.--Lat 38°49'26", long 120°21'34", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.1, T.11 N., R.14 E., El Dorado County, Eldorado National Forest, on left bank at Ice House Dam on South Fork Silver Creek, 0.5 mile upstream from Peavine Creek, and 4.8 miles northwest of Kyburz.

DRAINAGE AREA.--27.2 sq mi.

PERIOD OF RECORD.--October 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Sacramento Municipal Utility District).

EXTREMES.--Water year 1969: Maximum contents, 45,500 acre-ft July 18, 19 (elevation, 5,449.4 ft); minimum, 7,990 acre-ft Apr. 15 (elevation, 5,375.3 ft).

Water year 1970: Maximum contents, 45,400 acre-ft June 21-23, 27, 29, 30 (elevation, 5,449.3 ft); minimum, 24,400 acre-ft Oct. 26 to Nov. 6 (elevation, 5,414.0 ft).

Period of record: Maximum contents, 46,200 acre-ft Aug. 15, 1965 (elevation, 5,450.3 ft); minimum since reservoir first filled, 1,740 acre-ft Oct. 5-9, 1962 (elevation, 5,349.85 ft).

REMARKS.--Reservoir is formed by earthfill dam. Storage began Dec. 15, 1959. Usable capacity, 45,800 acre-ft between elevations 5,327.5 ft (centerline of fishwater outlet) and 5,450.0 ft (top of spillway gates). Dead storage, 160 acre-ft. Records, including extremes, represent total contents at 2400 hours. See schematic diagram of South Fork American River basin. Reservoir is used to store water for power development.

REVISIONS (WATER YEARS).--WRD Calif. 1967: 1960. Revised figures of contents, in acre-feet, for the water year 1969, superseding those published in WRD Calif. 1969, are given herein.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

5,349	1,600	5,400	17,600
5,350	1,760	5,420	27,400
5,360	3,840	5,450	46,000
5,380	9,600		

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12,800	10,000	12,900	14,200	19,800	22,700	12,600	15,900	41,300	43,200	44,700	44,200
2	12,800	10,200	13,000	14,300	19,900	22,700	12,300	16,300	42,100	43,300	44,700	44,200
3	12,700	10,800	13,000	14,300	20,000	22,800	12,000	16,400	42,500	43,400	44,700	44,200
4	12,700	11,000	13,000	14,300	20,100	22,800	11,700	17,400	42,700	43,500	44,700	44,100
5	12,700	11,100	13,100	14,300	20,200	23,000	11,400	17,800	42,900	43,700	44,700	44,100
6	12,700	11,100	13,100	14,400	20,400	23,000	11,000	18,600	43,000	43,700	44,700	44,100
7	12,300	11,200	13,100	14,400	20,500	23,000	10,600	20,200	42,900	43,800	44,700	43,900
8	11,600	11,200	13,100	14,500	20,600	23,100	10,200	21,400	42,600	44,000	44,700	44,000
9	10,900	11,300	13,200	14,500	20,600	23,100	9,840	22,600	42,200	44,200	44,700	43,900
10	10,400	11,400	13,200	14,500	20,800	23,200	9,420	24,000	41,800	44,400	44,600	43,900
11	10,200	11,500	13,300	14,700	20,900	22,800	9,080	25,200	41,500	44,600	44,600	43,900
12	10,200	11,600	13,300	14,700	21,000	22,200	8,760	26,300	41,200	44,700	44,600	43,900
13	10,200	11,700	13,300	14,900	21,100	21,600	8,480	27,400	41,200	44,800	44,600	43,900
14	10,200	11,800	13,400	14,900	21,200	21,100	8,170	28,400	41,300	45,100	44,600	43,800
15	10,200	11,800	13,500	15,000	21,400	20,500	8,110	29,100	41,500	45,200	44,600	43,800
16	10,200	11,900	13,500	15,100	21,400	20,000	8,410	29,600	41,700	45,400	44,600	43,700
17	10,200	11,900	13,600	15,100	21,500	19,400	8,760	30,300	41,700	45,400	44,600	43,700
18	10,200	12,100	13,600	15,200	21,600	18,900	9,180	30,900	41,900	45,500	44,600	43,700
19	10,200	12,200	13,600	15,600	21,600	18,400	9,670	31,400	41,900	45,500	44,600	43,700
20	10,200	12,300	13,700	16,100	21,800	17,800	10,200	31,900	42,000	45,400	44,600	43,600
21	10,200	12,400	13,700	16,700	21,800	17,300	10,900	32,400	42,000	45,400	44,600	43,600
22	10,200	12,500	13,700	17,100	21,900	16,800	11,700	33,200	42,100	45,400	44,500	43,600
23	10,200	12,600	13,800	17,300	22,000	16,300	12,400	33,700	42,100	45,300	44,400	43,600
24	10,200	12,700	13,900	17,600	22,200	15,900	12,700	34,500	42,200	45,100	44,400	43,600
25	10,200	12,700	14,000	18,000	22,300	15,400	13,200	35,000	42,400	45,100	44,400	43,600
26	10,100	12,700	14,000	18,400	22,400	14,900	13,800	35,500	42,600	45,000	44,400	43,500
27	10,100	12,800	14,100	18,800	22,500	14,500	14,300	36,300	42,700	44,800	44,400	43,500
28	10,100	12,800	14,100	19,000	22,600	14,000	14,700	36,700	42,800	44,800	44,300	43,500
29	10,100	12,900	14,100	19,200	-----	13,600	15,200	37,600	42,900	44,600	44,200	43,500
30	10,100	12,900	14,200	19,400	-----	13,200	15,600	38,900	43,000	44,600	44,200	43,400
31	10,100	-----	14,200	19,600	-----	12,900	-----	40,200	-----	44,600	44,200	-----
MAX	12,800	12,900	14,200	19,600	22,600	23,200	15,600	40,200	43,000	45,500	44,700	44,200
MIN	10,100	10,000	12,900	14,200	19,800	12,900	8,110	15,900	41,200	43,200	44,200	43,400
(a)	5,381.3	5,388.5	5,391.7	5,404.4	5,410.4	5,388.4	5,395.2	5,441.5	5,445.8	5,448.2	5,447.6	5,446.4
(b)	-2,700	+2,800	+1,300	+5,400	+3,000	-9,700	+2,700	+24,800	+2,800	+1,600	-400	-800

CAL YR 1968      b -7,300      MAX 38,900      MIN 10,000  
WTR YR 1969      b +30,600      MAX 45,500      MIN 8,110

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.



## 11441100 ICE HOUSE RESERVOIR NEAR KYBURZ, CALIF.--Continued

CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43,400	24,400	25,000	29,200	37,500	36,500	35,100	41,100	44,200	45,300	42,100	37,000
2	43,300	24,400	25,000	29,200	37,600	36,700	35,400	41,400	44,300	45,300	42,000	36,700
3	43,300	24,400	25,000	29,300	37,400	36,800	35,500	41,800	44,300	45,200	41,900	36,500
4	43,200	24,400	25,000	29,300	37,200	36,900	35,700	42,000	44,200	45,200	41,700	36,300
5	42,600	24,400	25,000	29,400	37,000	37,100	36,000	42,000	44,200	45,200	41,600	36,300
6	41,700	24,400	25,000	29,400	36,800	37,200	36,300	42,000	44,000	45,100	41,400	36,400
7	40,700	24,500	25,000	29,500	36,500	37,300	36,500	41,900	43,800	45,100	41,300	36,400
8	39,600	24,600	25,000	29,600	36,200	37,300	36,800	41,700	43,700	45,000	41,300	36,300
9	39,400	24,600	25,000	29,800	35,900	37,200	37,100	41,700	44,400	44,800	41,300	36,300
10	37,600	24,600	25,000	29,900	35,700	37,000	37,400	41,700	44,500	44,800	41,300	36,300
11	36,600	24,600	25,000	30,000	35,400	36,800	37,700	41,500	44,600	44,700	41,300	36,300
12	35,600	24,700	25,000	30,100	35,200	36,500	38,000	41,300	44,600	44,600	41,300	36,200
13	34,600	24,700	25,100	30,900	35,200	36,300	38,100	41,300	44,600	44,600	41,200	36,100
14	33,700	24,700	25,100	31,200	35,200	36,000	38,400	41,500	44,600	44,500	41,000	36,100
15	33,600	24,700	25,100	31,400	35,200	35,800	38,600	41,800	44,600	44,400	40,900	36,100
16	32,200	24,800	25,100	32,400	35,200	35,500	38,700	42,200	44,700	44,200	40,700	36,100
17	31,500	24,800	25,100	33,900	35,400	35,300	38,900	42,600	44,800	44,100	40,600	36,100
18	30,700	24,900	25,200	34,500	35,500	35,000	39,100	43,000	45,000	44,000	40,400	36,000
19	29,900	25,000	25,200	34,900	35,700	34,700	39,200	43,200	45,100	43,900	40,200	35,900
20	29,100	25,000	26,100	36,100	35,800	34,500	39,400	43,200	45,300	43,800	39,900	35,900
21	28,200	25,000	27,200	38,900	35,900	34,300	39,500	43,400	45,400	43,700	39,700	35,900
22	27,200	25,000	27,400	38,800	36,100	34,000	39,600	43,500	45,400	43,500	39,400	35,900
23	26,400	25,000	27,600	37,300	36,200	33,900	39,700	43,700	45,400	43,400	39,200	35,900
24	25,600	25,000	28,200	37,000	36,300	33,700	39,900	43,800	45,300	43,300	38,900	35,900
25	24,700	25,000	28,400	37,800	36,300	33,800	40,000	44,000	45,100	43,200	38,600	35,800
26	24,400	25,000	28,600	37,600	36,200	34,000	40,100	44,200	45,100	43,000	38,200	35,800
27	24,400	25,000	28,700	37,700	36,300	34,200	40,200	44,300	45,400	42,900	38,000	35,800
28	24,400	25,000	28,900	37,600	36,300	34,400	40,400	44,300	45,300	42,700	37,800	35,700
29	24,400	25,000	29,000	37,600	-----	34,600	40,600	44,200	45,400	42,600	37,600	35,700
30	24,400	25,000	29,100	37,500	-----	34,700	40,800	44,300	45,400	42,400	37,400	35,700
31	24,400	-----	29,200	37,500	-----	35,000	-----	44,300	-----	42,200	37,200	-----
MAX	43,400	25,000	29,200	38,900	37,600	37,300	40,800	44,300	45,400	45,300	42,100	37,000
MIN	24,400	24,400	25,000	29,200	35,200	33,700	35,100	41,100	43,700	42,200	37,200	35,700
(a.)	5,414.1	5,415.3	5,423.4	5,437.3	5,435.5	5,433.4	5,442.4	5,447.7	5,449.2	5,444.6	5,436.8	5,434.6
(b)	-19,000	+600	+4,200	+8,300	-1,200	-1,300	+5,800	+3,500	+1,100	-3,200	-5,000	-1,500
CAL YR 1969	b	+15,000	MAX	45,500	MIN	8,110						
WTR YR 1970	b	-7,700	MAX	45,400	MIN	24,400						

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

## SACRAMENTO RIVER BASIN

11441500 SOUTH FORK SILVER CREEK NEAR ICE HOUSE, CALIF.

LOCATION.--Lat 38°49'08", long 120°21'51", in NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.12, T.11 N., R.14 E., El Dorado County, Eldorado National Forest, on right bank 300 ft upstream from Peavine Creek, 0.4 mile downstream from Ice House Dam, and 4.8 miles northwest of Kyburz.

DRAINAGE AREA.--27.5 sq mi.

PERIOD OF RECORD.--October 1924 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 5,290 ft (from topographic map). Prior to Oct. 1, 1959, at site 0.3 mile downstream at different datum.

AVERAGE DISCHARGE (adjusted for change in contents in Ice House Reservoir).--46 years, 74.9 cfs (54,300 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,800 cfs Jan. 22 (gage height, 5.66 ft); minimum daily, 3.8 cfs Nov. 19.

Period of record: Maximum discharge, 3,940 cfs Dec. 23, 1955 (gage height, 6.71 ft, site and datum then in use), from rating curve extended above 540 cfs on basis of slope-area measurement at gage height 6.69 ft; no flow Oct. 31 to Nov. 9, 1958. Maximum discharge since construction of Ice House Dam in 1959, 1,800 cfs Jan. 22, 1970 (gage height, 5.66 ft), from rating curve extended above 620 cfs on basis of computation of flow over dam at gage height, 5.66 ft; minimum daily, 1.2 cfs Mar. 17-19, 1960.

REMARKS.--Records excellent. Flow regulated by Ice House Reservoir beginning in December 1959 (see sta 11441100). See schematic diagram of South Fork American River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	10	5.5	6.5	115	8.0	5.0	7.2	263	74	72	99
2	11	10	6.0	6.5	105	8.0	5.7	7.2	263	74	72	99
3	11	9.9	6.8	6.5	175	7.6	6.3	7.6	263	74	72	99
4	11	9.9	6.8	6.8	176	7.2	6.3	120	263	74	72	47
5	287	8.5	6.8	6.8	191	6.9	6.3	256	260	74	72	11
6	504	5.5	6.5	6.8	218	8.4	5.7	256	260	74	72	11
7	497	4.2	6.5	6.8	218	21	5.2	256	260	75	36	11
8	490	4.9	6.8	6.8	218	48	5.4	252	208	75	14	11
9	490	4.9	6.8	7.9	218	126	5.4	252	103	75	14	11
10	490	6.0	6.8	7.4	224	161	5.4	252	93	75	14	11
11	490	6.5	6.8	7.1	235	179	5.4	249	93	75	12	11
12	484	6.5	6.8	7.9	163	200	5.4	249	93	75	12	11
13	478	5.7	7.1	8.5	109	207	6.0	249	93	75	12	11
14	478	5.3	6.8	12	109	204	6.3	249	93	75	99	11
15	471	5.1	6.8	8.8	109	204	6.9	249	64	75	87	11
16	484	4.9	6.8	16	48	204	6.9	252	48	75	87	11
17	497	4.2	6.8	13	7.6	204	6.9	252	47	75	82	11
18	399	4.0	6.8	9.6	7.2	204	6.9	252	47	74	84	11
19	490	3.8	7.4	9.9	7.2	204	7.2	252	71	74	106	11
20	490	4.4	8.5	9.2	7.2	204	6.9	252	88	74	119	11
21	497	5.5	9.2	287	7.2	204	6.6	252	88	74	115	11
22	490	5.5	7.7	1,560	7.2	204	6.6	252	124	74	111	11
23	490	5.5	8.8	788	7.6	204	6.9	252	146	74	111	11
24	484	5.5	9.9	504	7.2	204	6.6	252	146	74	130	11
25	478	5.7	9.2	337	70	92	6.6	256	146	74	158	11
26	188	5.7	7.9	256	115	5.7	6.6	256	100	72	166	11
27	10	5.7	7.4	260	48	5.4	6.6	260	74	72	115	11
28	10	5.5	7.1	207	7.6	5.4	6.6	263	74	72	99	11
29	10	5.5	6.8	173	-----	5.4	7.2	263	74	72	100	11
30	10	5.7	6.8	152	-----	5.2	6.9	263	74	72	100	11
31	10	-----	6.8	130	-----	5.0	-----	263	-----	72	99	-----
TOTAL	10,240	180.0	223.5	4,824.8	2,930.0	3,356.2	188.7	7,003.0	4,019	2,293	2,514	630
MEAN	330	6.00	7.21	156	105	108	6.29	226	134	74.0	81.1	21.0
MAX	504	10	9.9	1,560	235	207	7.2	263	263	75	166	99
MIN	10	3.8	5.5	6.5	7.2	5.0	5.0	7.2	47	72	12	11
AC-FT	20,310	357	443	9,570	5,810	6,660	374	13,890	7,970	4,550	4,990	1,250
CAL YR 1969	TOTAL 36,795.2	MEAN 101	MAX 504	MIN 3.8	ACFT 72,980	MEAN a 121	AC-FT a 87,970					
WAT YR 1970	TOTAL 38,402.2	MEAN 105	MAX 1,560	MIN 3.8	ACFT 76,170	MEAN a 94.5	AC-FT a 68,470					

a Adjusted for change in contents in Ice House Reservoir.

## 11441900 SILVER CREEK BELOW CAMINO DIVERSION DAM, CALIF.

LOCATION.--Lat 38°49'26", long 120°32'18", on line between secs.4 and 5, T.11 N., R.13 E., El Dorado County, Eldorado National Forest, on right bank 300 ft downstream from Round Tent Canyon, 0.4 mile downstream from diversion dam, and 5 miles northeast of Pollock Pines.

DRAINAGE AREA.--171 sq mi.

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,754.06 ft above mean sea level (Sacramento Municipal Utility District bench mark).

AVERAGE DISCHARGE (unadjusted).--10 years, 129 cfs (93,500 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 7,540 cfs Jan. 22 (gage height, 9.01 ft), from rating curve extended as explained below; minimum daily, 8.0 cfs Nov. 11.

Period of record: Maximum discharge, 19,300 cfs Jan. 31, 1963 (gage heights, 11.28 ft in gage well, 11.9 ft, from floodmarks), from rating curve extended above 1,500 cfs on basis of slope-area measurement of maximum flow; minimum daily, 4.6 cfs July 1, 1964.

REMARKS.--Records good. Flow regulated by storage, diversions, and powerplants. See schematic diagram of South Fork American River basin. Records not adjusted for diversions or changes in storage.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	21	10	17	196	26	10	16	22	20	22	22
2	48	21	10	16	32	25	10	25	22	20	22	22
3	21	21	11	15	30	23	11	25	23	20	23	22
4	20	21	11	15	29	22	12	24	23	19	22	22
5	19	18	11	15	26	21	12	23	24	18	22	21
6	21	14	10	15	25	22	12	23	23	19	22	19
7	22	8.9	10	16	24	23	12	22	23	19	22	17
8	21	8.4	11	15	22	25	12	22	24	19	22	18
9	22	8.2	11	17	20	25	12	22	24	21	22	19
10	21	8.2	11	36	20	25	12	22	24	21	22	51
11	21	8.0	13	30	20	25	12	22	24	21	22	69
12	21	8.4	11	29	20	24	11	21	24	21	22	48
13	21	8.4	12	34	22	23	12	21	25	22	22	50
14	22	8.4	11	248	24	23	12	21	25	21	22	63
15	22	8.4	11	625	23	23	11	21	25	21	22	62
16	23	8.6	11	936	23	22	13	20	25	21	22	61
17	21	9.0	11	2,290	38	21	12	20	25	21	22	60
18	20	9.0	11	1,360	32	21	13	21	25	21	22	59
19	20	8.8	14	383	30	20	14	20	25	22	22	58
20	21	8.6	30	220	29	18	13	20	25	22	22	57
21	20	8.4	47	985	27	16	12	21	25	22	23	56
22	20	8.6	26	5,090	25	15	13	21	25	22	22	55
23	21	8.4	28	3,680	25	15	12	21	24	22	22	54
24	21	8.8	403	3,300	22	15	11	21	24	22	22	52
25	21	9.5	155	2,570	18	14	11	20	24	22	22	50
26	20	10	40	1,810	18	14	12	19	24	22	22	49
27	20	10	30	2,010	17	13	12	20	23	22	22	48
28	19	10	25	1,590	17	12	13	19	23	22	22	47
29	20	9.7	22	1,430	-----	12	12	19	22	22	22	46
30	20	10	20	1,320	-----	12	12	20	20	23	22	44
31	21	-----	17	746	-----	11	-----	21	-----	23	21	-----
TOTAL	673	328.7	1,054	30,863	854	606	358	653	714	653	683	1,321
MEAN	21.7	11.0	34.0	996	30.5	19.5	11.9	21.1	23.8	21.1	22.0	44.0
MAX	48	21	403	5,090	196	26	14	25	25	23	23	69
MIN	19	8.0	10	15	17	11	10	16	20	18	21	17
AC-FT	1,330	652	2,090	61,220	1,690	1,200	710	1,300	1,420	1,300	1,350	2,620
CAL YR 1969	TOTAL	16,305.7	MEAN	44.7	MAX	2,910	MIN	8.0	AC-FT	32,340		
WTR YR 1970	TOTAL	36,760.7	MEAN	106	MAX	5,090	MIN	8.0	AC-FT	76,880		

## SACRAMENTO RIVER BASIN

11442500 SOUTH FORK AMERICAN RIVER BELOW SILVER CREEK, NEAR POLLOCK PINES, CALIF.

LOCATION.--Lat 38°47'37", long 120°37'02", in NE $\frac{1}{4}$  sec.22, T.11 N., R.12 E., El Dorado County, Eldorado National Forest, on right bank 350 ft upstream from El Dorado powerhouse, 2.4 miles downstream from Silver Creek, and 2.8 miles northwest of Pollock Pines.

DRAINAGE AREA.--449 sq mi.

PERIOD OF RECORD.--August to December 1923, November 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,862.79 ft above mean sea level. Aug. 11 to Dec. 16, 1923, nonrecording gage at same site at different datum.

EXTREMES.--Maximum discharge during period, 22,200 cfs Jan. 21 (gage height, 15.22 ft); minimum daily, 25 cfs Nov. 24.

REMARKS.--Records good. Flow regulated by storage, diversions, and powerplants. See schematic diagram of South Fork American River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, NOVEMBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		43	34	223	1,180	764	490	563	1,170	326	38	52
2		48	33	182	854	662	506	650	1,170	275	39	36
3		47	35	170	803	599	530	783	1,220	231	39	35
4		46	35	201	764	581	527	916	1,270	317	39	34
5		71	30	222	731	556	572	993	1,160	329	38	35
6		192	30	224	687	548	648	1,080	1,090	325	38	34
7		114	35	257	662	565	664	888	1,060	285	38	31
8		44	40	186	655	617	648	870	1,040	228	40	29
9		48	47	215	640	592	629	841	1,640	223	42	30
10		53	49	722	622	588	727	989	1,110	210	41	46
11		46	70	486	610	556	704	796	914	180	40	102
12		47	61	446	688	528	676	733	770	155	39	79
13		54	64	544	737	547	659	743	638	138	37	60
14		56	59	1,970	694	609	607	944	675	116	36	85
15		51	50	1,510	668	676	541	1,140	610	79	35	86
16		46	43	7,760	666	647	538	1,460	525	76	36	85
17		72	39	6,850	852	639	502	1,690	484	102	38	87
18		41	35	3,360	708	622	498	1,770	489	75	36	84
19		30	74	1,870	655	565	525	1,680	579	45	35	82
20		29	1,070	2,300	615	539	489	1,450	780	41	36	82
21		28	2,030	11,900	583	521	460	1,350	770	39	36	80
22		28	1,030	13,100	557	526	432	1,400	725	39	35	78
23		27	625	7,390	541	554	404	1,350	725	40	35	75
24		25	1,480	7,100	535	602	452	1,340	710	37	35	72
25		27	1,530	4,980	519	652	480	1,370	665	38	35	71
26		29	919	3,660	520	673	548	1,430	628	38	35	68
27		31	619	4,150	529	642	494	1,410	1,700	38	37	67
28		30	483	3,300	529	587	460	1,230	999	36	38	87
29		29	437	2,650	-----	617	453	1,190	663	37	36	125
30		35	404	2,360	-----	594	490	1,170	421	36	33	106
31		-----	285	1,720	-----	537	-----	1,180	-----	37	33	-----
TOTAL		1,467	11,775	92,008	18,804	18,505	16,353	35,399	26,400	4,171	1,148	2,023
MEAN		48.9	380	2,968	672	597	545	1,142	880	135	37.0	67.4
MAX		192	2,030	13,100	1,180	764	727	1,770	1,700	329	42	125
MIN		25	30	170	519	521	404	563	421	36	33	29
AC-FT		2,910	23,360	182,500	37,300	36,700	32,440	70,210	52,360	8,270	2,280	4,010

## 11443500 SOUTH FORK AMERICAN RIVER NEAR CAMINO, CALIF.

LOCATION.--Lat 38°46'23", long 120°42'02", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.25, T.11 N., R.11 E., El Dorado County, on right bank 500 ft upstream from Iowa Canyon Creek and 2.8 miles northwest of Camino.

DRAINAGE AREA.--493 sq mi.

PERIOD OF RECORD.--October 1922 to current year. Monthly discharge only for October 1922, published in WSP 1315-A. Records for the river and the American River flume published separately October 1922 to September 1956, October 1962 to December 1964 when flume was destroyed. Records of river and flume combined October 1956 to September 1962.

GAGE.--Water-stage recorder. Altitude of gage is 1,620 ft (from topographic map). Nov. 1, 1950, to Dec. 5, 1951, nonrecording gage, Dec. 6, 1951, to May 27, 1964, water-stage recorder at site 100 ft downstream at different datum. May 28, 1964, to Oct. 11, 1966, at site 1,000 ft downstream at datum 11.37 ft lower.

AVERAGE DISCHARGE.--37 years (1922-59, prior to extensive regulation and transbasin diversion in South Fork American River basin), 961 cfs (695,700 acre-ft per year), combined flow of South Fork American River and American River flume.

EXTREMES.--Current year: Maximum discharge, 24,500 cfs Jan. 21 (gage height, 23.2 ft, from floodmarks), from rating curve extended above 7,000 cfs on basis of a hydrologic study of runoff using correlation methods; minimum daily, 2.4 cfs Feb. 12, 15.

Period of record: Maximum discharge, 49,800 cfs Dec. 23, 1955 (gage height, 32.6 ft, from floodmarks, site and datum then in use), from rating curve extended above 24,000 cfs on basis of computation of maximum flow over dam; minimum daily, 1.3 cfs Aug. 24, 1931.

REMARKS.--Records good. Flow regulated principally by six reservoirs (total usable capacity, 347,000 acre-ft). Echo Lake conduit (see sta 11434500) imports up to 1,900 acre-ft each year from Truckee River basin. Variable amounts of El Dorado Canal water (up to 40 cfs, May to October, and about 7 cfs remainder of the year) diverted for irrigation and domestic use between Pollock Pines and Placerville. Water from Jenkinson Lake in North Fork Consumes River basin diverted to Camino and substituted for flow from El Dorado Canal in some years. Since October 1962 water is imported from the Upper Rubicon River basin by way of Robbs Peak tunnel (see sta 11429800). See schematic diagram of South Fork American River basin.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	47	26	16	7.1	13	15	80	69	54	41	43
2	29	47	25	16	7.1	13	15	80	70	41	41	43
3	29	47	25	16	7.1	13	15	82	72	38	42	43
4	29	41	25	16	7.1	13	14	85	74	38	42	43
5	29	32	26	17	7.1	13	15	85	77	39	42	43
6	30	30	25	17	5.0	13	18	82	79	40	43	43
7	29	28	25	17	2.7	13	50	81	79	40	43	44
8	29	28	26	17	2.7	13	101	78	76	40	42	44
9	29	28	26	17	2.7	13	114	74	76	39	42	43
10	29	28	26	17	2.7	14	93	75	77	40	42	43
11	30	27	27	16	2.7	14	92	76	77	40	42	43
12	30	27	27	17	2.4	14	93	74	76	41	42	43
13	29	27	27	17	2.6	14	95	74	73	41	42	43
14	29	27	27	19	2.5	14	94	75	71	41	42	44
15	35	27	28	19	2.4	14	92	77	69	41	41	46
16	44	27	28	5,110	2.8	14	91	76	67	41	41	46
17	45	26	28	7,620	3.0	14	85	79	66	41	42	46
18	44	26	28	1,990	2.7	14	75	85	67	41	41	46
19	44	26	28	33	2.5	14	76	83	69	42	41	45
20	44	26	29	19	3.6	13	77	82	72	41	41	45
21	44	27	30	10,200	7.0	13	75	80	76	41	42	46
22	44	27	23	11,700	7.0	13	73	76	79	41	42	46
23	44	26	15	5,700	6.9	14	74	73	80	41	42	46
24	44	27	16	6,200	9.1	13	77	76	79	42	43	46
25	44	27	16	3,500	12	13	79	80	76	42	43	46
26	45	26	15	2,300	13	13	81	80	73	42	43	46
27	45	26	15	3,040	12	13	82	80	73	42	43	45
28	46	26	15	2,250	12	14	81	79	76	41	43	45
29	47	26	16	1,000	-----	14	81	73	77	42	43	46
30	47	26	16	869	-----	14	80	69	74	41	43	45
31	47	-----	16	29	-----	14	-----	69	-----	41	43	-----
TOTAL	1,161	886	725	61,814	157.5	418	2,103	2,418	2,219	1,275	1,305	1,336
MEAN	37.5	29.5	23.4	1,994	5.63	13.5	70.1	78.0	74.0	41.1	42.1	44.5
MAX	47	47	30	11,700	13	14	114	85	80	54	43	46
MIN	28	26	15	16	2.4	13	14	69	66	38	41	43
AC-FT	2,300	1,760	1,440	122,600	312	829	4,170	4,800	4,400	2,530	2,590	2,650
CAL YR 1969	TOTAL 62,714.8		MEAN 172		MAX 9,770		MIN 8.2		AC-FT 124,400			
WTR YR 1970	TOTAL 75,817.5		MEAN 208		MAX 11,700		MIN 2.4		AC-FT 150,400			

NOTE.--No gage-height record Jan. 22 to Feb. 11.



## 11445500 SOUTH FORK AMERICAN RIVER NEAR LOTUS, CALIF.

LOCATION.--Lat 38°49'07", long 120°56'45", in SW $\frac{1}{4}$  sec.11, T.11 N., R.9 E., El Dorado County, on left bank 0.4 mile downstream from Greenwood Creek, 2.4 miles northwest of Lotus, and 3.3 miles northwest of Coloma.

DRAINAGE AREA.--673 sq mi.

PERIOD OF RECORD.--May 1951 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 635 ft (from topographic map).

AVERAGE DISCHARGE.--11 years (1952-62, prior to extensive regulation and transbasin diversion), 1,109 cfs (802,900 acre-ft per year); 8 years (1963-70), 1,530 cfs (1,108,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 32,700 cfs Jan. 21 (gage height, 15.59 ft); minimum daily, 108 cfs Sept. 24.

Period of record: Maximum discharge, 71,800 cfs Dec. 23, 1955 (gage height, 21.37 ft); minimum daily, 50 cfs Oct. 21, 22, 1964.

Maximum stage known since 1862 and prior to beginning of record, 20.4 ft, from floodmarks, Nov. 21, 1950 (discharge, 64,500 cfs).

REMARKS.--Records good. Flow regulated by storage, diversions, and powerplants. See schematic diagram of South Fork American River basin. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	282	901	1,060	1,550	3,890	1,370	1,220	1,390	2,280	1,660	1,000	1,200
2	155	459	890	1,040	3,340	2,190	1,250	1,260	2,180	2,070	542	1,260
3	150	924	1,020	1,760	2,880	2,380	1,110	910	2,060	2,090	705	953
4	187	962	994	1,270	2,710	2,450	541	982	1,990	708	1,040	990
5	304	1,040	988	1,130	2,770	2,760	637	1,440	2,170	667	1,050	877
6	439	1,220	976	1,700	2,730	2,730	1,060	1,900	2,150	995	764	594
7	743	1,160	529	1,660	2,680	2,190	1,060	2,170	1,970	825	1,300	251
8	913	999	703	1,660	2,150	1,860	1,470	2,160	2,280	1,590	1,060	278
9	688	889	902	1,750	1,880	1,290	1,860	2,130	2,350	1,030	637	331
10	686	527	1,150	2,660	2,570	2,380	1,940	1,180	2,490	1,130	1,060	398
11	687	313	909	1,540	2,650	2,280	2,090	1,290	2,270	783	1,140	431
12	622	867	1,230	1,420	2,710	2,280	1,280	1,920	2,350	405	1,220	268
13	584	930	680	2,130	2,860	2,150	1,220	1,800	2,260	990	1,060	135
14	750	861	447	5,740	3,190	2,130	2,110	1,230	2,250	823	1,120	249
15	771	811	846	5,020	2,250	1,060	2,190	2,100	2,270	920	1,220	191
16	873	345	920	9,430	2,150	1,720	2,150	2,290	2,020	1,110	611	191
17	640	963	1,020	13,600	3,920	2,460	2,210	1,140	1,250	614	995	308
18	1,060	878	1,060	7,230	3,640	2,150	2,130	1,400	822	1,100	1,170	284
19	742	697	1,090	4,700	3,480	2,430	1,260	2,500	769	665	1,170	152
20	726	760	2,070	4,650	3,440	2,140	1,250	2,200	565	620	707	365
21	800	855	3,210	16,900	3,160	2,460	2,050	2,430	320	1,060	1,180	307
22	860	837	4,000	19,500	2,230	918	2,040	2,430	1,010	1,030	1,020	128
23	749	373	2,480	10,600	2,080	1,850	1,560	2,070	1,300	864	670	122
24	769	823	4,760	10,300	2,800	1,990	1,350	1,050	1,900	792	601	108
25	526	803	3,770	7,740	2,540	2,000	1,340	1,160	2,350	943	1,200	113
26	404	646	2,760	6,170	2,640	1,890	1,050	1,820	2,140	730	1,030	115
27	510	381	1,630	6,780	2,570	1,920	1,330	2,010	2,020	692	961	114
28	564	1,050	699	5,790	2,580	1,900	2,060	2,090	1,280	949	982	114
29	551	666	1,200	4,690	-----	486	2,080	2,560	1,430	982	1,040	126
30	553	413	1,750	4,160	-----	1,480	2,030	2,760	1,800	1,130	703	127
31	568	-----	1,720	3,450	-----	1,580	-----	1,700	-----	952	667	-----
TOTAL	18,856	23,353	47,463	167,720	78,490	60,874	46,928	55,472	54,296	30,919	29,625	11,080
MEAN	608	778	1,531	5,410	2,803	1,964	1,564	1,789	1,810	997	956	369
MAX	1,060	1,220	4,760	19,500	3,920	2,760	2,210	2,760	2,490	2,090	1,300	1,260
MIN	150	313	447	1,040	1,880	486	541	910	320	405	542	108
AC-FT	37,400	46,320	94,140	332,700	155,700	120,700	93,080	110,800	107,700	61,330	58,760	21,980
CAL YR 1969	TOTAL 859,904		MEAN 2,356		MAX 18,000		MIN 150		AC-FT 1,706,000			
WTR YR 1970	TOTAL 625,076		MEAN 1,713		MAX 19,500		MIN 108		AC-FT 1,240,000			

## SACRAMENTO RIVER BASIN

## 11446200 FOLSOM LAKE NEAR FOLSOM, CALIF.

LOCATION.--Lat 38°42'29", long 121°09'22", in NW¼NE¼ sec.24, T.10 N., R.7 E., Sacramento County, near center of dam on American River, 0.7 mile downstream from South Fork American River, and 2.3 miles northeast of Folsom.

DRAINAGE AREA.--1,861 sq mi.

PERIOD OF RECORD.--February 1955 to current year. Prior to October 1959, published as Folsom Reservoir near Folsom.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Bureau of Reclamation).

EXTREMES.--Current year: Maximum contents, 910,500 acre-ft June 20 (elevation, 457.08 ft); minimum, 549,200 acre-ft Sept. 30 (elevation, 420.11 ft).

Period of record: Maximum contents, 1,024,400 acre-ft June 15, 1963 (elevation, 467.23 ft); minimum since storage pool first filled, 261,500 acre-ft Jan. 7, 1960 (elevation, 378.23 ft).

REMARKS.--Reservoir is formed by concrete gravity-type dam with rolled-earth wing dams, auxiliary dams, and dikes, completed May 14, 1956; storage began Feb. 25, 1955. Total capacity, 1,010,300 acre-ft between elevations 205.5 ft (invert of lower tier of river outlets) and 466.0 ft (gross pool elevation), all of which is available for release. Spillway design flood pool elevation, 475.4 ft (capacity, 1,120,200 acre-ft). Records, including extremes, represent usable contents at 2400 hours. See schematic diagram of South Fork American River basin.

COOPERATION.--Records furnished by Bureau of Reclamation.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

370	222,300	420	548,300
380	270,700	440	732,900
390	327,800	460	942,600
400	393,300	480	1,176,000

## CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	810,300	659,400	580,700	619,200	607,300	620,200	616,900	706,400	838,500	899,500	767,500	678,300
2	806,800	653,900	580,500	615,600	603,900	620,400	618,800	709,100	843,000	897,900	763,200	675,500
3	803,300	649,400	579,700	612,600	602,800	619,200	620,900	711,800	847,200	896,000	758,400	672,500
4	799,200	645,000	578,300	607,400	601,300	618,300	622,200	714,300	850,200	891,100	755,200	669,100
5	794,300	642,700	576,900	599,000	599,000	617,200	622,400	718,400	854,200	886,400	751,900	665,300
6	789,700	640,400	574,900	590,300	596,100	615,600	625,000	723,600	858,700	881,600	748,100	661,700
7	787,300	637,000	572,400	582,100	593,200	613,200	627,400	728,700	861,000	876,800	745,300	657,000
8	785,400	632,900	569,600	574,100	589,000	613,700	630,100	733,400	866,400	873,200	742,300	652,400
9	781,200	628,800	568,700	568,200	585,300	611,600	633,600	738,300	872,300	868,900	738,500	647,900
10	776,700	624,000	568,300	571,100	584,800	610,600	637,300	741,900	878,100	864,600	735,300	643,600
11	770,300	618,600	568,000	567,100	585,500	607,600	641,600	744,000	883,200	859,000	732,300	639,900
12	763,100	614,600	568,700	562,100	585,900	604,400	643,800	748,100	888,200	852,700	729,500	635,800
13	755,200	609,600	567,600	564,400	589,600	600,700	645,700	751,700	892,900	847,000	726,700	629,800
14	749,600	606,100	565,700	560,900	598,100	597,400	650,500	753,900	896,400	840,800	723,700	625,000
15	745,200	602,300	563,900	629,000	600,200	592,200	655,100	758,500	899,900	834,700	720,800	620,500
16	740,800	597,500	563,100	671,900	600,500	586,100	659,800	763,800	904,300	830,100	716,200	615,700
17	737,600	594,000	562,600	696,500	611,400	583,200	664,800	767,600	906,800	824,500	712,800	611,400
18	733,000	590,600	562,400	642,700	619,100	582,000	669,600	771,300	908,500	820,500	709,700	606,800
19	727,000	588,900	563,000	585,700	624,600	583,200	672,600	778,600	910,200	816,000	706,700	602,200
20	720,400	587,900	578,200	569,400	629,400	584,800	675,100	784,400	910,500	810,900	702,800	597,900
21	715,900	587,500	609,100	650,800	633,600	587,300	679,200	789,800	909,000	807,300	700,100	593,500
22	711,300	587,300	626,700	714,400	634,700	588,200	683,300	795,700	907,900	804,000	697,800	588,800
23	706,600	586,300	629,700	687,400	634,300	589,200	686,400	800,700	905,900	800,400	695,400	583,900
24	701,600	585,700	663,600	656,000	636,400	593,700	688,800	803,300	905,000	786,300	696,100	578,900
25	696,400	585,300	677,200	619,600	631,700	597,700	690,100	805,600	905,300	792,800	697,200	573,900
26	690,900	584,400	676,600	598,800	627,800	602,000	690,300	809,800	905,500	788,900	697,500	569,100
27	685,400	583,200	665,400	599,600	623,900	604,800	691,900	814,600	905,600	784,700	694,500	564,100
28	680,100	583,000	650,100	602,000	620,200	608,400	695,800	819,100	903,300	781,000	691,700	559,200
29	674,800	582,100	638,200	604,400	-----	608,800	699,700	825,300	901,100	777,700	688,800	554,200
30	669,400	581,000	632,300	607,500	-----	611,100	703,700	831,300	900,600	774,300	685,400	549,200
31	664,000	-----	625,200	607,500	-----	614,000	-----	834,800	-----	770,900	680,900	-----
MAX	810,300	659,400	677,200	714,400	636,400	620,400	703,700	834,800	910,500	899,500	767,500	678,300
MIN	664,000	581,000	562,400	562,100	584,800	582,000	616,900	706,400	838,500	770,900	680,900	549,200
(a)	432.86	423.77	428.69	426.74	428.14	427.46	437.01	450.01	456.17	443.80	434.64	420.11
(b)	-149,600	-83,000	+44,200	-17,700	+12,700	-6,200	+89,700	+131,100	+65,800	-129,700	-90,000	-131,700
(c)	2,860	1,230	470	250	950	2,260	3,370	5,760	6,150	7,340	6,290	5,030

CAL YR 1969 MAX 895,500 MIN 440,000 b +24,000

WAT YR 1970 MAX 910,500 MIN 549,200 b-264,400

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

c Evaporation, in acre-feet.



## 11446500 AMERICAN RIVER AT FAIR OAKS, CALIF.

LOCATION.--Lat 38°38'08", long 121°13'36", in SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.17, T.9 N., R.7 E., Sacramento County, on right bank 2,100 ft downstream from Nimbus Dam, 2.4 miles east of Fair Oaks, 8.1 miles downstream from South Fork, and at mile 22.2.

DRAINAGE AREA.--1,888 sq mi.

PERIOD OF RECORD.--November 1904 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is 71.53 ft above mean sea level. Prior to Nov. 7, 1930, nonrecording gages or water-stage recorders at several sites 2.2 miles downstream, all at datum 5.74 ft lower. Nov. 7, 1930, to Dec. 31, 1957, at site 2.2 miles downstream at datum 6.74 ft lower. Dec. 31, 1957, to July 15, 1970, at datum 6.00 ft higher.

AVERAGE DISCHARGE (adjusted for change in contents, diversions, and evaporation from Folsom Lake since 1955).--66 years, 3,776 cfs (2,736,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 56,700 cfs Jan. 19 (gage height, 12.82 ft); minimum daily, 1,060 cfs May 19.

Period of record: Maximum discharge, 180,000 cfs Nov. 21, 1950 (gage height, 31.85 ft, site and datum then in use); minimum, 3.6 cfs Aug. 16, 1924. Maximum discharge since construction of Folsom Dam in 1953, 115,000 cfs Dec. 23-25, 1964 (gage height, 21.65 ft); minimum, 86 cfs Apr. 7, 1955.

REMARKS.--Records excellent. Flow regulated by Folsom Lake beginning Feb. 25, 1955 (see sta 11446200). Some minor regulation of high flows by temporary pondage during period of construction January 1953 to February 1955. Diurnal fluctuations from Folsom powerplant re-regulated by Nimbus Reservoir (capacity, 2,800 acre-ft between normal operating elevations 118.5 and 125.0 ft) and powerplant. Many diversions above station for irrigation, municipal, and domestic water supply. Diversions of San Juan Suburban Water District, Cordova Water Service, city of Folsom, and State of California are made at Folsom Dam. Some inflow from Bear and Yuba River basins. Records of water temperatures for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3,100	4,600	2,540	7,450	10,200	7,700	2,500	1,500	1,500	3,110	3,590	3,550
2	3,140	4,600	2,510	5,360	10,100	7,550	2,500	1,500	1,510	3,650	3,570	3,570
3	3,090	4,600	2,520	5,140	8,130	7,480	2,460	1,500	1,530	3,630	3,570	3,550
4	3,070	4,600	2,520	6,380	7,870	7,520	1,980	1,490	1,980	3,500	3,570	3,550
5	3,140	4,620	2,520	7,450	7,870	7,550	1,970	1,490	2,000	3,230	3,570	3,570
6	3,150	4,640	2,520	7,690	7,870	7,480	1,970	1,490	1,610	3,630	3,570	3,550
7	3,070	4,620	2,520	7,660	7,990	7,480	1,970	1,490	1,520	3,630	3,570	3,570
8	3,090	4,620	2,510	7,570	7,840	7,480	1,970	1,500	1,520	3,630	3,570	3,570
9	3,090	4,580	2,510	7,600	7,180	7,450	1,980	1,500	1,520	3,610	3,570	3,570
10	3,180	4,480	2,510	7,570	6,150	7,580	1,980	1,490	1,530	3,600	3,570	3,590
11	4,170	4,500	2,510	7,630	5,790	7,620	1,980	1,470	1,540	4,080	3,570	3,590
12	4,580	4,500	2,480	7,720	5,750	7,580	2,010	1,480	1,540	4,100	3,570	3,570
13	4,600	4,540	2,520	7,690	5,640	7,500	2,010	1,480	1,520	4,130	3,570	3,520
14	4,600	4,500	2,520	7,690	5,660	7,500	1,510	1,480	1,520	4,130	3,570	3,550
15	4,600	4,480	2,520	7,720	5,600	7,450	1,490	1,480	1,530	4,050	3,570	3,570
16	4,600	4,580	2,540	22,600	5,620	7,420	1,490	1,480	1,510	3,590	3,570	3,570
17	4,580	4,170	2,520	35,400	5,640	6,750	1,490	1,470	1,480	3,590	3,570	3,570
18	4,580	3,650	2,520	52,200	5,620	5,550	1,480	1,460	1,490	3,610	3,550	3,570
19	4,580	3,180	2,540	45,200	5,620	4,480	1,470	1,060	1,540	3,610	3,550	3,550
20	4,580	2,670	2,540	28,300	5,640	4,200	1,490	1,520	1,580	3,610	3,550	3,570
21	4,580	2,540	2,540	22,800	5,600	3,430	1,530	1,550	2,180	3,610	3,590	3,630
22	4,600	2,510	3,560	35,800	5,600	3,140	1,520	1,530	2,180	3,610	3,000	3,660
23	4,600	2,520	5,990	46,100	5,620	3,140	1,510	1,510	2,570	3,610	2,920	3,650
24	4,600	2,540	8,840	50,300	5,600	2,640	1,530	1,510	2,550	3,610	1,410	3,660
25	4,600	2,520	10,200	42,900	7,420	2,780	2,210	1,510	2,520	3,610	1,390	3,660
26	4,600	2,520	11,000	28,300	7,540	2,920	2,260	1,510	2,520	3,610	1,490	3,660
27	4,600	2,540	12,000	24,600	7,510	2,500	1,850	1,520	2,560	3,610	3,480	3,660
28	4,600	2,540	12,000	18,000	7,570	2,460	1,510	1,520	3,080	3,610	3,520	3,660
29	4,600	2,540	10,300	13,300	-----	2,470	1,500	1,510	3,110	3,610	3,530	3,680
30	4,600	2,550	8,080	10,500	-----	2,470	1,500	1,510	3,120	3,590	3,530	3,700
31	4,600	-----	8,170	10,200	-----	2,500	-----	1,510	-----	3,610	3,550	-----
TOTAL	127,170	112,050	143,070	594,820	190,240	171,770	54,620	46,020	57,860	113,410	102,770	107,890
MEAN	4,102	3,735	4,615	19,190	6,794	5,541	1,821	1,485	1,929	3,658	3,315	3,596
MAX	4,600	4,640	12,000	52,200	10,200	7,700	2,500	1,550	3,120	4,130	3,590	3,700
MIN	3,070	2,510	2,480	5,140	5,600	2,460	1,470	1,060	1,480	3,110	1,390	3,520
AC-FT	252,200	222,300	283,800	1,180M	377,300	340,700	108,300	91,280	114,800	224,900	203,800	214,000
MEAN a	1,789	2,415	5,388	18,950	7,076	5,520	3,459	3,815	3,257	1,795	2,078	1,582
AC-FT a	110,000	143,700	331,300	1,165M	393,000	339,400	205,800	234,600	193,800	110,400	127,800	94,160
(b)	4,526	3,131	2,808	2,055	2,026	2,649	4,455	6,463	7,025	7,852	7,719	6,834
CAL YR 1969	TOTAL 2,334,720	MEAN 6,396	MAX 67,200	MIN 1,980	ACFT 4,631,000	MEAN a6,560	AC-FTa4,753,000					
WAT YR 1970	TOTAL 1,821,690	MEAN 4,991	MAX 52,200	MIN 1,060	ACFT 3,613,000	MEAN a4,760	AC-FTa3,449,000					

a Adjusted for change in contents, diversions, and evaporation from Folsom Lake.

b Diversion, in acre-feet, to Cordova Water Service, city of Folsom, San Juan Suburban Water District, and to State of California; furnished by Bureau of Reclamation.

## SACRAMENTO RIVER BASIN

11447360 ARCADE CREEK NEAR DEL PASO HEIGHTS, CALIF.

LOCATION.--Lat 38°38'28", long 121°22'38", in Del Paso Grant, Sacramento County, on right bank 1,200 ft upstream from bridge on Interstate Highway 80 and 1.6 miles east of city limits of Del Paso Heights.

DRAINAGE AREA.--31.5 sq mi.

PERIOD OF RECORD.--July 1963 to current year.

GAGE.--Water-stage recorder and concrete low water control. Datum of gage is 47.98 ft above mean sea level (levels by County of Sacramento).

AVERAGE DISCHARGE.--7 years, 17.2 cfs (12,460 acre-ft-per year).

EXTREMES.--Current year: Maximum discharge, 1,600 cfs Jan. 14 (gage height, 13.19 ft); minimum daily, 0.16 cfs Nov. 15, 16.

Period of record: Maximum discharge, 2,000 cfs Jan. 21, 1967 (gage height, 14.42 ft); no flow for several days in 1963-66.

REMARKS.--Records fair. Low summer flow sustained by residential and industrial waste water.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	.60	.28	1.8	3.9	154	1.9	2.5	4.6	4.4	2.5	3.5
2	1.8	.67	.48	1.6	3.0	43	2.6	3.2	4.7	5.0	2.1	3.4
3	1.0	.81	.43	1.5	2.6	6.6	2.6	3.7	4.9	5.7	2.1	3.7
4	.48	.81	.54	1.4	2.4	144	2.6	3.8	4.9	6.1	2.0	3.8
5	1.1	74	.54	1.3	2.2	94	3.2	3.0	4.4	5.5	1.9	2.7
6	2.0	25	.33	1.3	2.0	10	3.4	2.0	3.4	5.7	2.2	2.2
7	1.6	4.7	.28	1.6	1.8	5.2	2.7	2.5	3.5	5.5	2.5	2.8
8	1.2	2.5	6.2	16	1.5	95	2.5	3.1	4.4	5.7	2.1	3.5
9	1.0	1.3	3.7	76	1.2	15	2.5	2.6	12	4.6	1.9	3.5
10	1.2	.74	13	95	1.1	10	3.1	3.1	5.5	3.8	2.1	3.5
11	1.0	.60	19	11	1.2	4.6	2.6	2.6	2.0	3.7	2.2	3.3
12	1.0	.48	6.0	8.5	12	3.1	3.0	2.5	1.9	4.3	2.4	3.3
13	2.8	.33	4.8	50	54	2.7	5.5	2.5	2.4	4.0	2.8	2.2
14	1.9	.19	2.1	879	24	2.3	11	2.9	2.4	4.2	3.0	2.3
15	36	.16	1.5	109	4.7	2.1	3.0	3.5	2.8	4.0	2.6	2.5
16	34	.16	1.2	378	9.6	1.9	1.8	4.3	3.2	3.8	2.7	2.2
17	6.2	.19	.74	149	46	1.7	1.6	3.9	3.3	4.0	2.7	2.6
18	2.1	.19	2.4	25	7.8	1.4	1.5	2.7	3.7	4.3	2.7	2.8
19	1.0	.19	90	20	2.8	1.3	1.9	2.2	4.3	3.9	2.5	2.5
20	.67	.23	226	69	1.7	1.4	2.2	2.1	4.7	4.0	2.5	1.8
21	.60	.19	138	701	1.3	1.6	2.1	3.2	4.7	3.4	2.8	1.9
22	.60	.33	32	94	1.2	2.0	2.1	3.2	4.7	3.5	3.2	2.1
23	.67	.38	42	26	1.2	2.3	2.6	3.2	5.0	3.7	2.6	2.5
24	.38	.43	219	109	1.7	2.3	2.6	3.3	4.9	3.7	3.4	3.0
25	.19	.33	103	15	1.6	2.3	2.3	3.8	5.2	3.3	3.9	1.8
26	.33	.28	20	8.0	1.5	2.0	3.5	3.3	4.2	2.6	3.0	2.1
27	.74	.38	6.3	139	1.6	2.2	4.2	3.0	3.4	3.0	3.4	2.6
28	3.2	.33	3.5	19	9.1	2.3	3.0	3.1	3.1	2.7	3.7	2.8
29	4.2	.43	2.7	7.0	-----	2.4	1.8	3.4	3.3	2.6	3.7	2.5
30	6.0	.38	2.5	7.0	-----	1.8	2.1	3.0	3.8	4.4	3.3	2.5
31	6.8	-----	2.1	5.0	-----	1.8	-----	3.1	-----	2.7	3.3	-----
TOTAL	123.46	117.31	950.62	3,026.0	204.7	622.3	87.5	94.3	125.3	127.8	83.8	81.9
MEAN	3.98	3.91	30.7	97.6	7.31	20.1	2.92	3.04	4.18	4.12	2.70	2.73
MAX	36	74	226	879	54	154	11	4.3	12	6.1	3.9	3.8
MIN	.19	.16	.28	1.3	1.1	1.3	1.5	2.0	1.9	2.6	1.9	1.8
AC-FT	245	233	1,890	6,000	406	1,230	174	187	249	253	166	162
CAL YR 1969	TOTAL	13,600.75	MEAN	37.3	MAX	1,280	MIN	.16	AC-FT	26,980		
WTR YR 1970	TOTAL	5,644.99	MEAN	15.5	MAX	879	MIN	.16	AC-FT	11,200		

## PEAK DISCHARGE (BASE, 250 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-20	1100	8.93	417	1-16	1100	10.22	619
12-21	1400	7.44	260	1-21	0630	11.62	967
12-24	1700	8.31	344	3- 1	1430	7.64	278
1-14	1230	13.19	1,600	3- 4	1830	8.66	384

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16,900	17,200	15,800	66,000	76,600	49,500	21,700	15,600	11,800	13,200	13,500	16,700
2	16,600	17,200	15,800	62,400	76,800	52,800	20,800	15,300	11,200	13,600	13,600	17,200
3	16,100	17,200	15,900	58,900	75,800	57,900	20,000	15,200	10,100	13,300	13,600	17,500
4	15,600	17,100	15,900	56,200	74,000	59,400	19,000	15,100	10,400	13,100	14,000	17,700
5	15,500	17,400	15,900	52,500	72,700	58,800	18,000	15,500	11,200	13,000	14,100	17,900
6	15,300	17,600	15,700	46,600	71,900	57,700	17,400	15,500	11,100	13,200	14,100	18,000
7	15,000	18,400	15,600	40,300	71,300	57,500	17,000	15,200	10,700	12,600	14,400	18,000
8	14,800	19,100	15,700	36,800	70,100	57,100	16,400	14,900	10,900	12,200	14,600	18,000
9	14,800	19,200	16,300	35,400	69,200	58,400	15,900	14,200	11,200	12,000	14,600	18,600
10	14,700	18,900	16,800	36,800	67,800	59,600	15,500	14,200	11,500	11,900	14,800	19,600
11	15,300	18,500	16,800	43,600	66,700	61,000	15,400	15,200	12,600	12,300	14,800	20,200
12	15,800	18,200	17,200	50,100	66,100	61,000	14,700	17,100	12,900	12,400	15,000	20,500
13	16,100	17,300	17,900	57,800	65,900	59,900	14,200	17,500	12,700	12,900	14,800	21,500
14	16,400	16,200	25,700	66,500	66,000	57,600	14,800	17,500	12,700	13,100	15,000	20,500
15	16,400	16,100	32,500	71,600	66,600	54,500	13,800	17,400	12,300	13,500	15,100	20,600
16	17,100	17,200	32,700	78,700	66,200	51,900	13,500	16,600	12,100	13,400	15,000	20,000
17	17,800	17,500	30,500	90,200	65,700	48,500	13,400	15,600	12,100	12,900	15,000	20,000
18	18,500	17,200	28,100	93,500	65,900	44,100	12,800	15,000	12,300	12,900	14,900	19,800
19	18,700	16,800	26,800	93,100	65,400	40,400	12,100	13,700	11,800	13,100	14,900	19,700
20	18,300	16,200	28,300	87,900	64,400	38,000	11,600	13,500	11,700	13,000	14,900	19,800
21	17,900	15,800	34,800	84,900	63,100	34,000	11,100	13,200	11,900	13,300	15,000	19,900
22	17,600	15,700	40,800	89,500	62,100	30,500	11,100	13,000	11,900	13,600	15,200	18,900
23	17,500	15,800	47,300	93,300	60,700	28,700	10,800	12,800	12,200	13,600	15,300	17,700
24	17,400	15,800	60,200	93,800	58,900	27,500	10,600	12,800	12,000	13,700	14,500	17,300
25	17,400	15,800	70,300	93,000	58,300	26,600	11,100	12,400	11,600	13,700	14,400	16,900
26	17,300	15,800	72,100	89,100	57,100	25,900	11,500	12,400	11,600	13,700	14,800	16,400
27	17,300	15,700	73,000	87,100	53,700	24,400	12,000	12,100	11,800	13,900	16,100	16,600
28	17,400	15,800	72,300	84,500	50,700	22,400	12,500	10,700	12,000	13,900	16,800	16,700
29	17,400	15,700	71,000	80,700	-----	21,600	14,400	10,600	12,400	13,800	16,900	16,800
30	17,300	15,800	67,900	79,400	-----	21,400	15,500	10,800	12,900	13,800	17,300	16,400
31	17,300	-----	67,200	77,900	-----	21,800	-----	11,600	-----	13,800	17,300	-----
TOTAL	517,500	508,200	1,092.8M	2,178.1M	1,849.7M	1,370.4M	438,600	442,200	353,600	408,400	464,300	555,400
MEAN	16,690	16,940	35,250	70,260	66,060	44,210	14,620	14,260	11,790	13,170	14,980	18,510
MAX	18,700	19,200	73,000	93,800	76,800	61,000	21,700	17,500	12,900	13,900	17,300	21,500
MIN	14,700	15,700	15,600	35,400	50,700	21,400	10,600	10,600	10,100	11,900	13,500	16,400
AC-FT	1,026M	1,008M	2,168M	4,320M	3,669M	2,718M	870,000	877,100	701,400	810,100	920,900	1,102M
CAL YR 1969	TOTAL 12,340,700		MEAN 33,810		MAX 95,200		MIN 13,300		ACFT 24,480,000			
WAT YR 1970	TOTAL 10,179,200		MEAN 27,890		MAX 93,800		MIN 10,100		ACFT 20,190,000			

## SACRAMENTO RIVER BASIN

## 11448500 ADOBE CREEK NEAR KELSEYVILLE, CALIF.

LOCATION.--Lat 38°55'37", long 122°52'47", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.32, T.13 N., R.9 W., Lake County, on left bank 2.3 miles upstream from Highland Creek, and 4.2 miles southwest of Kelseyville.

DRAINAGE AREA.--6.36 sq mi.

PERIOD OF RECORD.--October 1954 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,476.06 ft above mean sea level.

AVERAGE DISCHARGE.--16 years, 12.5 cfs (9,060 acre-ft per year); median of yearly mean discharges, 10 cfs (7,200 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,500 cfs Jan. 23 (gage height, 8.81 ft); no flow for several months.

Period of record: Maximum discharge, 1,500 cfs Dec. 22, 1964, Jan. 23, 1970; maximum gage height, 9.22 ft Jan. 31, 1963; no flow at times in each year.

REMARKS.--Records good. Some regulation and diversions above station for irrigation of about 200 acres.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.38	.28	5.3	15	45	2.2	.93	.13	0	0	0
2	0	.23	.28	4.5	12	20	2.1	.85	.12	0	0	0
3	0	.20	.28	4.1	11	16	2.0	.80	.10	.02	0	0
4	0	.28	.28	3.7	9.4	73	1.8	.71	.10	.02	0	0
5	0	.21	.28	3.0	8.8	38	1.8	.71	.08	0	0	0
6	0	.80	.28	3.0	7.6	25	1.7	.78	.05	0	0	0
7	0	.98	.28	3.0	6.6	24	1.7	.77	.03	0	0	0
8	0	3.0	.80	27	6.1	26	1.5	.77	.03	0	0	0
9	0	.98	.50	208	5.7	20	1.5	.82	.02	0	0	0
10	0	.50	3.3	91	5.3	18	1.5	.76	.03	0	0	0
11	0	.38	24	49	4.9	15	1.4	.82	.11	0	0	0
12	0	.38	152	56	47	13	1.4	.90	.13	0	0	0
13	0	.38	31	140	174	11	1.7	.93	.13	0	0	0
14	0	.28	19	402	60	10	1.6	.81	.14	0	0	0
15	.95	.28	10	110	33	8.9	1.5	.67	.14	0	0	0
16	.98	.28	7.1	312	79	7.9	1.5	.56	.12	0	0	0
17	.33	.28	7.1	105	70	7.0	1.4	.52	.10	0	0	0
18	.28	.28	17	54	41	6.1	1.2	.58	.10	0	0	0
19	.20	.28	232	47	28	5.7	1.4	.79	.08	0	0	0
20	.20	.38	136	103	22	5.3	1.4	.80	.08	0	0	0
21	.20	.38	306	354	17	4.8	1.4	.79	.08	0	0	0
22	.20	.28	52	192	13	4.7	1.3	.76	.06	0	0	0
23	.14	.28	142	627	11	4.3	1.2	.40	.06	0	0	0
24	.14	.28	163	309	10	4.0	1.2	.34	.05	0	0	0
25	.20	.28	53	88	8.8	3.4	1.2	.28	.04	0	0	0
26	.20	.28	29	79	7.6	3.1	1.3	.27	.03	0	0	0
27	.20	.28	19	150	7.1	2.8	1.3	.27	.03	0	0	0
28	.20	.28	14	58	26	2.8	1.3	.23	.03	0	0	0
29	.38	.28	10	35	-----	2.7	1.1	.24	.02	0	0	0
30	.38	.28	8.2	24	-----	2.5	1.0	.23	0	0	0	0
31	.38	-----	6.6	18	-----	2.3	-----	.16	-----	0	0	-----
TOTAL	5.61	13.71	1,444.56	3,664.6	746.9	432.3	44.6	19.25	2.22	0.04	0	0
MEAN	.18	.46	46.6	118	26.7	13.9	1.49	.62	.074	.001	0	0
MAX	.98	3.0	306	627	174	73	2.2	.93	.14	.02	0	0
MIN	0	.20	.28	3.0	4.9	2.3	1.0	.16	0	0	0	0
AC-FT	11	27	2,870	7,270	1,480	857	88	38	4.4	.08	0	0
CAL YR 1969	TOTAL 7,100.08		MEAN 19.5		MAX 472		MIN 0		AC-FT 14,080			
WTR YR 1970	TOTAL 6,373.79		MEAN 17.5		MAX 627		MIN 0		AC-FT 12,640			

## PEAK DISCHARGE (BASE, 400 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	0430	7.56	882	1-21	0130	6.89	617
12-24	0030	6.29	417	1-23	2045	8.81	1,500
1-9	1415	6.29	417	1-27	0030	6.32	426
1-14	0630	7.60	900				

## 11448900 HIGHLAND CREEK ABOVE HIGHLAND CREEK DAM, CALIF.

LOCATION.--Lat 38°55'48", long 122°55'11", in NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.36, T.13 N., R.10 W., Lake County, on left bank 100 ft downstream from Pipeline Creek, 1.7 miles upstream from Highland Creek Dam, and 5.7 miles southwest of Kelseyville.

DRAINAGE AREA.--11.9 sq mi.

PERIOD OF RECORD.--October 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,490.07 ft above mean sea level.

AVERAGE DISCHARGE.--8 years, 21.7 cfs (15,720 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 2,980 cfs Jan. 23 (gage height, 10.65 ft); no flow many days.  
Period of record: Maximum discharge, 3,080 cfs Dec. 22, 1964 (gage height, 12.15 ft); no flow at times in each year.

REMARKS.--Records good. No regulation or diversion above station.

REVISIONS (WATER YEARS).--WRD Calif. 1969: 1968(M).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.70	.76	12	31	36	5.4	2.5	.74	.24	0	0
2	0	.70	.76	9.2	27	19	5.4	2.5	.74	.17	0	0
3	.01	.70	.76	8.0	23	17	5.0	2.3	.64	.14	0	0
4	.02	.76	.76	7.2	21	102	4.7	2.3	.54	.11	0	0
5	.03	2.7	.76	5.9	17	54	4.7	2.3	.54	.06	0	0
6	.03	1.6	.76	5.3	15	36	4.7	2.5	.54	.06	0	0
7	.04	1.6	.76	5.6	14	42	4.3	2.3	.54	.06	0	0
8	.10	5.3	2.1	51	13	57	4.3	2.5	.98	.04	0	0
9	.12	1.9	2.5	492	11	40	4.0	2.5	1.4	.04	0	0
10	.15	1.3	3.5	176	11	52	4.0	2.8	1.1	.02	0	0
11	.12	1.0	29	82	9.7	28	4.0	2.8	.86	.04	0	0
12	.12	.92	193	82	45	24	4.0	3.1	.74	.02	0	0
13	.18	.84	39	179	333	20	5.0	2.5	.74	0	0	0
14	.59	.84	20	584	110	18	4.7	2.5	.86	0	0	0
15	2.9	.84	11	207	60	16	4.3	2.3	.74	0	0	0
16	1.0	.84	6.9	520	180	15	4.0	2.0	.64	0	0	0
17	.70	.76	6.3	210	163	13	3.7	1.8	.54	0	0	0
18	.54	.76	21	113	92	12	3.7	1.8	.46	0	0	0
19	.46	.76	401	82	62	11	3.7	1.8	.39	0	0	0
20	.42	.76	203	134	45	10	3.4	1.8	.33	0	0	0
21	.42	.76	464	532	34	9.7	3.4	1.8	.28	0	0	0
22	.42	.76	83	273	27	9.2	3.4	1.6	.24	0	0	0
23	.50	.76	181	1,070	22	8.7	3.1	1.4	.20	0	0	0
24	.54	.76	203	500	19	8.2	3.1	1.3	.24	0	0	0
25	.54	.76	80	210	16	7.3	3.1	1.3	.24	0	0	0
26	.54	.76	50	150	15	7.3	3.4	1.3	.20	0	0	0
27	.64	.76	35	220	13	6.5	3.4	1.3	.28	0	0	0
28	.64	.76	27	120	21	6.5	3.1	1.3	.33	0	0	0
29	.70	.76	21	71	-----	6.1	2.8	1.1	.33	0	0	0
30	.70	.76	17	50	-----	6.1	2.8	.98	.33	0	0	0
31	.70	-----	13	40	-----	5.7	-----	.86	-----	0	0	-----
TOTAL	13.87	33.18	2,117.62	6,201.2	1,449.7	703.3	118.6	61.14	16.73	1.00	0	0
MEAN	.45	1.11	68.3	200	51.8	22.7	3.95	1.97	.56	.032	0	0
MAX	2.9	5.3	464	1,070	333	102	5.4	3.1	1.4	.24	0	0
MIN	0	.70	.76	5.3	9.7	5.7	2.8	.86	.20	0	0	0
AC-FT	28	66	4,200	12,300	2,880	1,390	235	121	33	2.0	0	0

CAL YR 1969 TOTAL 12,053.05 MEAN 33.0 MAX 750 MIN 0 AC-FT 23,910  
WTR YR 1970 TOTAL 10,716.34 MEAN 29.4 MAX 1,070 MIN 0 AC-FT 21,260

PEAK DISCHARGE (BASE, 1,200 CFS, REVISED).--Jan. 14 (0700) 1,230 cfs (7.55 ft); Jan. 23 (2015) 2,980 cfs (10.65 ft).

## SACRAMENTO RIVER BASIN

## 11449010 HIGHLAND CREEK BELOW HIGHLAND CREEK DAM, NEAR KELSEYVILLE, CALIF.

LOCATION.--Lat 38°56'54", long 122°54'03", in NE $\frac{1}{4}$  sec.30, T.13 N., R.9 W., Lake County, on left bank 500 ft downstream from Highland Creek Dam and 4.0 miles southwest of Kelseyville.

DRAINAGE AREA.--14.2 sq mi.

PERIOD OF RECORD.--December 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,416.52 ft above mean sea level.

EXTREMES.--Current year: Maximum discharge, 733 cfs Jan. 23 (gage height, 4.75 ft); no flow many days.

Period of record: Maximum discharge, 733 cfs Jan. 23, 1970 (gage height, 4.75 ft); maximum gage height, 4.99 ft Jan. 4, 1966; no flow many days in each year.

REMARKS.--Records fair. Flow completely regulated by Highland Creek Dam 500 ft upstream (capacity, 3,500 acre-ft). No diversion above station. Records of water temperatures and suspended-sediment loads for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.09	0	.59	9.8	38	46	9.8	3.1	.59			
2	.09	0	.59	8.4	32	30	9.0	2.6	.50			
3	.09	0	.59	7.8	26	24	8.4	2.3	.28			
4	.09	0	.59	7.8	24	95	8.4	2.1	.15			
5	.09	0	.77	7.2	21	65	7.8	2.0	.05			
6	.07	0	.86	6.8	19	42	7.2	1.8	0			
7	.05	.01	.95	6.4	18	38	6.8	1.8	0			
8	.02	.01	2.4	34	15	64	6.4	1.8	.06			
9	.01	.07	3.1	429	13	44	6.4	2.0	.50			
10	.01	.44	4.3	404	11	36	6.4	2.0	.59			
11	.01	.68	23	94	11	31	6.0	2.1	.44			
12	.01	.77	219	78	45	25	6.0	2.3	.28			
13	0	.86	96	149	312	22	6.4	2.1	.23			
14	.01	.77	31	594	139	21	6.8	2.1	.28			
15	.03	.77	18	392	70	19	6.4	1.8	.23			
16	.01	.77	9.0	578	144	16	6.0	1.8	.14			
17	0	.59	8.4	282	210	16	5.7	1.7	0			
18	0	.59	12	124	98	15	4.8	1.5	0			
19	.01	.59	471	87	69	15	4.8	1.5	0			
20	0	.59	271	110	54	14	4.6	1.7	0			
21	0	.68	579	582	43	13	4.3	1.8	0			
22	0	.68	178	469	36	13	4.3	1.7	0			
23	0	.68	165	501	31	13	4.3	1.5	0			
24	0	.68	309	728	26	13	4.1	1.5	0			
25	0	.68	94	672	23	13	4.1	1.2	0			
26	0	.68	57	562	21	12	3.8	.95	0			
27	0	.68	40	307	20	11	3.8	.95	0			
28	0	.68	29	118	23	11	3.6	.86	0			
29	0	.68	21	75	-----	11	3.1	.86	0			
30	0	.59	14	58	-----	11	3.1	.86	0			
31	0	-----	11	48	-----	9.0	-----	.77	-----			-----
TOTAL	.69	14.22	2,670.14	7,529.2	1,592	808.0	172.6	53.05	4.32	0	0	0
MEAN	.022	.47	86.1	243	56.9	26.1	5.75	1.71	.14	0	0	0
MAX	.09	.86	579	728	312	95	9.8	3.1	.59	0	0	0
MIN	0	0	.59	6.4	11	9.0	3.1	.77	0	0	0	0
AC-FT	1.4	28	5,300	14,930	3,160	1,600	342	105	8.6	0	0	0
CAL YR 1969	TOTAL	13,931.28	MEAN	38.2	MAX	579	MIN	0	AC-FT	27,630		
WTR YR 1970	TOTAL	12,844.22	MEAN	35.2	MAX	728	MIN	0	AC-FT	25,480		

## 11449100 SCOTTS CREEK NEAR LAKEPORT, CALIF.

LOCATION.--Lat 39°05'44", long 122°57'38", in NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.3, T.14 N., R.10 W., Lake County, on left bank at upstream side of Eickhoff Road bridge, 0.9 mile downstream from small right-bank tributary, and 4.2 miles northwest of Lakeport.

DRAINAGE AREA.--55.2 sq mi.

PERIOD OF RECORD.--October 1960 to current year.

GAGE--Water-stage recorder. Altitude of gage is 1,400 ft (from topographic map). Prior to Oct. 1, 1968, at site 3.0 miles upstream at different datum.

AVERAGE DISCHARGE.--10 years, 82.0 cfs (59,410 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 11,000 cfs (includes about 7,500 cfs bypassing gage) Jan. 23 (gage height, 12.10 ft); no flow for several months.  
Period of record: Maximum discharge, 11,000 cfs (includes about 7,500 cfs bypassing gage) Jan. 23, 1970 (gage height, 12.10 ft); maximum gage height, 17.88 ft Dec. 22, 1964, site and datum then in use; no flow for several months in each year.

REMARKS.--Small diversions above station for irrigation.

COOPERATION.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			0	38	169	95	25	8.7	1.1			
2			0	33	144	67	24	8.0	1.1			
3			0	30	125	58	23	7.7	1.0			
4			0	28	112	187	22	7.1	.90			
5			0	25	101	169	20	6.4	.80			
6			0	24	93	122	20	6.8	.70			
7			0	24	87	121	19	6.7	.80			
8			0	110	81	226	18	6.8	1.0			
9			0	1,780	76	174	17	7.5	1.0			
10			0	997	71	160	17	7.7	.90			
11			0	398	67	136	16	7.9	.80			
12			166	475	122	113	16	8.9	.80			
13			121	724	763	100	16	7.7	.80			
14			53	2,380	403	93	17	6.1	.80			
15			36	1,100	243	82	17	5.5	.70			
16			20	2,530	529	73	16	4.9	.70			
17			16	1,580	733	64	15	4.4	.70			
18			35	705	411	57	14	4.2	.60			
19			940	469	280	51	14	3.8	.70			
20			493	617	209	47	13	3.6	.70			
21			1,180	2,470	163	43	13	3.5	.50			
22			297	1,560	131	42	12	3.1	.30			
23			482	3,980	107	41	12	2.7	0			
24			632	3,030	95	39	12	2.2	0			
25			299	1,200	84	37	12	1.9	0			
26			218	597	76	35	13	1.7	0			
27			139	1,120	69	33	14	1.5	0			
28			94	507	75	31	11	1.4	0			
29			70	337	-----	30	10	1.0	0			
30			53	254	-----	29	9.7	.90	0			
31		-----	43	199	-----	27	-----	1.2	-----			-----
TOTAL	0	0	5,387	29,321	5,619	2,582	477.7	151.50	17.40	0	0	0
MEAN	0	0	174	946	201	83.3	15.9	4.89	.58	0	0	0
MAX	0	0	1,180	3,980	763	226	25	8.9	1.1	0	0	0
MIN	0	0	0	24	67	27	9.7	.90	0	0	0	0
AC-FT	0	0	10,690	58,160	11,150	5,120	948	301	35	0	0	0
CAL YR 1969	TOTAL	46,396.70	MEAN	127	MAX	2,380	MIN	0	AC-FT	92,030		
WTR YR 1970	TOTAL	43,555.60	MEAN	119	MAX	3,980	MIN	0	AC-FT	86,390		

## SACRAMENTO RIVER BASIN

## 11449460 SEIGLER CREEK AT LOWER LAKE, CALIF.

LOCATION.--Lat 38°54'34", long 122°36'48", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.10, T.12 N., R.7 W., Lake County, on left bank 400 ft upstream from highway bridge and 0.2 mile southwest of Lower Lake.

DRAINAGE AREA.--12.5 sq mi.

PERIOD OF RECORD.--October 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,364.75 ft above mean sea level.

AVERAGE DISCHARGE.--5 years, 13.0 cfs (9,420 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 1,250 cfs Jan. 9 (gage height, 7.40 ft), from rating curve extended above 430 cfs; no flow many days.

Period of record: Maximum discharge, 1,420 cfs Jan. 26, 1969 (gage height, 7.64 ft), from rating curve extended above 430 cfs; no flow for many days in each year.

REMARKS.--Records good. No regulation or diversion above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.25	.58	1.1	4.6	32	38	7.1	3.7	1.1	.42		0
2	.27	.54	1.1	4.1	29	21	6.8	3.5	.94	.27		0
3	.29	.66	1.1	3.9	26	17	6.6	3.3	.80	.15		0
4	.24	.62	1.2	3.6	24	48	6.4	3.2	.80	.09		0
5	.31	2.7	1.1	3.2	22	26	6.2	3.2	.80	.08		0
6	.33	1.6	1.2	3.1	20	21	6.0	3.3	.80	.06		0
7	.43	1.2	1.1	3.1	19	25	5.8	3.2	.94	.05		0
8	.37	1.7	2.5	64	17	31	6.0	3.3	1.4	.05		0
9	.39	1.2	2.0	507	16	24	5.5	3.2	2.3	.05		0
10	.41	.96	4.1	86	15	21	5.3	3.0	1.8	.06		0
11	.37	.85	18	41	14	19	5.1	3.2	1.4	.06		0
12	.45	.75	72	39	58	18	5.1	3.3	1.0	.07		0
13	.49	.85	23	73	160	16	5.5	3.3	.94	.06		0
14	.71	.85	9.4	239	54	15	5.8	2.8	1.0	.04		0
15	4.5	.90	5.6	101	32	14	5.5	2.4	1.4	.03		0
16	1.9	.90	3.9	263	67	13	5.5	2.0	1.0	.03		0
17	.80	.85	3.2	110	55	12	5.5	2.0	.94	.02		0
18	.62	.90	12	58	40	12	4.9	2.0	.61	.02		.04
19	.54	1.0	174	49	31	11	4.7	1.8	.66	.01		.09
20	.51	1.0	102	63	25	11	4.7	2.0	.66	.01		.12
21	.48	1.1	185	219	22	11	4.7	2.2	.61	.02		.20
22	.48	1.1	26	97	20	10	4.7	1.8	.37	.01		.18
23	.51	1.1	75	383	18	9.9	4.7	1.6	.24	.01		.17
24	.66	1.1	95	265	17	9.7	4.5	1.5	.29	0		.17
25	.66	1.1	26	114	16	9.1	4.2	1.5	.42	0		.14
26	.62	1.2	15	86	15	8.9	4.4	1.5	.47	0		.10
27	.66	1.1	11	129	14	8.4	4.5	1.5	.37	0		.17
28	.66	1.2	8.0	63	23	8.1	4.5	1.4	.44	0		.17
29	.66	1.2	6.6	50	-----	7.8	4.2	1.5	.61	0		.27
30	.66	1.1	5.6	42	-----	7.8	4.0	1.2	.52	0		.30
31	.58	-----	5.1	37	-----	7.3	-----	.89	-----	0		-----
TOTAL	20.81	31.91	897.9	3,203.6	901	511.0	158.4	74.29	25.63	1.67	0	2.12
MEAN	.67	1.06	29.0	103	32.2	16.5	5.28	2.40	.85	.054	0	.071
MAX	4.5	2.7	185	507	160	48	7.1	3.7	2.3	.42	0	.30
MIN	.24	.54	1.1	3.1	14	7.3	4.0	.89	.24	0	0	0
AC-FT	41	63	1,780	6,350	1,790	1,010	314	147	51	3.3	0	4.2

CAL YR 1969 TOTAL 6,293.73 MEAN 17.2 MAX 293 MIN 0 AC-FT 12,480  
WAT YR 1970 TOTAL 5,828.33 MEAN 16.0 MAX 507 MIN 0 AC-FT 11,560

## PEAK DISCHARGE (BASE, 500 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	0500	6.25	628	1-14	0815	6.18	612
1-9	1330	7.40	1,250	1-23	1945	7.18	1,110

NOTE.--No gage-height record Feb. 9 to Mar. 10.



## 11449500 KELSEY CREEK NEAR KELSEYVILLE, CALIF.

LOCATION.--Lat 38°55'39", long 122°50'33", in SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.34, T.13 N., R.9 W., Lake County, on left bank 1.6 miles downstream from Widow Creek and 3.5 miles south of Kelseyville.

DRAINAGE AREA.--36.6 sq mi.

PERIOD OF RECORD.--October 1946 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,475.44 ft above mean sea level. Prior to July 16, 1955, at site 600 ft upstream at different datum.

AVERAGE DISCHARGE.--24 years, 74.9 cfs (54,270 acre-ft per year); median of yearly mean discharges, 63 cfs (45,600 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 8,480 cfs Jan. 23 (gage height, 13.04 ft); minimum daily, 3.5 cfs Sept. 27.

Period of record: Maximum discharge, 8,800 cfs Dec. 21, 1955 (gage height, 12.80 ft); maximum gage height, 13.48 ft Jan. 5, 1965; minimum discharge, 0.5 cfs Sept. 1, 1950, but may have been less during August 1950.

REMARKS.--Records good. No regulation or diversion above station.

REVISIONS (WATER YEARS).--WSP 1285: 1947-48(M), 1950-52(P). WSP 1931: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	6.5	9.0	64	181	314	43	25	13	8.0	4.8	4.2
2	5.4	6.5	8.9	59	163	150	42	24	13	7.6	4.7	4.2
3	5.6	6.5	9.0	53	150	127	40	23	13	7.3	4.7	4.1
4	5.3	6.6	9.0	49	138	338	39	23	12	6.8	4.9	4.3
5	5.6	22	9.0	45	126	195	38	23	12	6.7	4.8	4.3
6	5.6	13	8.9	42	115	159	38	23	11	6.6	4.9	4.3
7	5.7	11	8.9	41	107	148	37	24	11	6.6	5.0	4.2
8	5.9	15	11	124	100	163	36	23	13	6.6	4.7	4.0
9	6.2	12	11	1,120	94	133	35	23	16	6.5	4.5	4.1
10	6.0	10	22	514	89	121	35	22	14	6.5	4.5	4.0
11	5.8	9.6	105	243	84	109	34	23	13	6.3	4.5	3.8
12	5.8	9.3	771	229	209	98	33	24	12	6.1	4.5	3.7
13	6.2	9.3	225	582	730	90	33	23	12	6.2	4.4	4.0
14	7.9	9.0	103	1,730	293	86	33	22	12	6.1	4.4	4.3
15	16	9.0	62	594	193	80	33	21	12	6.0	4.1	4.7
16	14	9.2	44	1,850	454	75	33	19	12	6.1	3.8	4.5
17	8.6	9.0	39	775	401	71	33	19	12	6.4	4.0	4.2
18	7.4	9.2	46	436	245	67	31	19	11	6.0	4.2	4.1
19	6.9	9.3	1,150	371	195	64	30	19	10	5.9	4.3	4.0
20	6.5	9.3	727	490	169	63	30	19	9.3	5.8	4.3	4.0
21	6.3	9.3	1,720	1,770	151	60	30	18	8.6	5.8	4.3	4.3
22	6.3	9.3	362	1,020	133	58	30	18	9.0	5.8	4.0	4.3
23	6.5	9.3	780	3,490	120	55	29	17	8.5	5.8	3.8	4.1
24	6.7	9.2	925	2,020	109	53	28	16	8.3	5.2	4.1	4.0
25	6.8	9.2	341	714	99	51	28	15	8.5	5.1	4.0	3.8
26	6.7	9.3	197	534	94	50	28	15	8.5	4.7	4.1	3.6
27	6.7	9.2	145	885	88	48	29	15	8.2	4.8	4.0	3.5
28	7.5	9.2	111	429	141	48	27	15	9.0	4.9	4.1	3.8
29	6.7	9.0	93	308	-----	47	28	15	9.4	5.0	4.1	3.8
30	6.6	9.0	79	245	-----	46	27	14	9.0	5.0	4.0	4.1
31	6.6	-----	70	209	-----	44	-----	13	-----	4.9	4.1	-----
TOTAL	215.0	293.3	8,201.7	21,035	5,171	3,211	990	612	330.3	187.1	134.6	122.3
MEAN	6.94	9.78	265	679	185	104	33.0	19.7	11.0	6.04	4.34	4.08
MAX	16	22	1,720	3,490	730	338	43	25	16	8.0	5.0	4.7
MIN	5.2	6.5	8.9	41	84	44	27	13	8.2	4.7	3.8	3.5
AC-FT	426	582	16,270	41,720	10,260	6,370	1,960	1,210	655	371	267	243
CAL YR 1969	TOTAL 43,372.5		MEAN 119		MAX 2,150		MIN 4.6		AC-FT 86,030			
WTR YR 1970	TOTAL 40,503.3		MEAN 111		MAX 3,490		MIN 3.5		AC-FT 80,340			

## PEAK DISCHARGE (BASE, 2,400 CFS, REVISED)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	0545	10.51	4,030	1-21	0315	9.40	2,880
1-9	1445	8.98	2,440	1-23	2100	13.04	8,480
1-16	0500	10.37	4,120				

## SACRAMENTO RIVER BASIN

## 11450000 CLEAR LAKE AT LAKEPORT, CALIF.

LOCATION.--Lat 39°02'21", long 122°54'44", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.25, T.14 N., R.10 W., Lake County, on private pier at 410 Esplanada Street in Lakeport.

DRAINAGE AREA.--528 sq mi.

PERIOD OF RECORD.--1874-1900 (incomplete), January 1913 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,318.65 ft above mean sea level. Prior to July 8, 1947, non-recording gage and July 8, 1947, to Mar. 17, 1949, at municipal wharf at foot of Third Street in Lakeport at datum 0.06 ft lower. Mar. 18, 1949, to Sept. 30, 1967, at private pier at foot of Fourth Street at datum 0.06 ft lower.

EXTREMES.--Current year: Maximum daily mean gage height, 10.47 ft Jan. 27; minimum, 1.86 ft Sept. 30.

Period of record: Maximum gage height observed, 11.12 ft Jan. 28, 1914; minimum observed, -3.50 ft Sept. 24-27, 1920.

REMARKS.--This natural lake is regulated by gates on a dam at outlet, completed in 1915. Capacity between gage heights 0.00 and 7.56 ft (limits stipulated by court decree of 1920), about 319,000 acre-ft. Water is released down natural channel of Cache Creek from which it is diverted for irrigation (see sta 11451000).

COOPERATION.--Daily mean gage-height record furnished by Yolo County Flood Control and Water Conservation District.

## GAGE HEIGHT, IN FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.31	2.19	2.21	4.52	9.90	7.64	7.37	7.07	6.30	5.26	3.97	2.73
2	2.29	2.18	2.20	4.53	9.80	7.60	7.38	7.05	6.27	5.24	3.93	2.70
3	2.26	2.18	2.19	4.53	9.66	7.56	7.37	7.04	6.24	5.21	3.89	2.67
4	2.19	2.19	2.18	4.55	9.49	7.61	7.37	7.02	6.21	5.17	3.84	2.63
5	2.17	2.22	2.18	4.56	9.34	7.52	7.36	6.98	6.17	5.13	3.78	2.60
6	2.15	2.23	2.18	4.58	9.19	7.44	7.35	6.96	6.12	5.10	3.73	2.58
7	2.13	2.25	2.19	4.60	9.04	7.40	7.34	6.94	6.05	5.05	3.69	2.55
8	2.11	2.24	2.21	4.73	8.87	7.45	7.34	6.92	6.02	5.00	3.65	2.53
9	2.09	2.25	2.23	5.07	8.74	7.47	7.33	6.88	5.99	4.96	3.62	2.51
10	2.07	2.26	2.27	5.30	8.61	7.50	7.32	6.86	5.96	4.91	3.59	2.48
11	2.05	2.30	2.32	5.53	8.50	7.52	7.31	6.86	5.94	4.87	3.55	2.46
12	2.03	2.30	2.52	5.67	8.45	7.53	7.25	6.86	5.92	4.82	3.51	2.42
13	2.01	2.29	2.57	5.90	8.60	7.53	7.26	6.83	5.89	4.78	3.47	2.38
14	2.06	2.28	2.60	6.55	8.57	7.53	7.27	6.81	5.84	4.76	3.44	2.34
15	2.13	2.28	2.61	6.87	8.48	7.51	7.28	6.79	5.81	4.71	3.40	2.31
16	2.12	2.27	2.63	7.40	8.46	7.49	7.28	6.76	5.78	4.67	3.37	2.27
17	2.11	2.27	2.65	7.70	8.52	7.50	7.27	6.72	5.75	4.63	3.34	2.24
18	2.11	2.27	2.74	7.80	8.51	7.49	7.25	6.69	5.73	4.59	3.30	2.21
19	2.10	2.26	3.05	7.87	8.42	7.48	7.23	6.65	5.70	4.57	3.25	2.17
20	2.19	2.26	3.29	7.99	8.33	7.44	7.22	6.63	5.67	4.52	3.21	2.13
21	2.19	2.25	3.60	8.52	8.22	7.43	7.22	6.61	5.66	4.48	3.17	2.10
22	2.19	2.25	3.73	8.83	8.13	7.41	7.20	6.59	5.63	4.44	3.13	2.06
23	2.18	2.24	3.97	9.42	8.04	7.39	7.18	6.58	5.59	4.40	3.07	2.03
24	2.17	2.24	4.27	10.13	7.95	7.39	7.17	6.54	5.55	4.34	3.03	2.00
25	2.17	2.23	4.38	10.30	7.84	7.40	7.15	6.50	5.53	4.30	3.00	1.97
26	2.17	2.23	4.42	10.34	7.75	7.39	7.12	6.47	5.45	4.26	2.97	1.93
27	2.17	2.23	4.43	10.47	7.65	7.38	7.11	6.43	5.41	4.21	2.93	1.91
28	2.17	2.23	4.45	10.44	7.66	7.38	7.10	6.40	5.35	4.16	2.90	1.89
29	2.19	2.22	4.46	10.34	-----	7.38	7.09	6.38	5.32	4.11	2.86	1.88
30	2.20	2.22	4.48	10.21	-----	7.39	7.08	6.37	5.29	4.07	2.83	1.86
31	2.19	-----	4.50	10.07	-----	7.38	-----	6.32	-----	4.02	2.78	-----
MEAN	2.15	2.24	3.09	7.27	8.60	7.47	7.25	6.73	5.80	4.67	3.36	2.28
MAX	2.31	2.30	4.50	10.47	9.90	7.64	7.38	7.07	6.30	5.26	3.97	2.73
MIN	2.01	2.18	2.18	4.52	7.65	7.38	7.08	6.32	5.29	4.02	2.78	1.86

WAT YR 1970 MEAN 5.05 MAX 10.47 MIN 1.86

## 11451000 CACHE CREEK NEAR LOWER LAKE, CALIF.

LOCATION.--Lat 38°55'27", long 122°33'53", in sec.6, T 12 N., R.6 W., Lake County, on left bank 500 ft downstream from Clear Lake Dam, 1.9 miles downstream from Copsey Creek, and 2.5 miles northeast of Lower Lake.

DRAINAGE AREA.--528 sq mi.

PERIOD OF RECORD.--May 1944 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,280.34 ft above mean sea level.

AVERAGE DISCHARGE (unadjusted).--26 years, 347 cfs (251,400 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 6,320 cfs Jan. 23 (gage height, 8.60 ft); minimum daily, 2.6 cfs Dec. 9, 10, 14-18.

Period of record: Maximum discharge, 8,000 cfs Feb. 24, 1958 (gage height, 9.40 ft); minimum recorded, 0.2 cfs Mar. 15-23, 1950.

REMARKS.--Records good. Flow completely regulated by Clear Lake 500 ft upstream (see sta 11450000).

REVISIONS (WATER YEARS).--WRD Calif. 1968: 1966-67.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	138	3.7	3.1	3.6	4,140	2,050	23	287	412	407	465	328
2	137	3.7	3.3	3.4	4,020	2,060	22	330	394	436	430	320
3	126	3.9	3.1	3.4	3,930	2,050	22	345	420	488	418	321
4	117	3.9	3.1	3.4	3,840	3,510	23	345	483	514	394	327
5	116	3.9	3.1	3.3	3,740	3,370	23	343	528	504	381	295
6	108	3.6	3.1	3.3	3,650	1,460	26	318	517	498	422	251
7	98	3.4	3.1	3.3	3,560	630	54	298	490	527	462	240
8	99	3.4	3.1	3.4	3,480	630	97	293	461	534	470	263
9	90	3.4	2.6	506	3,420	630	111	261	413	528	457	287
10	77	3.4	2.6	435	3,360	630	129	234	353	514	455	298
11	75	3.4	3.1	3.9	3,290	630	134	263	324	500	454	282
12	75	3.4	3.1	3.9	3,280	631	153	323	302	486	448	252
13	68	3.4	3.1	3.9	3,730	632	175	352	286	479	434	234
14	59	3.6	2.6	1,400	3,400	631	150	345	296	486	400	251
15	49	3.6	2.6	2,480	3,340	633	122	358	337	484	389	263
16	36	3.4	2.6	2,940	3,370	637	122	398	377	483	388	255
17	37	3.3	2.6	2,890	3,390	633	132	417	386	480	385	229
18	35	3.1	2.6	2,870	3,390	631	146	410	400	478	369	202
19	34	3.3	3.9	2,870	3,320	628	169	426	414	468	372	180
20	31	3.1	3.4	2,930	3,250	629	194	440	404	460	422	153
21	26	3.1	4.1	3,280	3,190	617	231	412	393	461	435	149
22	26	3.1	3.3	3,230	3,120	671	260	401	413	459	385	147
23	25	3.3	3.6	4,240	3,050	672	260	406	445	491	334	152
24	19	3.3	3.7	4,670	3,020	279	278	413	452	523	308	159
25	4.4	3.1	3.6	4,510	2,940	23	305	399	457	498	307	150
26	4.1	3.1	3.7	4,510	2,940	24	312	382	466	474	317	143
27	3.7	3.1	3.6	4,650	2,320	22	281	382	442	478	327	141
28	3.4	3.1	3.6	4,480	2,030	23	251	369	415	477	324	141
29	3.9	3.0	3.6	4,370	-----	26	248	374	397	486	327	141
30	3.9	3.1	3.6	4,320	-----	24	252	385	392	497	331	130
31	3.7	-----	3.6	4,250	-----	22	-----	400	-----	493	329	-----
TOTAL	1,728.1	101.2	99.8	65,869.8	93,510	25,738	4,705	11,109	12,269	15,091	12,139	6,684
MEAN	55.7	3.37	3.22	2,125	3,340	830	157	358	409	487	392	223
MAX	138	3.9	4.1	4,670	4,140	3,510	312	440	528	534	470	328
MIN	3.4	3.0	2.6	3.3	2,030	22	22	234	286	407	307	130
AC-FT	3,430	201	198	130,700	185,500	51,050	9,330	22,030	24,340	29,930	24,080	13,260
CAL YR 1969	TOTAL 262,386.7		MEAN 719		MAX 4,010	MIN 2.6	AC-FT 520,400					
WTR YR 1970	TOTAL 249,043.9		MEAN 682		MAX 4,670	MIN 2.6	AC-FT 494,000					

## SACRAMENTO RIVER BASIN

11451500 NORTH FORK CACHE CREEK NEAR LOWER LAKE, CALIF.

LOCATION.--Lat 39°01'09", long 122°34'04", in NE¼ sec.31, T.14 N., R.6 W. (unsurveyed), Lake County, on right bank 500 ft upstream from Sweet Hollow Creek, 5 miles upstream from mouth, and 7 miles northeast of Lower Lake.

DRAINAGE AREA.--197 sq mi.

PERIOD OF RECORD.--July 1930 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,035.60 ft above mean sea level. Prior to June 15, 1939, at datum 1.00 ft higher.

AVERAGE DISCHARGE.--40 years, 195 cfs (141,300 acre-ft per year); median of yearly mean discharges, 150 cfs (109,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 16,000 cfs Jan. 23 (gage height, 11.39 ft); minimum daily, 0.93 cfs Sept. 25.

Period of record: Maximum discharge, 20,300 cfs Dec. 11, 1937 (gage height, 13.98 ft, present datum, from floodmarks), from rating curve extended above 7,600 cfs on basis of slope-area measurement at gage height 13.9 ft for peak of Feb. 28, 1940; no flow at times in 1930-36, 1949-50, 1956-57.

REMARKS.--Records fair. No regulation; several small diversions for irrigation of about 150 acres above station.

REVISIONS (WATER YEARS).--WSP 831: 1932(M). WSP 1315-A: 1935(M), 1937-38(M). WRD Calif. 1966: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	5.2	9.4	175	730	595	145	67	24	9.5	4.1	2.9
2	6.0	5.2	9.5	151	645	436	140	60	23	9.0	4.3	2.8
3	3.5	5.2	9.7	136	590	384	134	61	22	9.2	4.3	2.7
4	2.9	6.0	9.9	126	545	535	129	59	25	9.0	4.4	2.7
5	2.8	30	10	115	500	530	126	54	25	8.9	4.2	2.5
6	2.8	19	10	106	456	460	121	53	24	8.6	4.2	2.4
7	2.5	16	10	102	428	436	116	53	24	8.2	4.1	2.5
8	2.6	23	12	121	400	510	113	51	21	8.0	4.0	2.6
9	2.7	15	12	2,340	372	472	110	52	24	7.8	3.8	2.5
10	2.3	13	16	1,640	351	464	107	54	23	7.6	3.4	2.0
11	2.2	12	60	978	342	420	103	56	22	7.5	5.2	1.8
12	2.3	11	649	910	420	388	102	60	20	7.4	6.1	1.7
13	2.5	10	595	1,700	1,150	357	100	58	19	7.1	4.5	1.7
14	2.9	10	180	6,310	925	339	105	54	19	7.0	3.8	1.7
15	14	11	115	2,670	720	324	105	49	18	6.9	3.4	1.7
16	15	10	75	6,310	810	306	105	46	17	6.7	3.1	1.8
17	9.5	9.8	59	4,020	1,090	288	106	43	16	6.6	2.8	1.8
18	7.2	9.7	59	2,240	870	270	94	42	16	6.2	2.7	1.8
19	6.2	9.5	1,450	1,690	745	258	92	40	15	6.1	2.6	1.8
20	5.5	9.5	1,190	1,770	660	249	88	39	15	5.9	2.5	1.8
21	5.4	9.6	1,680	6,000	595	240	88	39	15	5.7	2.5	1.7
22	5.3	9.6	800	4,180	545	230	86	38	14	5.3	2.4	1.3
23	5.2	9.5	1,890	6,360	505	221	83	35	14	5.0	2.3	1.3
24	5.3	9.4	2,520	8,320	460	209	81	32	13	4.9	2.4	1.3
25	5.4	9.7	996	3,470	424	197	79	31	13	4.8	2.5	.93
26	5.4	9.8	680	2,090	396	190	80	29	11	4.5	2.7	.96
27	5.4	9.5	485	3,010	368	178	82	29	11	4.8	2.7	1.1
28	5.4	9.6	376	1,850	380	178	80	27	10	5.1	2.7	1.2
29	5.3	9.5	303	1,360	-----	173	75	29	9.5	4.8	2.7	1.4
30	5.3	9.6	246	1,090	-----	164	73	27	9.0	4.6	2.8	1.5
31	5.2	-----	206	870	-----	153	-----	25	-----	4.6	2.8	-----
TOTAL	157.5	335.9	14,722.5	72,210	16,422	10,154	3,048	1,392	531.5	207.3	106.0	55.89
MEAN	5.1	11.2	475	2,329	587	328	102	44.9	17.7	6.69	3.42	1.86
MAX	15	30	2,520	8,320	1,150	595	145	67	25	9.5	6.1	2.9
MIN	2.2	5.2	9.4	102	342	153	73	25	9.0	4.5	2.3	.93
AC-FT	312	666	29,200	143,200	32,570	20,140	6,050	2,760	1,050	411	210	111
CAL YR 1969	TOTAL	126,690.4	MEAN	347	MAX	5,600	MIN	1.6	AC-FT	251,300		
WTR YR 1970	TOTAL	119,342.59	MEAN	327	MAX	8,320	MIN	.93	AC-FT	236,700		

## PEAK DISCHARGE (BASE, 3,500 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-19	1415	7.45	4,000	1-21	0445	8.82	7,600
12-23	2245	7.80	4,800	1-23	2345	11.39	16,000
1- 9	1645	7.79	4,780	1-27	0415	7.86	4,950
1-14	0845	9.99	11,200				

## SACRAMENTO RIVER BASIN

989

11451720 BEAR CREEK NEAR RUMSEY, CALIF.

LOCATION.--Lat 38°56'42", long 122°20'42", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.30, T.13 N., R.4 W., Colusa County, on left bank  
0.3 mile downstream from Brophy Canyon, 1.4 miles upstream from mouth, and 7.3 miles northwest of Rumsey.

DRAINAGE AREA.--100 sq mi.

PERIOD OF RECORD.--October 1958 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 750 ft (from topographic map).

AVERAGE DISCHARGE.--12 years, 45.9 cfs (33,250 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 5,900 cfs Jan. 23 (gage height, 10.10 ft); minimum daily, 0.60 cfs Sept. 26.

Period of record: Maximum discharge, 9,720 cfs Jan. 5, 1965 (gage height, 11.93 ft); no flow July 25, 26, Aug. 20, 1960.

Maximum stage known since 1955, 12.33 ft Feb. 24, 1958 (discharge, 9,350 cfs).

REMARKS.--No regulation or diversion above station.

COOPERATION.--Records furnished by California Department of Water Resources.

REVISIONS (WATER YEARS).--WRD Calif, 1963: 1962(M).

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	2.2	5.8	23	192	286	45	22	6.4	3.7	1.7	1.1
2	1.7	2.2	6.0	20	171	129	44	22	6.4	3.6	1.7	1.1
3	1.5	2.2	6.1	19	158	108	43	21	6.3	3.5	1.5	1.2
4	1.4	2.2	6.3	19	151	335	42	20	6.0	3.4	1.5	1.2
5	1.6	2.2	6.5	17	137	194	42	20	5.8	3.3	1.5	1.2
6	1.7	2.2	6.8	16	125	131	41	19	5.8	3.1	1.4	1.2
7	1.8	2.3	7.0	16	118	120	40	19	5.7	3.0	1.4	1.3
8	1.9	2.3	7.2	67	111	132	39	18	6.1	2.8	1.3	1.3
9	2.0	2.3	7.3	2,160	104	116	35	18	7.0	2.8	1.3	1.3
10	2.0	2.3	7.5	491	99	118	34	17	6.8	2.8	1.2	1.3
11	2.0	2.3	7.7	155	98	101	34	17	6.3	2.7	1.2	1.4
12	2.0	2.5	8.1	137	130	94	34	16	5.8	2.7	1.2	1.4
13	2.0	2.6	5.0	441	1,160	88	33	16	5.4	2.6	1.1	1.4
14	2.0	2.7	6.0	2,180	340	83	32	15	5.6	2.6	1.2	1.3
15	2.0	3.0	5.0	624	180	77	32	15	6.1	2.5	1.1	1.4
16	2.0	3.1	4.1	2,260	344	73	32	14	5.8	2.5	1.1	1.4
17	2.0	3.2	3.8	620	380	68	31	13	5.3	2.3	1.1	1.4
18	2.0	3.4	4.4	297	202	63	30	13	4.9	2.3	1.0	1.4
19	2.1	3.5	241	260	161	60	28	12	4.8	2.2	1.0	1.0
20	2.1	3.8	309	334	147	59	24	12	4.6	2.2	1.0	1.1
21	2.1	3.9	388	2,030	136	57	24	11	4.5	2.3	.90	1.2
22	2.1	4.1	75	874	125	56	24	10	4.5	2.2	.90	.90
23	2.1	4.2	792	2,090	122	54	24	9.8	4.5	2.2	.90	.80
24	2.1	4.4	1,170	2,280	118	53	24	9.2	4.3	2.1	.80	.80
25	2.1	4.7	128	635	109	51	24	8.6	4.2	2.1	.80	.80
26	2.1	4.8	70	431	107	51	24	8.3	4.1	2.0	.80	.60
27	2.1	5.0	48	977	103	50	24	8.1	4.0	2.0	.90	.70
28	2.2	5.2	38	367	110	49	23	7.8	3.9	2.0	.90	.90
29	2.2	5.3	32	286	-----	48	23	7.9	3.8	1.9	.90	1.1
30	2.2	5.6	28	247	-----	47	23	7.5	3.8	1.9	1.0	1.1
31	2.2	-----	25	215	-----	46	-----	6.8	-----	1.9	1.1	-----
TOTAL	61.0	99.7	3,454.6	20,588	5,438	2,997	952	434.0	158.5	79.2	35.40	34.30
MEAN	1.97	3.32	111	664	194	96.7	31.7	14.0	5.28	2.55	1.14	1.14
MAX	2.2	5.6	1,170	2,280	1,160	335	45	22	7.0	3.7	1.7	1.4
MIN	1.4	2.2	3.8	16	98	46	23	6.8	3.8	1.9	.80	.60
AC-FT	121	198	6,850	40,840	10,790	5,940	1,890	861	314	157	70	68

CAL YR 1969 TOTAL 33,584.60 MEAN 92.0 MAX 2,050 MIN 1.1 ACFT 66,620  
WAT YR 1970 TOTAL 34,331.70 MEAN 94.1 MAX 2,280 MIN .60 ACFT 68,100

## SACRAMENTO RIVER BASIN

11452500 CACHE CREEK AT YOLO, CALIF.

LOCATION.--Lat 38°43'31", long 121°48'22"; in Rio Jesus Maria Grant, Yolo County, on left bank 800 ft upstream from highway bridge, 0.5 mile south of Yolo, and 7.3 miles downstream from Moore Dam.

DRAINAGE AREA.--1,139 sq mi.

PERIOD OF RECORD.--January 1903 to current year. Records for water year 1903 incomplete, yearly estimate published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to summer of 1930, nonrecording gage at datum 58.21 ft higher. Summer of 1930 to June 11, 1954, water-stage recorder at datum 56.24 ft higher. June 11, 1954, to July 16, 1965, at datum 52.24 ft higher. July 17, 1965, to Apr. 24, 1969, at datum 50.24 ft higher.

AVERAGE DISCHARGE.--68 years, 524 cfs (379,600 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 34,600 cfs Jan. 24 (gage height, 80.36 ft); no flow for several months.

Period of record: Maximum discharge, 41,400 cfs Feb. 25, 1958 (gage height, 85.35 ft, present datum); maximum stage observed, 88.44 ft (present datum) Mar. 10, 1904; no flow at times in each year.

REMARKS.--Records good except those for the summer months, which are poor. Flow regulated by Clear Lake beginning in 1915 (see sta 11450000). Diversions for irrigating up to about 30,000 acres between stations near Capay and at Yolo, from data furnished by Clear Lake Water Co.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	0	239	5,960	2,960	188	3.2	0	0	0	8.5
2	0	0	0	197	5,650	2,740	161	1.9	0	0	0	14
3	0	0	0	166	5,350	2,450	142	0	.50	0	0	15
4	0	0	0	144	5,090	2,720	111	0	.50	0	2.2	16
5	0	0	0	126	4,840	4,410	90	0	.50	6.0	4.6	11
6	0	0	0	112	4,600	3,510	64	0	2.6	6.5	5.7	13
7	0	0	0	98	4,400	3,480	48	0	4.4	15	7.1	11
8	0	0	0	98	4,280	1,700	35	0	9.0	6.5	8.2	12
9	0	0	0	1,360	4,140	1,550	28	0	11	5.7	8.5	8.2
10	0	0	0	8,070	4,040	1,440	32	0	3.2	5.3	9.4	.71
11	0	0	0	1,960	3,960	1,300	28	0	0	4.6	12	.03
12	0	0	0	1,380	3,950	1,280	22	0	0	4.4	13	.24
13	0	0	0	1,710	5,980	1,200	7.1	0	0	4.0	18	13
14	0	0	57	8,090	6,650	1,150	7.4	0	0	3.8	18	14
15	0	0	136	9,220	4,700	1,110	25	0	0	3.4	18	11
16	0	0	55	12,900	4,380	1,090	13	0	0	3.3	9.4	12
17	0	0	26	10,600	5,890	1,050	2.2	0	0	3.2	13	8.5
18	0	0	4.0	6,510	4,940	1,010	0	0	0	2.8	4.6	8.2
19	0	0	0	4,720	4,530	990	0	0	0	2.7	3.3	5.5
20	0	0	1,950	4,520	4,270	970	0	0	4.6	2.4	7.9	3.6
21	0	0	2,060	11,000	4,110	950	0	0	14	2.2	4.0	.14
22	0	0	2,170	11,700	3,960	930	0	0	13	2.0	9.4	2.6
23	0	0	805	8,240	3,740	920	2.7	0	15	1.9	6.8	7.9
24	0	0	6,780	25,800	3,660	900	13	0	4.6	0	1.7	11
25	0	0	2,290	14,000	3,540	758	11	0	0	0	2.4	9.0
26	0	0	1,160	9,470	3,460	401	4.6	0	4.6	0	.90	9.4
27	0	0	788	10,400	3,370	325	5.1	0	2.0	0	.84	9.0
28	0	0	573	8,910	2,420	273	7.9	0	0	0	.78	4.6
29	0	0	437	7,660	-----	250	7.4	0	0	0	.71	2.1
30	0	0	348	6,950	-----	231	8.2	0	0	0	.64	.42
31	0	-----	287	6,380	-----	213	-----	0	-----	0	0	-----
TOTAL	0	0	19,926.0	192,730	125,860	44,261	1,063.6	5.1	89.50	85.7	191.07	241.64
MEAN	0	0	643	6,217	4,495	1,428	35.5	.16	2.98	2.76	6.16	8.05
MAX	0	0	6,780	25,800	6,650	4,410	188	3.2	15	15	18	16
MIN	0	0	0	98	2,420	213	0	0	0	0	0	.03
AC-FT	0	0	39,520	382,300	249,600	87,790	2,110	10	178	170	379	479
CAL YR 1969	TOTAL	411,324.00	MEAN	1,127	MAX	13,100	MIN	0	AC-FT	815,900		
WTR YR 1970	TOTAL	384,453.61	MEAN	1,053	MAX	25,800	MIN	0	AC-FT	762,600		

## 11453000 YOLO BYPASS NEAR WOODLAND, CALIF.

LOCATION.--Lat 38°40'40", long 121°38'35", (unsurveyed), Yolo County, on left bank 300 ft upstream from Sacramento and Woodland railroad bridge, 6 miles upstream from Sacramento Bypass, 6 miles downstream from Fremont weir, and 7 miles east of Woodland.

PERIOD OF RECORD.--October 1939 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Gage is set to datum of Corps of Engineers which is 3.41 ft below mean sea level. Prior to Dec. 17, 1941, nonrecording gage, and Dec. 18-31, 1941, water-stage recorder, at datum 0.73 higher. A supplementary water-stage recorder 6 miles downstream at different datum is used for records of low flow.

AVERAGE DISCHARGE.--31 years, 4,038 cfs (2,926,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 228,000 cfs Jan. 25 (gage height, 30.90 ft); no flow many days. Period of record: Maximum discharge, 272,000 cfs Feb. 8, 1942 (gage height, 32.00 ft); no flow at times in recent years.

REMARKS.--Records fair except those for period January to March, which are good. Flow is from Cache Creek and Knights Landing Ridge Cut plus floodwater passing over Fremont weir; during the summer months, the flow consists largely of return water from irrigation. There is some diversion for irrigation between the main and supplementary gage which affects the low flow record.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	10	6.1	9,940	113,000	3,020	213	16	8.4	.08	0	56
2	18	10	6.1	5,260	95,300	3,180	206	26	8.4	.15	10	52
3	18	10	6.1	2,320	83,100	2,770	185	51	7.2	.20	29	50
4	17	9.0	6.6	1,250	71,600	2,850	176	36	8.4	.15	31	56
5	16	11	9.0	960	60,000	4,660	158	11	9.6	.10	31	68
6	16	12	16	732	51,400	4,620	145	0	10	.02	17	62
7	17	10	11	560	44,500	4,260	136	0	10	0	3.3	60
8	17	12	9.6	486	35,800	3,620	90	0	11	0	.60	51
9	17	12	8.4	598	30,500	2,600	55	2.1	11	0	3.0	44
10	21	11	5.6	4,840	27,000	2,670	40	3.3	4.1	0	5.6	40
11	118	12	5.8	5,590	23,500	2,590	30	4.1	.03	0	6.6	34
12	69	12	6.0	4,200	20,400	2,430	21	8.4	0	0	6.1	25
13	36	16	6.0	3,820	18,500	2,230	23	18	0	0	5.6	19
14	31	30	6.6	8,230	21,800	2,080	28	24	0	0	17	10
15	30	21	7.2	45,800	22,800	1,980	33	4.1	0	0	36	9.0
16	30	26	8.4	79,100	21,100	1,800	39	.60	0	0	29	9.6
17	25	20	30	126,000	18,600	1,750	44	1.5	0	.04	25	10
18	23	18	58	135,000	18,800	1,590	30	1.5	0	2.4	18	14
19	13	22	72	130,000	16,100	1,510	17	1.5	0	13	15	13
20	12	25	246	128,000	11,900	1,420	27	1.8	1.0	20	13	14
21	10	25	1,760	126,000	7,630	1,370	5.1	2.4	15	25	3.7	34
22	9.6	23	3,200	172,000	5,470	1,350	3.3	5.1	31	42	.02	50
23	10	23	3,340	173,000	4,310	1,230	16	17	39	40	.60	56
24	11	13	4,340	190,000	3,800	1,130	19	44	29	25	1.8	63
25	11	7.8	25,500	217,000	3,580	982	26	35	23	7.4	2.7	63
26	11	6.1	38,100	224,000	3,480	616	48	32	22	0	9.0	62
27	11	6.1	35,100	208,000	3,420	380	23	30	6.2	0	25	62
28	10	6.1	29,600	196,000	3,120	302	7.2	25	0	0	24	60
29	9.6	6.1	23,000	174,000	-----	257	21	19	0	0	25	58
30	9.6	6.1	18,000	164,000	-----	227	32	7.8	0	0	38	62
31	10	-----	13,600	144,000	-----	220	-----	6.1	-----	0	62	-----
TOTAL	674.8	431.3	196,070.5	2,680,686	840,510	61,694	1,896.6	434.30	254.33	175.54	493.62	1,266.6
MEAN	21.8	14.4	6,325	86,470	30,020	1,990	63.2	14.0	8.48	5.66	15.9	42.2
MAX	118	30	38,100	224,000	113,000	4,660	213	51	39	42	62	68
MIN	9.6	6.1	6.0	486	3,120	220	3.3	0	0	0	0	9.0
AC-FT	1,340	855	388,900	5,317M	1,667M	122,400	3,760	861	504	348	979	2,510
CAL YR 1969	TOTAL 2,813,704.15			MEAN 7,709	MAX 109,000	MIN 0	ACFT 5,581,000					
WAT YR 1970	TOTAL 3,784,587.59			MEAN 10,370	MAX 224,000	MIN 0	ACFT 7,507,000					

## SACRAMENTO RIVER BASIN

11453200 DRY CREEK NEAR MIDDLETOWN, CALIF.

LOCATION.--Lat 38°44'07", long 122°38'52", in NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.9, T.10 N., R.7 W., Lake County, on right bank 0.3 mile downstream from Kroll Creek, 2.1 miles southwest of Middletown, and 2.7 miles upstream from mouth.

DRAINAGE AREA.--8.35 sq mi.

PERIOD OF RECORD.--May 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,172.15 ft above mean sea level.

AVERAGE DISCHARGE.--11 years, 29.3 cfs (21,230 acre-ft per year); median of yearly mean discharges, 25 cfs (18,100 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 2,630 cfs Jan. 23 (gage height, 9.28 ft); no flow many days.  
Period of record: Maximum discharge, 3,470 cfs Feb. 8, 1960 (gage height, 9.90 ft); no flow for many days in each year.

REMARKS.--Records good. No regulation or diversion above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	.32	.44	20	42	117	7.8	3.5	.88	.19	0	0
2	.02	.32	.44	18	36	46	7.6	3.4	.81	.16	0	0
3	.03	.32	.48	17	32	36	7.2	3.2	.74	.13	0	0
4	.02	.40	.48	16	30	101	6.9	3.1	.64	.11	0	0
5	.03	7.3	.48	14	26	63	6.6	3.0	.63	.08	0	0
6	.04	2.9	.48	14	24	46	6.4	3.1	.63	.07	0	0
7	.05	1.9	.48	13	22	41	6.2	3.0	.65	.07	0	0
8	.07	1.5	1.1	41	20	40	6.0	3.0	.80	.06	0	0
9	.09	1.3	.78	403	19	35	6.0	3.0	1.1	.05	0	0
10	.09	1.0	3.9	149	18	30	5.8	2.9	.93	.05	0	0
11	.09	.89	38	86	17	26	5.6	2.9	.80	.04	0	0
12	.09	.83	565	176	32	23	5.5	2.8	.67	.04	0	0
13	.11	.73	105	638	210	21	5.8	2.8	.63	.03	0	0
14	.29	.73	38	806	75	19	5.7	2.6	.69	.03	0	0
15	3.6	.68	22	270	48	18	5.5	2.3	.69	.03	0	0
16	2.6	.68	17	866	226	17	5.6	2.2	.60	.02	0	0
17	1.1	.63	16	323	152	16	5.4	2.0	.58	.03	0	0
18	.73	.63	37	167	82	15	5.0	1.9	.51	.02	0	0
19	.53	.58	565	204	58	14	5.0	1.9	.45	.02	0	0
20	.44	.58	517	433	46	13	4.6	1.9	.38	.02	0	0
21	.36	.58	658	1,050	38	12	4.7	1.8	.29	.02	0	0
22	.32	.58	115	834	33	12	4.4	1.7	.25	.01	0	0
23	.36	.58	722	1,330	30	11	4.3	1.5	.23	.01	0	0
24	.40	.53	654	626	27	11	4.2	1.4	.24	.01	0	0
25	.40	.53	151	220	24	10	4.1	1.3	.24	0	0	0
26	.40	.53	80	184	22	9.8	4.4	1.4	.20	0	0	0
27	.40	.53	53	335	20	9.4	4.3	1.3	.22	0	0	0
28	.40	.48	39	123	48	9.0	4.1	1.2	.23	0	0	0
29	.36	.44	31	85	-----	8.7	3.9	1.2	.24	0	0	0
30	.36	.40	26	66	-----	8.3	3.7	1.1	.21	0	0	0
31	.36	-----	23	51	-----	8.0	-----	.93	-----	0	0	-----
TOTAL	14.17	29.40	4,481.06	9,578	1,457	846.2	162.3	69.33	16.16	1.30	0	0
MEAN	.46	.98	145	309	52.0	27.3	5.41	2.24	.54	.042	0	0
MAX	3.6	7.3	722	1,330	226	117	7.8	3.5	1.1	.19	0	0
MIN	.02	.32	.44	13	17	8.0	3.7	.93	.20	0	0	0
AC-FT	28	58	8,890	19,000	2,890	1,680	322	138	32	2.6	0	0
CAL YR 1969	TOTAL	17,704.70	MEAN	48.5	MAX	985	MIN	0	AC-FT	35,120		
WTR YR 1970	TOTAL	16,654.92	MEAN	45.6	MAX	1,330	MIN	0	AC-FT	33,030		

## PEAK DISCHARGE (BASE, 1,000 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-12	0800	7.22	1,140	1-13	2300	8.39	1,870
12-21	0530	8.04	1,630	1-16	0400	8.92	2,310
12-24	0115	8.61	2,050	1-21	0145	8.70	2,120
1-9	1500	7.29	1,180	1-23	2030	9.28	2,630

NOTE.--No gage-height record Mar. 9 to Apr. 8.



## 11453500 PUTAH CREEK NEAR GUENOC, CALIF.

LOCATION.--Lat 38°46'44", long 122°30'59", in Guenoc Grant, Lake County, on right bank just upstream from Coyote Valley damsite, 2.8 miles upstream from Soda Creek, 3.2 miles downstream from highway bridge at Guenoc.

DRAINAGE AREA.--113 sq mi.

PERIOD OF RECORD.-- February 1904 to September 1906, July 1930 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

GAGE.--Water-stage recorder. Datum of gage is 914.18 ft above mean sea level. February 1904 to September 1906, nonrecording gage 0.2 mile upstream at different datum.

AVERAGE DISCHARGE.--42 years, 211 cfs (152,900 acre-ft per year); median of yearly mean discharges, 173 cfs (125,000 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 20,700 cfs Jan. 23 (gage height, 18.75 ft); minimum daily, 0.01 cfs Sept. 25, 28, 29.

Period of record: Maximum discharge, 32,000 cfs Dec. 11, 1937 (gage height, 22.7 ft), from rating curve extended above 13,000 cfs; no flow for many days in August and September 1964.

REMARKS.--Records good. Some regulation by Hartmann Dam on Coyote Creek since 1969 (capacity, 3,000 acre-ft); diversions and ground-water withdrawals for irrigation of about 1,600 acres above station. Records of water temperatures and suspended-sediment loads for the water year 1970 are published in Part 2 of this report.

REVISIONS (WATER YEARS).--WSP 1285: 1937(M), 1938, 1940, 1943(M), 1951(M). WRD Calif. 1967: Drainage area.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.92	4.2	11	349	597	1,030	115	51	17	5.0	.40	.53
2	.72	4.2	11	244	511	505	110	48	16	5.0	.40	.37
3	.72	4.8	11	167	451	400	109	46	15	5.8	.40	.44
4	.72	5.1	11	155	406	1,000	106	44	14	5.8	.40	.14
5	1.1	8.4	11	141	360	717	102	43	13	5.3	.36	.09
6	1.3	13	11	131	328	522	101	43	13	5.0	.81	.28
7	1.3	12	11	125	301	447	98	38	12	5.0	.68	.93
8	1.1	12	14	526	277	451	89	36	13	4.6	.96	.14
9	1.1	12	14	4,260	312	391	88	36	14	3.3	1.6	.14
10	2.4	11	19	1,680	332	385	86	34	14	2.3	2.0	.09
11	105	11	149	891	224	331	85	35	13	1.7	1.8	.05
12	124	11	1,720	968	390	301	82	36	12	2.5	1.7	.04
13	87	11	794	2,560	1,990	277	82	34	12	3.1	.62	.91
14	9.2	11	253	5,800	922	248	85	30	12	3.0	.24	.98
15	8.4	11	169	2,240	620	240	85	30	13	2.0	1.0	.14
16	9.7	11	124	6,350	1,440	220	79	28	13	3.9	2.0	.07
17	6.5	10	111	2,500	1,460	206	79	27	13	3.9	1.6	.03
18	4.2	10	165	1,440	878	192	74	26	12	4.3	.57	.03
19	3.9	11	3,010	1,400	669	184	71	26	12	4.1	1.0	.02
20	3.2	11	2,710	1,990	561	176	69	26	10	3.9	1.5	.02
21	3.2	11	4,210	6,700	477	167	68	25	9.5	2.4	1.4	.02
22	3.2	11	1,160	4,060	413	164	67	24	8.5	.52	1.7	.12
23	3.4	11	2,550	8,750	365	157	64	23	8.2	.52	1.3	.20
24	3.4	11	4,310	6,640	333	151	62	22	8.2	.52	1.1	.03
25	3.4	11	1,200	2,380	306	144	60	22	7.9	.48	.77	.01
26	3.4	11	717	1,630	284	141	58	22	7.5	.48	.65	.02
27	3.4	11	508	2,860	260	134	60	22	7.2	.48	.29	.02
28	3.7	11	385	1,400	340	131	58	22	7.2	.44	.10	.01
29	3.7	11	388	1,050	-----	126	56	21	6.0	.40	.03	.01
30	3.7	11	416	837	-----	122	54	20	5.3	.40	.73	.24
31	3.9	-----	377	701	-----	118	-----	19	-----	.40	.66	-----
TOTAL	410.88	304.7	25,550	70,925	15,807	9,778	2,402	959	338.5	86.54	28.77	6.12
MEAN	13.3	10.2	824	2,288	565	315	80.1	30.9	11.3	2.79	.93	.20
MAX	124	13	4,310	8,750	1,990	1,030	115	51	17	5.8	2.0	.98
MIN	.72	4.2	11	125	224	118	54	19	5.3	.40	.03	.01
AC-FT	815	604	50,680	140,700	31,350	19,390	4,760	1,900	671	172	57	12
CAL YR 1969	TOTAL	134,259.12	MEAN	368	MAX	8,480	MIN	.72	ACFT	266,300		
WAT YR 1970	TOTAL	126,596.51	MEAN	347	MAX	8,750	MIN	.01	ACFT	251,100		

## PEAK DISCHARGE (BASE, 5,000 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-21	0800	13.31	9,300	1-21	0300	14.30	11,000
12-24	0400	13.36	9,380	1-23	2200	18.75	20,700
1-9	1700	13.18	9,090	1-27	0300	10.62	5,480
1-16	0700	15.69	13,700				

## SACRAMENTO RIVER BASIN

11453550 HUNTING CREEK NEAR KNOXVILLE, CALIF.

LOCATION --Lat 38°46'18", long 122°24'26", in NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.28, T.11 N., R.5 W., Lake County, on right bank 2,400 ft upstream from mouth, 5.3 miles southwest of Knoxville, and 11.2 miles east of Middletown.

DRAINAGE AREA.--37.8 sq mi.

PERIOD OF RECORD.--July 1969 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 725 ft (from topographic map).

EXTREMES.--July to September 1969: Maximum daily discharge during period, 3.1 cfs July 1; minimum daily, 0.62 cfs Sept. 14, 15, 28-30.

Water year 1970: Maximum discharge, 4,500 cfs Jan. 23 (gage height, 8.30 ft), from rating curve extended above 260 cfs on basis of slope-area measurement of maximum flow; minimum daily, 0.62 cfs Oct. 1.

REMARKS.--Records good except those for period of no gage-height record, which are fair. No regulation or diversion above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, 1969

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1										3.1	1.5	.87
2										2.5	1.4	.87
3										2.4	1.3	.81
4										2.3	1.2	.81
5										2.2	1.1	.81
6										2.2	1.1	.81
7										2.2	1.1	.76
8										2.2	1.1	.81
9										2.1	1.1	.76
10										2.1	1.0	.71
11										2.2	.93	.66
12										2.0	.93	.66
13										1.7	.93	.66
14										1.7	.87	.62
15										1.7	.87	.62
16										1.7	.81	.66
17										1.7	.87	.71
18										1.7	.93	.66
19										1.6	.93	.71
20										1.6	.93	.71
21										1.5	.87	.71
22										1.5	.87	.71
23										1.5	.87	.66
24										1.5	.87	.66
25										1.5	.87	.66
26									a 3.6	1.5	.87	.66
27										1.6	.81	.66
28										1.6	.87	.62
29					-----					1.5	.87	.62
30					-----					1.5	.87	.62
31		-----			-----		-----		-----	1.4	.87	-----
TOTAL										57.5	30.41	21.27
MEAN										1.85	.98	.71
MAX										3.1	1.5	.87
MIN										1.4	.81	.62
AC-FT										114	60	42

a Result of discharge measurement.

## 11453550 HUNTING CREEK NEAR KNOXVILLE, CALIF.--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.62	1.0	1.2	10	97	135	25	12	6.2	3.5	1.5	.94
2	.66	1.0	1.3	8.8	87	60	24	12	5.7	3.1	1.4	.86
3	.76	1.0	1.3	8.3	82	48	23	12	5.4	2.9	1.3	.86
4	.81	1.0	1.3	7.7	78	260	23	11	5.1	2.9	1.3	1.1
5	.87	1.8	1.2	7.1	72	100	22	11	4.6	2.6	1.3	.86
6	.87	1.7	1.1	6.7	68	66	22	12	4.9	2.4	1.3	.94
7	.93	1.4	1.3	6.7	65	55	22	12	4.6	2.4	1.2	.86
8	.93	1.3	4.0	83	61	54	21	11	5.4	2.4	1.2	.94
9	.93	1.3	3.3	1,040	58	70	20	12	8.5	2.4	1.1	.86
10	.93	1.2	7.8	202	55	64	20	11	7.1	2.4	1.1	1.0
11	.93	1.1	10	78	54	60	20	11	6.2	2.4	1.1	.79
12	.87	1.2	30	83	70	58	18	11	5.7	2.4	1.0	.79
13	.87	1.1	20	364	280	55	19	11	5.1	2.3	1.0	.79
14	.93	1.1	9.9	1,010	110	52	20	11	5.1	2.0	.94	.79
15	2.3	1.2	4.6	278	80	48	21	10	5.7	2.0	.94	.79
16	2.3	1.2	4.0	934	120	46	20	10	5.7	1.9	.94	.79
17	1.3	1.3	4.4	274	100	43	19	9.6	5.4	1.9	.94	.79
18	1.0	1.3	8.7	128	85	41	18	10	5.1	2.0	.94	.73
19	.87	1.3	140	136	65	39	17	10	4.9	1.7	.94	.73
20	.81	1.3	295	284	57	38	16	10	4.4	1.7	.86	.79
21	.81	1.3	250	1,120	49	38	17	10	3.9	1.6	.86	.94
22	.81	1.3	65	414	45	37	17	10	3.9	1.6	.86	1.2
23	.81	1.4	370	1,060	43	35	16	8.8	3.7	1.6	.94	1.2
24	.87	1.4	638	698	40	34	15	8.8	3.7	1.5	.94	1.0
25	.87	1.4	87	254	38	32	15	8.1	3.7	1.4	.86	.94
26	.93	1.4	42	200	36	30	15	8.1	3.7	1.4	.94	.94
27	.93	1.4	27	311	34	29	16	8.5	3.7	1.4	.94	.94
28	1.0	1.2	20	154	37	28	15	8.5	3.7	1.4	.94	.79
29	1.0	1.2	16	134	-----	26	14	7.8	3.7	1.4	.94	.79
30	.93	1.2	13	118	-----	27	13	7.5	3.7	1.3	.94	.79
31	.93	-----	11	106	-----	26	-----	6.5	-----	1.4	.94	-----
TOTAL	30.38	38.0	2,089.4	9,518.3	2,066	1,734	563	312.2	148.2	63.3	32.40	26.53
MEAN	.98	1.27	67.4	307	73.8	55.9	18.8	10.1	4.94	2.04	1.05	.88
MAX	2.3	1.8	638	1,120	280	260	25	12	8.5	3.5	1.5	1.2
MIN	.62	1.0	1.1	6.7	34	26	13	6.5	3.7	1.3	.86	.73
AC-FT	60	75	4,140	18,880	4,100	3,440	1,120	619	294	126	64	53

WAT YR 1970 TOTAL 16,621.71 MEAN 45.5 MAX 1,120 MIN .62 ACFT 32,970

PEAK DISCHARGE (BASE, 1,000 CFS)							
DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-20	unknown	-	1,300	1-21	0300	6.27	1,890
12-24	0200	6.21	1,830	1-23	2130	8.30	4,500
1- 9	1600	7.06	2,770	2-13	unknown	-	1,150
1-14	1000	6.57	2,190				

NOTE.--No gage-height record Feb. 11 to Mar. 12.

## SACRAMENTO RIVER BASIN

11453570 ADAMS CREEK NEAR KNOXVILLE, CALIF.

LOCATION.--Lat 38°42'17", long 122°17'44", in NE $\frac{1}{4}$  sec.21, T.10 N., R.4 W., Napa County, on left bank 20 ft downstream from road ford, 0.2 mile upstream from mouth, 8.8 miles southeast of Knoxville, and 18 miles southeast of Middletown.

DRAINAGE AREA.--7.42 sq mi.

PERIOD OF RECORD.--October 1969 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 480 ft (from topographic map).

EXTREMES.--Maximum discharge during period, 745 cfs Jan. 23 (gage height, 4.85 ft), from rating curve extended above 38 cfs on basis of slope-area measurement of maximum flow; no flow Sept. 20-30.

REMARKS.--Records good. No storage or diversion above station.

Discharge measurements made prior to beginning of continuous discharge record

Date	Discharge (cfs)
Sept. 2, 1969	.05
30	.01

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.07	.10	1.1	16	20	3.6	3.3	1.3	.25	.07	.02
2	.02	.06	.11	1.1	13	7.5	3.6	3.3	1.1	.19	.07	.02
3	.02	.07	.11	.98	12	7.5	4.0	3.0	1.1	.18	.07	.02
4	.02	.07	.11	1.1	12	35	4.0	3.3	1.1	.17	.06	.02
5	.02	.49	.10	1.1	11	13	3.6	3.3	1.1	.16	.06	.02
6	.02	.19	.11	1.1	9.9	11	3.6	3.3	1.1	.16	.06	.02
7	.02	.15	.11	1.1	9.3	9.9	3.3	3.3	1.3	.16	.05	.02
8	.02	.15	.31	3.0	8.7	9.9	3.3	3.3	1.8	.15	.05	.02
9	.02	.13	.25	83	8.1	13	3.6	3.3	2.5	.16	.05	.02
10	.02	.12	.69	16	8.1	13	3.6	3.0	2.0	.16	.05	.02
11	.02	.11	.82	5.9	8.1	11	3.6	2.8	1.5	.17	.05	.01
12	.02	.11	2.7	5.9	9.9	11	3.3	2.8	1.3	.17	.05	.01
13	.02	.12	1.7	37	46	9.3	3.6	2.8	1.1	.16	.05	.01
14	.04	.13	.69	101	13	8.7	3.6	2.5	1.1	.14	.05	.01
15	.03	.15	.59	30	9.9	7.5	4.0	2.3	1.3	.13	.05	.01
16	.05	.13	.49	111	19	8.1	4.0	2.3	1.1	.13	.05	.01
17	.07	.11	.49	27	16	7.0	4.0	2.0	.97	.13	.04	.01
18	.07	.10	.82	14	15	6.5	3.6	2.0	.97	.13	.04	.01
19	.07	.12	15	15	8.1	6.5	3.6	2.0	.97	.12	.04	.01
20	.07	.15	46	39	8.1	6.0	3.6	2.0	.82	.11	.04	0
21	.06	.15	30	129	7.5	5.6	4.0	2.0	.69	.10	.04	0
22	.06	.15	4.5	44	7.0	6.0	4.0	2.0	.58	.09	.04	0
23	.06	.13	42	112	7.0	5.2	4.0	2.0	.58	.09	.04	0
24	.07	.13	53	60	7.0	4.8	4.0	1.8	.69	.09	.03	0
25	.07	.15	6.4	36	6.5	4.8	3.6	1.8	.69	.09	.03	0
26	.08	.13	3.0	33	6.5	4.8	3.6	2.0	.58	.09	.03	0
27	.08	.12	2.5	43	6.5	4.4	3.6	2.3	.48	.09	.03	0
28	.09	.11	2.0	27	7.0	4.8	3.6	2.0	.48	.09	.03	0
29	.08	.11	1.5	22	-----	4.4	3.3	1.8	.40	.09	.03	0
30	.07	.10	1.3	20	-----	4.0	3.3	1.5	.32	.07	.02	0
31	.07	-----	1.1	17	-----	4.0	-----	1.3	-----	.07	.02	-----
TOTAL	1.44	4.01	218.60	1,038.38	316.2	274.2	110.1	76.4	31.02	4.09	1.39	.29
MEAN	.047	.13	7.05	33.5	11.3	8.85	3.67	2.46	1.03	.13	.045	.010
MAX	.09	.49	53	129	46	35	4.0	3.3	2.5	.25	.07	.02
MIN	.01	.06	.10	.98	6.5	4.0	3.3	1.3	.32	.07	.02	0
AC-FT	2.9	8.0	434	2,060	627	544	218	152	62	8.1	2.8	.6

WAT YR 1970 TOTAL 2,076.12 MEAN 5.69 MAX 129 MIN 0 ACFT 4,120

PEAK DISCHARGE (BASE, 100 CFS)							
DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-20	0800	2.96	179	1-21	0130	3.30	260
12-23	2100	2.99	186	1-23	2200	4.85	745
1- 9	1600	3.46	305	2-13	1000	2.93	173
1-16	0600	4.21	531	3- 4	1200	2.74	134

## SACRAMENTO RIVER BASIN

999

11453580 NEVADA CREEK NEAR KNOXVILLE, CALIF.

LOCATION.--Lat 38°42'42", long 122°17'31", in NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.15, T.10 N., R.4 W., Napa County, on right bank 150 ft downstream from road ford, 0.6 mile upstream from Adams Creek, 8.4 miles southeast of Knoxville, and 18 miles southeast of Middletown.

DRAINAGE AREA.--7.06 sq mi.

PERIOD OF RECORD.--September 1969 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 500 ft (from topographic map).

EXTREMES.--September 1969: Maximum daily discharge, 0.02 cfs Sept. 1, 2, 4-7; no flow Sept. 17, 26, 27, 29.  
Water year 1970: Maximum discharge, 841 cfs Jan. 23 (gage height, 7.75 ft), from rating curve extended above 34 cfs on basis of slope-area measurement of maximum flow; no flow many days.

REMARKS.--Records good. No regulation or diversion above station.

## DISCHARGE, IN CUBIC FEET PER SECOND, 1969

DAY	SEPT	DAY	SEPT	DAY	SEPT	DAY	SEPT	DAY	SEPT
1	.02	7	.02	13	.01	19	.01	25	.01
2	.02	8	.01	14	.01	20	.01	26	0
3	.01	9	.01	15	.01	21	.01	27	0
4	.02	10	.01	16	.01	22	.01	28	.01
5	.02	11	.01	17	0	23	.01	29	0
6	.02	12	.01	18	.01	24	.01	30	.01
TOTAL									.32
MEAN									.011
MAX									.02
MIN									0
AC-FT									.6

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.02	0	.93	12	21	3.3	1.4	.19	.11	.06	.03
2	.01	.02	0	.80	11	7.0	3.3	1.3	.19	.10	.06	.03
3	.01	.02	0	.80	11	6.4	3.1	1.3	.16	.10	.06	.03
4	.01	.02	0	.80	11	35	2.9	1.2	.16	.10	.06	.03
5	.01	.03	0	.68	10	12	3.1	1.2	.16	.09	.06	.03
6	.01	.02	0	.68	9.0	10	3.1	1.3	.16	.09	.06	.03
7	.01	.02	0	.74	8.3	8.8	2.7	1.4	.13	.09	.06	.02
8	.01	.02	0	3.4	7.5	8.6	2.7	1.3	.16	.09	.06	.02
9	.01	.02	0	99	7.0	13	2.7	1.3	.16	.08	.06	.01
10	.01	.02	.01	22	7.0	12	2.5	1.1	.19	.08	.06	.01
11	.01	.02	.01	10	7.0	10	2.5	1.1	.19	.08	.05	.01
12	.01	.02	.02	9.2	9.3	10	2.4	1.1	.19	.08	.05	.01
13	.01	.02	0	47	48	9.0	2.5	1.1	.22	.07	.05	0
14	.01	.02	0	133	17	8.2	2.7	.96	.22	.07	.05	0
15	.04	.02	0	37	12	7.5	2.7	.89	.19	.07	.05	0
16	.02	.02	0	140	20	7.9	2.5	.76	.19	.07	.05	0
17	.02	.02	0	40	16	7.1	2.4	.70	.19	.07	.05	0
18	.02	.02	.02	19	14	6.5	2.0	.70	.19	.07	.05	0
19	.02	.02	14	20	8.5	5.8	1.9	.70	.16	.06	.05	0
20	.02	.02	37	50	7.5	5.9	1.9	.70	.16	.06	.05	0
21	.01	.02	33	160	7.1	5.6	1.9	.65	.16	.06	.05	0
22	.02	.02	4.1	56	6.7	5.3	1.9	.60	.13	.07	.05	0
23	.02	.02	41	138	6.5	5.0	1.9	.55	.13	.07	.05	0
24	.02	.02	61	85	6.3	4.6	1.9	.46	.13	.07	.05	0
25	.02	0	6.2	32	6.1	4.3	1.8	.38	.13	.07	.04	0
26	.02	0	3.1	25	5.8	4.0	1.9	.38	.13	.07	.04	0
27	.02	0	2.2	47	5.6	3.7	1.9	.42	.13	.07	.04	0
28	.02	0	1.6	24	6.6	3.7	1.8	.42	.11	.06	.04	0
29	.02	0	1.3	18	-----	3.7	1.6	.34	.11	.06	.04	0
30	.02	0	1.1	16	-----	3.5	1.5	.30	.11	.06	.03	0
31	.02	-----	1.1	14	-----	3.3	-----	.22	-----	.06	.03	-----
TOTAL	.49	.49	206.76	1,250.03	303.8	258.4	71.0	26.23	4.83	2.35	1.56	.26
MEAN	.016	.016	6.67	40.3	10.9	8.34	2.37	.85	.16	.076	.050	.009
MAX	.04	.03	61	160	48	35	3.3	1.4	.22	.11	.06	.03
MIN	.01	0	0	.68	5.6	3.3	1.5	.22	.11	.06	.03	0
AC-FT	1.0	1.0	410	2,480	603	513	141	52	9.6	4.7	3.1	.5

WAT YR 1970 TOTAL 2,126.20 MEAN 5.83 MAX 160 MIN 0 ACFT 4,220

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
12-20	0800	4.01	129	1-21	0200	-	303
12-24	0200	4.57	204	1-23	2130	7.75	841
1- 9	1700	5.49	351	1-27	0200	3.90	139
1-14	0100	5.52	357	2-13	1000	-	189
1-16	0600	-	600	3- 4	1200	-	151

NOTE.--No gage-height record Feb. 4 to Mar. 19.

## SACRAMENTO RIVER BASIN

11453600 POPE CREEK NEAR POPE VALLEY, CALIF.

LOCATION.--Lat 38°37'48", long 122°19'52", in SW¼ sec.17, T.9 N., R.4 W., Napa County, on left bank 0.2 mile upstream from Lake Berryessa, 0.7 mile downstream from Maxwell Creek, and 5.2 miles east of Pope Valley.

DRAINAGE AREA.--78.3 sq mi.

PERIOD OF RECORD.--December 1960 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 450 ft (from topographic map).

AVERAGE DISCHARGE.--9 years (1961-70), 97.5 cfs (70,640 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 11,600 cfs Jan. 23 (gage height, 16.65 ft); minimum daily, 0.10 cfs Oct. 1-7, 13.

Period of record: Maximum discharge, 18,000 cfs Jan. 31, 1963 (gage height, 19.79 ft), from rating curve extended above 7,700 cfs; no flow many days in 1960-68.

REMARKS.--No regulation or diversion above station.

COOPERATION.--Records furnished by California Department of Water Resources and reviewed by Geological Survey.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	.40	1.3	58	241	615	39	18	5.8	1.9	.50	.30
2	.10	.30	1.4	52	211	227	39	17	5.4	1.8	.50	.30
3	.10	.30	1.4	48	191	170	37	16	5.1	1.7	.50	.30
4	.10	.30	1.4	45	176	707	36	15	5.1	1.6	.50	.30
5	.10	.80	1.4	42	160	395	35	15	4.8	1.4	.50	.30
6	.10	1.4	1.5	39	150	246	34	15	4.3	1.3	.50	.30
7	.10	1.3	1.6	39	141	205	32	15	4.3	1.3	.50	.30
8	.20	1.1	1.8	82	134	214	31	15	5.1	1.3	.50	.30
9	.20	.80	2.3	1,660	127	200	31	15	6.1	1.3	.40	.30
10	.20	.60	6.8	810	121	213	30	14	5.8	1.3	.40	.30
11	.20	.60	37	334	119	166	29	13	4.3	1.1	.40	.20
12	.20	.70	201	300	171	149	28	14	3.8	1.1	.40	.20
13	.10	.80	143	846	879	133	28	14	3.8	1.1	.40	.20
14	.20	.80	36	3,270	401	118	28	12	3.5	1.0	.40	.20
15	4.6	.90	27	857	250	110	29	12	4.3	1.0	.40	.20
16	5.1	1.0	18	3,750	505	101	29	11	4.3	.90	.40	.20
17	2.7	1.1	15	1,530	651	92	29	10	3.3	.90	.40	.20
18	1.7	1.0	19	620	360	87	26	9.5	2.9	.80	.40	.20
19	1.0	.90	621	598	261	82	25	10	2.9	.80	.40	.20
20	.70	.90	1,440	1,190	218	75	23	11	2.7	.70	.40	.20
21	.60	1.0	1,420	5,120	187	72	23	10	2.3	.70	.40	.20
22	.50	1.0	286	2,180	166	68	23	9.1	2.3	.70	.40	.20
23	.50	1.2	1,450	3,380	152	64	22	8.7	2.1	.60	.40	.20
24	.50	1.3	2,390	3,180	142	61	21	8.3	2.2	.60	.40	.20
25	.50	1.3	399	977	131	56	21	7.9	2.4	.50	.40	.20
26	.50	1.3	207	644	123	53	20	7.5	2.1	.50	.30	.20
27	.50	1.3	138	1,290	115	49	21	7.5	2.0	.50	.30	.20
28	.50	1.3	103	583	125	48	20	7.1	2.2	.50	.30	.20
29	.50	1.3	83	423	-----	46	19	6.8	2.1	.50	.30	.20
30	.40	1.3	70	339	-----	43	18	6.4	2.0	.50	.30	.20
31	.40	-----	61	278	-----	40	-----	6.1	-----	.50	.30	-----
TOTAL	23.20	28.30	9,184.9	34,564	6,608	4,905	826	356.9	109.3	30.40	12.60	7.00
MEAN	.75	.94	296	1,115	236	158	27.5	11.5	3.64	.98	.41	.23
MAX	5.1	1.4	2,390	5,120	879	707	39	18	6.1	1.9	.50	.30
MIN	.10	.30	1.3	39	115	40	18	6.1	2.0	.50	.30	.20
AC-FT	46	56	18,220	68,560	13,110	9,730	1,640	708	217	60	25	14
CAL YR 1969	TOTAL	59,622.50	MEAN	163	MAX	3,500	MIN	.10	AC-FT	118,300		
WTR YR 1970	TOTAL	56,655.60	MEAN	155	MAX	5,120	MIN	.10	AC-FT	112,400		

## 11453900 LAKE BERRYESSA NEAR WINTERS, CALIF.

LOCATION.--Lat 38°30'48", long 122°06'13", in SE¼NW¼ sec.29, T.8 N., R.2 W., Napa County, near center of Monticello Dam on Putah Creek, 7.4 miles west of Winters.

DRAINAGE AREA.--566 sq mi.

PERIOD OF RECORD.--January 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Bureau of Reclamation).

EXTREMES.--Current year: Maximum contents, 1,733,000 acre-ft Jan. 24 (elevation, 446.67 ft); minimum, 1,383,000 acre-ft Sept. 30 (elevation, 428.28 ft).

Period of record: Maximum contents, 1,733,000 acre-ft Jan. 24, 1970 (elevation, 446.67 ft); minimum since irrigation pool first filled, 1,077,900 acre-ft Oct. 10, 11, 1962 (elevation, 410.60 ft).

REMARKS.--Reservoir is formed by concrete arch-gravity dam, completed November 1956. Usable capacity, 1,592,000 acre-ft between elevations 253.25 ft (invert of outlet valves) and 440 ft (crest of glory-hole spillway) above mean sea level. Dead storage, 10,340 acre-ft. Water is released down Putah Creek and is diverted into Putah South diversion canal for irrigation of about 46,000 acres in the lower Sacramento Valley. Total diverted during year was 185,902 acre-ft. Releases for irrigation began in May 1959. Records, including extremes, show total contents at 2400 hours.

COOPERATION.--Records furnished by Bureau of Reclamation and reviewed by Geological Survey, rounded to Geological Survey standards.

## CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

400	911,202
410	1,068,000
420	1,236,000
430	1,414,000
450	1,800,000

## CONTENTS, IN THOUSANDS OF ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,421	1,409	1,405	1,518	1,654	1,611	1,604	1,585	1,549	1,508	1,461	1,419
2	1,420	1,409	1,405	1,518	1,646	1,609	1,604	1,583	1,548	1,507	1,460	1,418
3	1,418	1,409	1,405	1,519	1,640	1,608	1,604	1,582	1,546	1,505	1,459	1,416
4	1,418	1,409	1,405	1,520	1,636	1,613	1,604	1,581	1,545	1,504	1,457	1,415
5	1,417	1,410	1,404	1,520	1,634	1,615	1,604	1,580	1,544	1,503	1,456	1,413
6	1,416	1,410	1,404	1,520	1,633	1,616	1,603	1,579	1,543	1,502	1,454	1,412
7	1,415	1,410	1,404	1,520	1,632	1,618	1,603	1,578	1,541	1,501	1,453	1,411
8	1,414	1,410	1,404	1,522	1,631	1,620	1,602	1,577	1,539	1,499	1,452	1,410
9	1,413	1,409	1,404	1,550	1,630	1,621	1,602	1,576	1,538	1,498	1,450	1,409
10	1,413	1,409	1,405	1,559	1,629	1,621	1,601	1,575	1,536	1,496	1,449	1,407
11	1,412	1,409	1,406	1,563	1,628	1,622	1,600	1,574	1,535	1,495	1,448	1,406
12	1,412	1,409	1,410	1,567	1,626	1,622	1,599	1,572	1,534	1,493	1,446	1,405
13	1,411	1,409	1,414	1,580	1,634	1,620	1,598	1,572	1,533	1,492	1,445	1,404
14	1,411	1,409	1,414	1,619	1,633	1,617	1,598	1,570	1,532	1,490	1,443	1,402
15	1,413	1,409	1,415	1,628	1,630	1,614	1,597	1,569	1,531	1,488	1,442	1,401
16	1,413	1,408	1,414	1,664	1,632	1,611	1,597	1,568	1,530	1,486	1,440	1,400
17	1,413	1,408	1,414	1,668	1,633	1,608	1,596	1,567	1,528	1,484	1,439	1,399
18	1,413	1,408	1,415	1,666	1,631	1,605	1,596	1,566	1,527	1,483	1,438	1,397
19	1,413	1,407	1,427	1,664	1,628	1,604	1,595	1,564	1,526	1,482	1,436	1,396
20	1,412	1,407	1,444	1,666	1,625	1,603	1,594	1,563	1,525	1,480	1,435	1,395
21	1,412	1,406	1,465	1,700	1,623	1,603	1,593	1,562	1,524	1,479	1,433	1,394
22	1,412	1,406	1,469	1,704	1,620	1,603	1,592	1,561	1,522	1,477	1,432	1,392
23	1,411	1,406	1,481	1,728	1,617	1,604	1,592	1,559	1,520	1,476	1,430	1,391
24	1,411	1,406	1,505	1,733	1,615	1,604	1,591	1,558	1,519	1,474	1,429	1,390
25	1,410	1,406	1,510	1,723	1,612	1,605	1,590	1,557	1,518	1,473	1,428	1,389
26	1,410	1,406	1,513	1,709	1,611	1,605	1,589	1,556	1,516	1,471	1,426	1,388
27	1,410	1,406	1,515	1,701	1,608	1,605	1,588	1,554	1,514	1,469	1,425	1,386
28	1,410	1,405	1,515	1,690	1,606	1,604	1,587	1,553	1,512	1,468	1,424	1,385
29	1,410	1,405	1,516	1,679	-----	1,605	1,586	1,552	1,511	1,466	1,422	1,384
30	1,410	1,405	1,516	1,669	-----	1,605	1,585	1,550	1,510	1,464	1,421	1,383
31	1,410	-----	1,518	1,661	-----	1,604	-----	1,550	-----	1,462	1,420	-----
MAX	1,421	1,410	1,518	1,733	1,654	1,622	1,604	1,585	1,549	1,508	1,461	1,419
MIN	1,410	1,405	1,404	1,518	1,606	1,603	1,585	1,550	1,510	1,462	1,420	1,383
(a)	429.76	429.50	435.57	443.00	440.21	440.10	439.11	437.26	435.14	432.67	430.30	428.28
(b)	-12,300	-5,000	+113,000	+143,000	-55,000	-2,000	-19,000	-35,000	-40,000	-48,000	-42,000	-37,000
(c)	5,383	2,358	1,246	1,561	2,158	6,462	7,315	13,041	13,369	15,477	12,889	9,789

CAL YR 1969 MAX 1,679 MIN 1,404 b +109,300  
WAT YR 1970 MAX 1,733 MIN 1,383 b -39,100

a Elevation, in feet, at end of month.  
b Change in contents, in acre-feet.  
c Evaporation, in acre-feet.

## SACRAMENTO RIVER BASIN

## 11454000 PUTAH CREEK NEAR WINTERS, CALIF.

LOCATION.--Lat 38°30'55", long 122°04'51", in NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.28, T.8 N., R.2 W., Yolo County, on left bank 1 mile downstream from Cold Canyon, 1.3 miles downstream from Monticello Dam, and 6 miles west of Winters.

DRAINAGE AREA.--574 sq mi.

PERIOD OF RECORD.--July 1930 to current year.

GAGE.--Water-stage recorder. Datum of gage is 160.75 ft above mean sea level (river-profile survey).  
June 28, 1930, to Feb. 29, 1940, at datum about 1 ft higher.

AVERAGE DISCHARGE (adjusted for change in contents and evaporation from Lake Berryessa).--40 years, 518 cfs (375,300 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 16,300 cfs Jan. 24 (gage height, 18.85 ft); minimum daily, 8.7 cfs Nov. 6.

Period of record: Maximum discharge, 81,000 cfs Feb. 27, 1940 (gage height, 30.5 ft, present datum), from rating curve extended above 30,000 cfs; no flow Sept. 6-15, 1950, July 26 to Sept. 1, Sept. 6-9, 1955. Maximum discharge since construction of Monticello Dam in 1957, 16,300 cfs Jan. 24, 1970 (gage height, 18.85 ft); minimum daily, 6.1 cfs Dec. 19, 1967.

Maximum stage known since at least 1905, that of Feb. 27, 1940, on basis of records for station at Winters.

REMARKS.--Records fair prior to Jan. 14, good thereafter. Flow regulated by Lake Berryessa beginning January 1957 (see sta 11453900). Records of water temperatures for the water year 1970 are published in Part 2 of this report.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	241	44	40	64	5,700	1,930	224	560	529	630	538	493
2	230	44	36	70	5,120	1,930	290	582	568	622	512	493
3	214	39	34	70	4,150	1,880	364	578	573	585	524	476
4	209	33	36	70	3,460	1,970	338	610	599	582	529	451
5	208	22	36	70	1,940	1,130	334	613	632	580	516	445
6	216	8.7	32	71	1,800	495	355	605	597	579	485	434
7	228	9.7	26	70	1,650	581	355	560	584	558	472	417
8	214	13	36	61	1,540	665	390	514	579	605	472	443
9	188	17	39	70	1,440	725	446	526	567	618	471	469
10	187	26	40	58	1,340	789	474	534	506	598	490	469
11	169	10	40	39	1,250	814	459	531	491	629	499	455
12	147	62	40	41	2,340	828	454	521	497	629	515	432
13	160	101	33	66	3,530	1,810	479	521	491	621	539	422
14	168	101	32	450	3,840	2,640	474	555	463	644	559	424
15	87	105	78	992	3,620	2,440	449	593	432	647	540	437
16	18	103	102	3,390	3,390	2,270	429	614	467	627	526	448
17	10	100	102	5,040	3,760	2,130	456	637	489	585	516	458
18	10	100	104	4,980	3,660	2,000	460	604	542	572	515	425
19	10	70	80	4,600	3,410	1,200	492	598	571	561	516	401
20	65	53	58	4,490	3,150	617	509	592	567	574	509	390
21	86	51	35	7,310	2,930	511	510	603	556	597	506	390
22	80	46	49	9,470	2,720	401	509	595	583	592	478	408
23	95	47	78	9,870	2,520	284	520	601	592	593	432	437
24	102	47	68	15,600	2,360	200	526	591	608	582	454	401
25	103	46	16	14,100	2,210	180	501	572	635	583	497	410
26	103	36	58	12,000	1,500	176	520	562	618	608	496	448
27	55	30	71	11,500	1,930	186	537	550	616	614	485	483
28	26	34	70	9,840	1,860	194	523	517	610	621	485	488
29	26	37	71	8,390	-----	208	478	521	643	623	479	488
30	30	40	61	7,320	-----	232	514	528	619	602	468	487
31	40	-----	57	6,410	-----	214	-----	533	-----	570	483	-----
TOTAL	3,725	1,475.4	1,658	136,572	78,120	31,630	13,369	17,621	16,824	18,631	15,506	13,322
MEAN	120	49.2	53.5	4,406	2,790	1,020	446	568	561	601	500	444
MAX	241	105	104	15,600	5,700	2,640	537	637	643	647	559	493
MIN	10	8.7	16	39	1,250	176	224	514	432	558	432	390
AC-FT	7,390	2,930	3,290	270,900	155,000	62,740	26,520	34,950	33,370	36,950	30,760	26,420

CAL YR 1969 TOTAL 290,612.4 MEAN 796 MAX 6,180 MIN 8.7 ACFT 576,400 MEAN a 1,051 AC-FT a 761,400  
WAT YR 1970 TOTAL 348,453.4 MEAN 955 MAX 15,600 MIN 8.7 ACFT 691,200 MEAN a 1,026 AC-FT a 743,200

a Adjusted for change in contents and evaporation from Lake Berryessa.



As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at partial-record stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations and the second is a table of annual maximum discharge at crest-stage stations. Discharge measurements made at miscellaneous sites for both low flow and high flow are given in a third table.

## Low-flow partial-record stations

Measurements of streamflow in the area covered by this report made at low-flow partial-record stations are given in the following table. Most of these measurements were made during periods of base flow when streamflow is primarily from ground-water storage. These measurements, when correlated with the simultaneous discharge of a nearby stream where continuous records are available, will give a picture of the low-flow potentiality of the stream. The column headed "Period of record" shows the water years in which measurements were made at the same or practically the same site.

Discharge measurements made at low-flow partial-record stations during water year 1970

Discharge measurements made at low-flow partial-record stations during water year 1970						
Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
Tulare Lake basin						
11-2086.05	East Fork Kaweah River below Eagle Creek, near Hammond	NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 15, T. 17 S., R. 31 E., 0.5 mile downstream from Eagle Creek and 15.5 miles east of Hammond.	9.92	1968-70	8-08-68 10-01-68 6-18-69 7-29-69 8-25-69 10-14-69 5-20-70 6-29-70 8-03-70 8-29-70 9-21-70	a b8.0 a b3.0 a140 a b85 a b27 b5.4 121 b44 b12 b6.8 b4.1
11-2086.07	East Fork Kaweah River above Monarch Creek, near Hammond	SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 15, T. 17 S., R. 31 E., at bridge at Mineral King, 1,000 ft upstream from Monarch Creek, and 14.9 miles east of Hammond.	10.2	1968-70	8-27-68 7-29-69 10-14-69 5-20-70 6-29-70 8-03-70 8-29-70 9-21-70	a b7.1 a b85 b5.4 121 b44 b12 b7.0 b4.1
11-2086.15	East Fork Kaweah River below Monarch Creek, near Hammond	NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 15, T. 17 S., R. 31 E., 250 ft downstream from Monarch Creek and 14.6 miles east of Hammond.	12.1	1968-70	7-25-68 8-27-68 9-30-68 10-15-68 6-17-69 7-29-69 8-25-69 10-14-69 5-20-70 6-29-70 8-03-70 8-29-70 9-21-70	a b11 a b9.0 a b3.9 a b10 a168 a b110 a b33 b7.2 150 b54 b17 b9.0 b5.2
11-2086.3	Atwell Creek above Mineral King Highway, near Hammond	SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 11, T. 17 S., R. 30 E., 750 ft west of Atwell Mills Ranger station and 10.4 miles east of Hammond.	.66	1968-70	7-25-68 8-28-68 9-30-68 5-05-69 6-19-69 7-29-69 8-28-69 10-15-69 4-21-70 5-20-70 6-30-70 8-04-70 8-28-70 9-22-70	a b.10 a b.08 a b.04 a3.4 a5.6 a b1.4 a b.67 b.32 1.0 1.0 b.56 b.24 b.14 b.09

See footnotes at end of table.

## Low-flow partial-record stations--Continued

## Discharge measurements made at low-flow partial-record stations during water year 1970--Continued

Discharge measurements made at low-flow partial-record stations during water year 1970--Continued						
Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
Tulare Lake basin--Continued						
11-2086.5	Redwood Creek above Mineral King Highway, near Hammond	NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 15, T. 17 S., R. 30 E., 50 ft upstream from Mineral King Highway and 8.9 miles east of Hammond.	1.38	1968-70	7-25-68	a b0.30
					8-28-68	a b.12
					9-30-68	a b.09
					5-05-69	a10
					6-19-69	a6.0
					7-30-69	a b1.5
					8-26-69	a b.91
					10-15-69	b.42
					12-09-69	.40
					4-21-70	1.9
					5-19-70	2.2
					6-30-70	b.88
					8-04-70	b.41
					8-28-70	b.32
					9-22-70	b.15
11-2086.8	Squirrel Creek below Mineral King Highway, near Hammond	SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 13, T. 17 S., R. 29 E., at Sequoia National Park Boundary, 300 ft above Mineral King Highway and 5.4 miles east of Hammond.	5.80	1968-70	7-25-68	a b.12
					8-28-68	a b.14
					9-30-68	a b.07
					12-11-68	a1.4
					5-05-69	a19
					6-19-69	a13
					7-30-69	a b3.6
					8-26-69	a b1.4
					10-15-69	b.98
					12-09-69	1.6
					4-21-70	3.8
					5-19-70	3.8
					7-01-70	b1.6
					8-04-70	b.47
					8-28-70	b.31
9-22-70	b.12					
11-2087.15	Crunigen Creek below Mineral King Highway, near Hammond	SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 13, T. 17 S., R. 29 E., 100 ft downstream from Mineral King Highway and 5.0 miles east of Hammond.	1.58	1968-70	12-11-68	a.21
					5-05-69	a1.2
					5-29-69	a.83
					6-19-69	a.95
					7-30-69	a b.16
					8-26-69	a b.23
					10-15-69	b.13
					12-09-69	.22
					4-22-70	.34
					5-19-70	.30
7-01-70	b.08					
San Joaquin River basin						
11-2647	Porcupine Creek at Porcupine Flat Campgrounds, near Yosemite Village	NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 33, T. 1 S., R. 22 E., at Porcupine Flat Campgrounds, 1,500 ft downstream from highway bridge and 4.1 miles northeast of Yosemite Village.	3.60	1970	8-19-70	b0.16
					9-02-70	b.02
					9-16-70	b.03
11-2657	Yosemite Creek at Yosemite Creek Campgrounds, near Yosemite Village	SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 30, T. 1 S., R. 22 E., at Yosemite Creek Campgrounds, 5.6 miles north of Yosemite Village	18.5	1970	8-19-70	b.55
					9-02-70	b.06
					9-16-70	b.002
11-2667	Tamarack Creek at Tamarack Flat Campground, near El Portal	NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 23, T. 2 S., R. 20 E., at culvert on Big Oak Flat Road at Tamarack Flat Campground, 5.7 miles northeast of El Portal and 8.2 miles west of Yosemite Village.	4.31	1970	8-18-70	b.41
					9-02-70	b.21
					9-16-70	b.17
11-2794	Smoky Jack Creek at Smoky Jack Campground, near Yosemite Village	NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 31, T. 1 S., R. 21 E., 12 ft downstream from culvert on Tioga Road, 8.5 miles northeast of Yosemite Village and 10.6 miles northeast of El Portal.	4.15	1970	8-18-70	b.15
					9-02-70	b.08
					9-16-70	b.04
Sacramento River basin						
11-3413	Sacramento River above Lake Siskiyou, near Mount Shasta	SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 25, T. 40 N., R. 4 W., 600 ft downstream from North Fork and 3.8 miles southwest of town of Mount Shasta.	47.8	1970	5-19-70	342
					6-11-70	90
					7-30-70	b11
					8-28-70	b6.5
					9-29-70	b6.5

See footnotes at end of table.

## Low-flow partial-record stations--Continued

Discharge measurements made at low-flow partial-record stations during water year 1970--Continued						
Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
Sacramento River basin--Continued						
11-3413.05	Deer Creek near Mount Shasta	SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 23, T. 40 N., R. 5 W., at culvert on county road 3.8 miles west of town of Mount Shasta.	5.00	1970	5-20-70 6-11-70 8-27-70 9-30-70	8.7 b2.1 b.43 b.86
11-3413.10	Scott Camp Creek at diversion dam, near Mount Shasta	SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 31, T. 40 N., R. 4 W., at diversion dam 0.5 mile upstream from Castle Lake Creek and 3.3 miles southwest of town of Mount Shasta.	4.62	1970	5-19-70 6-11-70 7-29-70 8-28-70 9-29-70	26 9.4 b2.1 b1.3 b2.2
11-3413.15	Castle Lake Creek at road crossing, near Mount Shasta	NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 32, T. 40 N., R. 4 W., at diversion dam 0.5 mile upstream from Castle Lake Creek and 3.3 miles southwest of town of Mount Shasta.	2.90	1970	5-19-70 8-28-70 9-29-70	11 b.17 b.13
11-3413.25	Wagon Creek near Mount Shasta	SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 21, T. 40 N., R. 4 W., 1.0 mile upstream from mouth and 1.6 miles southwest of town of Mount Shasta.	19.1	1970	5-20-70 6-10-70 7-28-70 8-27-70 9-30-70	44 43 b21 b16 b16
11-3413.44	Cold Creek above Lake Siskiyou, near Mount Shasta	NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 28, T. 40 N., R. 4 W., 0.5 mile upstream from Big Springs Creek and 1.6 miles southwest of town of Mount Shasta.	-	1970	5-19-70 6-10-70 7-28-70 8-27-70	19 16 b9.2 b12
11-3414.4	Sacramento River at Shasta Retreat, near Dunsmuir	NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 13, T. 39 N., R. 4 W., at bridge at Shasta Retreat, 0.4 mile upstream from Bear Creek, and 1.7 miles north of Dunsmuir.	160	1970	7-30-70	152
11-3414.6	Sacramento River at Soda Creek road, near Dunsmuir	SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 11, T. 38 N., R. 4 W., at bridge on Soda Creek road, 0.1 mile upstream from Soda Creek, and 3.7 miles southwest of Dunsmuir	185	1970	5-22-70 6-20-70 8-28-70	555 228 129
11-3922	Middle Fork Feather River at Delleker	SE $\frac{1}{4}$ sec. 3, T. 22 N., R. 13 E., 0.5 mile downstream from unnamed tributary and 1.7 miles southwest of Portola.	597	1970	7-21-70 8-19-70 9-16-70	b17 b11 b12
11-3933	Middle Fork Feather River below Long Valley Creek, at Sloat	SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 10, T. 23 N., R. 11 E., 0.1 mile downstream from Long Valley Creek, at Sloat.	813	1970	5-25-70 6-24-70 7-22-70 8-19-70 9-16-70	637 250 b80 b55 b57

a. Not previously published.

b. Base flow.

## Crest-stage partial-record stations

As explained on page 503 the California district publishes annual maxima on small streams at 304 sites in a separate publication Floods From Small Drainage Areas. In addition, discharge measurements are generally made in times of drought or flood to give better coverage to those events. Those measurements, and others collected for some special reason, are called measurements at miscellaneous sites.

The following table contains annual maximum discharges for crest-stage stations not included in the above-mentioned report. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for the current water year is given. Information on some lower floods may have been obtained but is not published herein. The years given in the period of record represent water years for which the annual maximum has been obtained.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

## Crest-stage partial-record stations--Continued

Annual maximum discharge at crest-stage partial-record stations during water year 1970

Annual maximum discharge at crest-stage partial-record stations during water year 1970							
Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
Eagle Lake basin							
10-3592.5 (revised)	Pine Creek near Westwood	SE¼ sec. 5, T. 31 N., R. 8 E., 1 mile southwest of Bogard Guard station and 19 miles north of Westwood.	22.6	1950-61a 1966-70	1-24-70	3.88	156
Buena Vista Lake basin							
11-1853	Golden Trout Creek near Cartago	NW¼SW¼ sec. 10, T. 18 S., R. 34 E., 0.5 mile upstream from Tunnel Ranger Station and 15 miles west of Cartago.	23.6	1956-67a 1969a 1970	1-16-70	3.47	201
11-1854	Little Kern River near Quaking Aspen Camp	SE¼SE¼ sec. 31, T. 20 S., R. 33 E., 600 ft upstream from mouth and 5 miles east of Quaking Aspen Camp.	132	1957-69a 1970	1-16-70	5.57	1,390
11-1882	South Fork Kern River near Olancha	NW¼SW¼ sec. 18, T. 20 S., R. 36 E., 2.0 miles downstream from Snake Creek and 9.7 miles southwest of Olancha.	146	1956-67a 1969a 1970	3-27-70	3.47	351
11-1953	Santiago Creek near Maricopa	NW¼ sec. 36, T. 11 N., R. 23 W., 8 miles southeast of Maricopa.	34.8	1961-70	3-04-70	15.7	200
Tulare Lake basin							
11-1973.7	Bitterwater Creek near Lost Hills	NW¼SE¼ sec. 21, T. 27 S., R. 18 E., 0.2 mile downstream from Cedar Canyon, 21 miles west of Lost Hills.	76.4	1961-70	3-04-70	-0.60	65
11-2251.3	Zapato Chino Creek near Avenal	SE¼SW¼ sec. 34, T. 21 S., R. 16 E., 6.6 miles northwest of Avenal.	43.2	1961-70	3-04-70	4.29	96
11-2630.5	Garzas Creek near Gustine	SW¼ sec. 18, T. 8 S., R. 8 E., above diversion weir, 7.7 miles west of Gustine.	51.2	1959-70	3-01-70	3.32	119
11-2673	South Fork Merced River at Wawona	SW¼ sec. 34, T. 4 S., R. 21 E., 1,000 ft downstream from highway bridge at Wawona, and 1,200 ft upstream from Big Creek.	100	1958-68a 1970	1-16-70	7.28	4,030
11-3050	San Domingo Creek near San Andreas	NW¼ sec. 14, T. 3 N., R. 12 E., 6.5 miles southeast of San Andreas.	27.1	1950-62a 1963-67 1969-70	1-16-70	4.30	470
11-3055	San Antonio Creek near San Andreas	NE¼ sec. 10, T. 3 N., R. 12 E., 800 ft below highway bridge, 1.9 miles above mouth, and 5 miles southeast of San Andreas.	48.1	1950-59a 1961-70	1-16-70	4.00	1,110
11-3070	Esperanza Creek near Mokelumne Hill	NW¼ sec. 6, T. 5 N., R. 13 E., 600 ft above mouth, 6 miles east of Mokelumne Hill.	16.6	1951-59a 1961-70	1-16-70	5.00	1,450
11-3075	Jesus Maria Creek near Mokelumne Hill	SE¼ sec. 16, T. 5 N., R. 12 E., 0.6 mile above mouth 3.2 miles southeast of Mokelumne Hill.	34.6	1950-59a 1961-70	1-16-70	4.98	1,360
11-3085	Murray Creek near San Andreas	SW¼ sec. 8, T. 4 N., R. 12 E., 1.5 miles upstream from mouth and 1.1 miles north of San Andreas.	23.6	1950-59a 1961-67 1969-70	1-16-70	4.42	704
Sacramento River basin							
11-3655	Squaw Creek above Shasta Lake	SW¼ sec. 29, T. 35 N., R. 2 W., 1.3 miles upstream from Salt Creek, 2 miles upstream from Shasta Lake, and 10 miles west of town of Montgomery Creek.	64.0	1944-66a 1969-70	1-23-70	20.69	14,900
11-3732	Oak Run Creek near Oak Run	SE¼NW¼ sec. 25, T. 33 N., R. 2 W., 800 ft downstream from road bridge and 1.1 miles northwest of town of Oak Run.	11.0	1957-66a 1969-70	1-23-70	6.50	1,400
11-3775	Paynes Creek near Red Bluff	SE¼ sec. 22, T. 28 N., R. 3 W., 0.4 mile upstream from mouth and 6.5 miles northeast of Red Bluff.	92.7	1950-66a 1967-70	1-23-70	10.26	8,140
11-3805	Elder Creek at Gerber	Lat 40°03'05", long 122°09'53", 1.0 mile west of Gerber and 3.5 miles upstream from mouth.	136	1949-69a 1970	1-23-70	14.4	12,900

a. Operated as continuous-record gaging station.

## Measurements at miscellaneous sites

Measurements of streamflow at points other than gaging stations or partial-record stations are given in the following table.

Discharge measurements made at miscellaneous sites during water year 1970						
Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
Eagle Lake basin						
Pine Creek	Eagle Lake	SE $\frac{1}{4}$ sec. 5, T. 31 N., R. 8 E., 1 mile southwest of Bogard Guard Station and 19 miles north of Westwood.	24.8	1950-61a 1964 1967-69	9-21-70	b2.32
Buena Vista Lake basin						
Golden Trout Creek	Kern River	NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 10, T. 18 S., R. 34 E., 0.5 mile upstream from Tunnel Ranger Station and 15 miles west of Cartago.	23.6	1956-67a 1969a	10-01-69 9-15-70	b22.6 b11.0
Little Kern River	Kern River	SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 31, T. 20 S., R. 33 E., 600 ft upstream from mouth and 5 miles east of Quaking Aspen Camp.	132	1957-68a 1969a	3-09-70 5-18-70 9-16-70	b98.7 414 b14.1
South Fork Kern River	Kern River	NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 18, T. 20 S., R. 36 E., 2.0 miles downstream from Snake Creek and 9.7 miles southwest of Olancha.	146	1956-67a 1969a	10-01-69 9-15-70	b22.4 b6.29
Kelso Creek	South Fork Kern River	NW $\frac{1}{4}$ sec. 20, T. 27 S., R. 35 E., 0.5 mile upstream from Woolstaff Creek and 7 miles southeast of Weldon.	101	1958-66a 1968	10-21-69 9-17-70	b3.49 b3.16
South Fork Kings River	Kings River	NW $\frac{1}{4}$ sec. 8, T. 13 S., R. 30 E., 0.3 mile below Grizzly Creek and 4.5 miles west of Cedar Grove.	409	1950-57a 1959-60 1963-66 1968	9-08-70	b128
Copper Creek*	South Fork Kings River	S $\frac{1}{2}$ sec. 11, T. 13 S., R. 31 E., 0.5 mile upstream from South Fork Kings River and 5.9 miles northeast of Cedar Grove.	--	1965-68	10-06-69 9-08-70	b1.97 b1.55
Sheep Creek	South Fork Kings River	SE $\frac{1}{4}$ sec. 14, T. 13 S., R. 30 E., 0.7 mile upstream from South Fork Kings River and 0.7 mile southwest of Cedar Grove.	--	1965-68	10-06-69 9-08-70	b3.85 b1.32
Lewis Creek	South Fork Kings River	SW $\frac{1}{4}$ sec. 11, T. 13 S., R. 30 E., 0.3 mile upstream from South Fork Kings River and 1.5 miles northwest of Cedar Grove.	--	1965-68	10-06-69 9-08-70	b5.91 b2.34
Dinkey Creek	North Fork Kings River	Sec. 3, T. 12 S., R. 26 E., 0.5 mile upstream from mouth and 0.5 mile northwest of Balch Camp.	136	1920-37a 1959 1961-68	10-02-69 8-24-70	b30.9 b7.79
San Joaquin River basin						
North Fork Willow Creek	San Joaquin River	SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 10, T. 6 S., R. 22 E., 0.25 mile east of Soquel Meadow Ranch and 4.7 miles southeast of Sugar Pine.	--	--	7-28-70	b3.34
Chilkoot Creek	North Fork Willow Creek	NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 19, T. 6 S., R. 23 E., near Chipmunk Meadow, 6.3 miles northeast of town of Bass Lake.	--	--	7-28-70	b.19
Chilkoot Creek	North Fork Willow Creek	NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 35, T. 6 S., R. 22 E., 0.6 mile north of Chilkoot Campground and 3.8 miles northeast of town of Bass Lake.	--	--	7-28-70	b1.14
North Fork Willow Creek	San Joaquin River	NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 3, T. 7 S., R. 22 E., at McCloud Flat 2.3 miles north of town of Bass Lake.	--	--	7-29-70	b6.44
North Fork Willow Creek	San Joaquin River	NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 9, T. 7 S., R. 22 E., at County Road 275, at inlet to Bass Lake, 0.8 mile northwest of town of Bass Lake.	30.6	1910-11a	7-27-70	b4.21
Slide Creek	North Fork Willow Creek	NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 9, T. 7 S., R. 22 E., at landing field, 500 ft south of Bass Lake school and 1.2 miles northwest of town of Bass Lake.	--	--	7-29-70	b.11
Pines Creek	North Fork Willow Creek	SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 14, T. 7 S., R. 22 E., at County Road 275, 500 ft upstream from Bass Lake, and 1.1 miles southeast of town of Bass Lake.	--	--	7-29-70	b.07

See footnotes at end of table.

## Measurements at miscellaneous sites--Continued

Discharge measurements made at miscellaneous sites during water year 1970--Continued

Discharge measurements made at miscellaneous sites during water year 1970--Continued						
Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
San Joaquin River basin--Continued						
Little Willow Creek	North Fork Willow Creek	SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 14, T. 7 S., R. 22 E., at County Road 275, 1,100 ft upstream from Bass Lake, and 1.2 miles southeast of town of Bass Lake.	--	--	7-29-70	b0.16
North Fork Willow Creek	San Joaquin River	SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 1, T. 8 S., R. 22 E., at County Road, 0.4 mile upstream from Manzanita Lake and 2.2 miles northeast of town of North Fork.	--	--	7-31-70	.94
North Fork Willow Creek	San Joaquin River	SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 12, T. 8 S., R. 22 E., 300 ft downstream from Dam and 1.2 miles north of town of North Fork.	--	--	7-31-70	.76
North Fork Willow Creek	San Joaquin River	SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 19, T. 8 S., R. 22 E., just downstream from south edge of the town of North Fork and 0.4 mile from city center.	--	--	8-04-70	.10
Sand Creek	North Fork Willow Creek	SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 5, T. 7 S., R. 23 E., at bridge 0.5 mile southeast of central Camp and 5.0 miles northeast of town of Bass Lake.	--	--	7-30-70	b1.72
Timber Creek	Sand Creek	NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 8, T. 7 S., R. 23 E., at bridge 0.7 mile southeast of Central Camp and 5.1 miles northeast of town of Bass Lake.	--	--	7-30-70	b.36
North Fork Sand Creek	Sand Creek	SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 29, T. 6 S., R. 23 E., at bridge 1.9 miles north of Central Camp and 5.8 miles northeast of town of Bass Lake.	--	--	7-28-70	b.08
North Fork Sand Creek	Sand Creek	NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 7, T. 6 S., R. 23 E., at bridge at Whiskers Campground, 4.1 miles east of town of Bass Lake.	--	--	7-30-70	b2.15
South Fork Willow Creek	Willow Creek	SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 19, T. 8 S., R. 23 E., 0.8 mile southeast of town of North Fork.	39.8	1910-17a	7-31-70	1.70
Whisky Creek	Willow Creek	SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 16, T. 8 S., R. 23 E., at road crossing 0.25 mile south of Cascadel Ranch and 2.8 miles east of town of North Fork.	11.6	1910-15a	7-30-70	b2.20
Whisky Creek	Willow Creek	SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 33, T. 8 S., R. 23 E., 250 ft west of Italian Bar road, and 3.8 miles southeast of town of North Fork.	--	--	7-31-70	b1.36
Tenaya Creek	Merced River	Lat 37°44'32", long 119°33'25", at bridge 0.7 mile above mouth and 1.7 miles east of Yosemite National Park Headquarters.	47	1904-09a 1912-58a 1961 1966-69	9-17-70	b1.82
South Fork Merced River	Merced River	SW $\frac{1}{4}$ sec. 34, T. 4 S., R. 21 E., in Yosemite National Park, 1,000 ft downstream from highway bridge at Wawona and 1,200 ft upstream from Big Creek.	100	1958-68a 1969	9-17-70	b2.37
Crane Creek	Merced River	NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 34, T. 2 S., R. 20 E., 100 ft above diversion and 3 miles northeast of El Portal.	--	1964-69	9-16-70	b.69
Hunter Creek	North Fork Tuolumne River	SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 19, T. 1 N., R. 20 E., at road ford, 5.5 miles southeast of Tuolumne.	--	1911-64 1967-69	9-17-70	b1.03
San Antonio Creek	Calaveras River	NE $\frac{1}{4}$ sec. 10, T. 3 N., R. 12 E., 800 ft below highway bridge, 1.9 miles above mouth, and 5 miles southeast of San Andreas.	48.1	1950-59a 1967-69	9-03-70	b.77
Esperanza Creek	Calaveras River	NW $\frac{1}{4}$ sec. 6, T. 5 N., R. 13 E., 600 ft above mouth, 6 miles east of Mokelumne Hill.	16.6	1951-59a 1967-69	9-03-70	b.50
Jesus Maria Creek	Calaveras River	SE $\frac{1}{4}$ sec. 16, T. 5 N., R. 12 E., 0.6 mile above mouth, 3.2 miles southeast of Mokelumne Hill.	34.6	1950-59a 1967-69	9-03-70	b.30
Murray Creek	Calaveras River	SW $\frac{1}{4}$ sec. 8, T. 4 N., R. 12 E., 1.5 miles upstream from mouth and 1.1 miles north of San Andreas.	23.5	1950-59a 1961-67 1969	9-01-70	b.13
Cosgrove Creek	Calaveras River	SE $\frac{1}{4}$ sec. 35, T. 4 N., R. 10 E., 0.4 mile upstream from mouth and 2.7 miles south of Valley Springs.	21.1	1929-69a	1-21-70	c982
Mokelumne River	San Joaquin River	Lat 38°14'13", long 121°25'06", at New Hope Bridge, 0.8 mile north of Thorton, and 2.1 miles upstream from mouth.	--	--	3-02-70 3-06-70	1,340 1,590

See footnotes at end of table.

## Measurements at miscellaneous sites--Continued

Discharge measurements made at miscellaneous sites during water year 1970--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
Sacramento River basin						
Lost Creek	Hat Creek	NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 33, T. 32 N., R. 4 E., 0.9 mile north of boundary of Lassen Volcanic National Park, and 14.5 miles northeast of Mineral.	--	1966-69	9-18-70	b7.68
Horse Creek	Pit River	NE $\frac{1}{4}$ sec. 15, T. 35 N., R. 7 E., 100 ft downstream from railroad bridge, 0.5 mile northeast of Little Valley, and 13 miles southeast of Pittville.	237	1929-31a 1960-67a 1968-69	9-03-70	b9.40
Fall River	Pit River	NE $\frac{1}{4}$ sec. 30, T. 38 N., R. 4 E., 0.7 mile southeast of Dana and 1 mile downstream from large springs below Bear Creek.	--	1959-67a 1968-69	9-04-70	b468
McCloud River	Pit River	SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 12, T. 29 N., R. 2 W., 500 ft upstream from Lower Falls and 6 miles southeast of McCloud.	--	1968	10-23-69 8-31-70	b55.8 b56.7
Squaw Creek	Pit River	SW $\frac{1}{4}$ sec. 29, T. 35 N., R. 2 W., 1.3 miles upstream from Salt Creek, 2 miles upstream from Shasta Lake and 10 miles west of town of Montgomery Creek.	64.0	1945-67a 1968-69	9-24-70	b12.2
Oak Run Creek	Cow Creek	SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 25, T. 33 N., R. 2 W., 800 ft downstream from road bridge, 1.1 miles northwest of town of Oak Run, 3.2 miles upstream from Tracy Creek, and 12.2 miles northeast of Millville.	11.0	1957-66a 1967-69	8-27-70	b1.53
Paynes Creek	Sacramento River	SE $\frac{1}{4}$ sec. 22, T. 28 N., R. 3 W., 0.4 mile upstream from mouth and 6.5 miles northeast of Red Bluff.	92.7	1950-66a 1968-69	9-23-70	b.34
North Honcut	Feather River	SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 24, T. 17 N., R. 3 E., at bridge on State Highway 70, 12 miles north of Marysville	--	--	4-24-70	b20.0
Georgetown Ditch	Pilot Creek	NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 4, T. 12 N., R. 12 E., 100 ft downstream from Georgetown Divide PUD diversion dam, 2.5 miles downstream from Stumpy Meadows dam, and 10 miles east of Georgetown.	--	1963-64	9-24-70	10.2
Tells Creek	Silver Creek	SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 11, T. 12 N., R. 14 E., at Loon Lake road crossing, 10 miles northeast of Riverton.	--	1964-68	9-16-70	b.24

\*Published as Cooper Creek 1966-68.

a. Operated as continuous recorder.

b. Base flow.

c. Peak flow.





# INDEX

	Page		Page
Accuracy of data.....	502	Bridgeport Reservoir, near Bridgeport.....	514
Acre-foot, definition of.....	497	tributary near Bridgeport.....	513
Adams Creek near Knoxville.....	998	Britton, Lake, near Burney.....	769
Adobe Creek near Kelseyville.....	980	Buckeye Creek near Bridgeport.....	511
Alder Creek (American River basin) near White Hall	966	Buck-Loon tunnel near Meeks Bay.....	942
Almanor, Lake, at Prattville.....	848	Bucks Lake near Bucks Lodge.....	859
American River, at Fair Oaks.....	977	Buena Vista Lake basin, discharge measurements at	
Middle Fork, above Middle Fork powerhouse, near		miscellaneous sites in.....	1007
Foresthill.....	938	Burney Creek near Burney.....	768
at French Meadows.....	935	Butt Creek below Almanor-Butt Creek tunnel, near	
below interbay dam, near Foresthill.....	939	Prattville.....	850
near Auburn.....	958	Butte Creek (Sacramento River basin), at Butte	
near Foresthill.....	956	Meadows.....	817
North Fork, at North Fork Dam.....	932	near Chico.....	819
of Middle Fork, near Foresthill.....	955		
South Fork, below Silver Creek, near Pollock		Cache Creek, above Rumsey.....	990
Pines.....	972	at Yolo.....	992
near Camino.....	973	near Capay.....	991
near Kyburz.....	965	near Lower Lake.....	987
near Lotus.....	975	North Fork, near Lower Lake.....	988
near Placerville.....	974	Calaveras River, below New Hogan Dam, near Valley	
American River basin, Middle Fork, schematic		Springs.....	724
diagram of.....	933	North Fork, near San Andreas.....	722
South Fork, schematic diagram of.....	959	South Fork, near San Andreas.....	721
Antelope Creek near Red Bluff.....	797	Caliente Creek above Tehachapi Creek, near	
Antelope Lake.....	825	Caliente.....	567
Arcade Creek near Del Paso Heights.....	978	Camanche Reservoir near Clements.....	738
Ash Creek at Adin.....	763	Camp Creek near Somerset.....	745
Atwell Creek above Mineral King Highway, near		Cantua Creek near Cantua Creek.....	648
Hammond.....	1003	Canyon Creek, below Bowman Lake.....	903
Avenal Creek near Avenal.....	571	near Georgetown.....	957
		Caples Lake Outlet near Kirkwood.....	963
Bangor Canal below Miners Ranch Reservoir, near		Carson River, East Fork, below Markleeville, near	
Oroville.....	844	Markleeville.....	522
Bass Lake near Bass Lake.....	638	near Gardnerville, Nev.....	523
Battle Creek below Coleman Fish Hatchery, near		West Fork, at Woodfords.....	524
Cottonwood.....	794	Castle Lake Creek at road crossing, near Mt Shasta	1005
Bear Creek (tributary to Sacramento River) near		Cfs-day, definition of.....	497
Rumsey.....	989	Cherry Creek, below Cherry Valley Dam, near Hetch	
Bear Creek (tributary to San Joaquin River) near		Hetchy.....	679
Lockeford.....	725	below Dion R. Holm powerhouse, near Mather.....	684
Bear Creek (tributary to South Fork San Joaquin		near Early Intake.....	683
River) near Lake Thomas A. Edison.....	622	Cherry Creek Canal near Early Intake.....	682
Bear River (tributary to Feather River), below		Cherry Lake near Hetch Hetchy.....	678
Drum Afterbay, near Blue Canyon.....	916	Chicago Park flume near Dutch Flat.....	917
below Dutch Flat Afterbay, near Dutch Flat.....	918	Chiquito Creek near Bass Lake.....	625
below Rollins Dam, near Colfax.....	921	Chowchilla River, at Buchanan damsite, near	
near Wheatland.....	923	Raymond.....	654
Bear River (tributary to North Fork Mokelumne		West Fork, near Mariposa.....	653
River) near Salt Springs Dam.....	732	Churn Creek below Newton Creek, near Redding.....	787
Bear River basin, schematic diagram of.....	911	Clavey River near Buck Meadows.....	689
Bear River Canal intake (Feather River basin) near		Clear Creek, at French Gulch.....	782
Colfax.....	920	near Igo.....	786
Beardsley Lake near Strawberry.....	703	Clear Lake at Lakeport.....	986
Beaver Creek near Hat Creek.....	765	Cold Creek above Lake Siskiyou, near Mt Shasta....	1005
Bell Creek near Pinecrest.....	688	Cole Creek near Salt Springs Dam.....	731
Berryessa, Lake, near Winters.....	1001	Colgate powerplant near French Corral.....	889
Bidwell Creek below Mill Creek, near Fort Bidwell.	551	Collection and computation of data.....	499
Big Chico Creek near Chico.....	804	Contents, definition of.....	497
Big Creek (San Joaquin River basin) above Whites		Contra Costa Canal near Oakley.....	753
Gulch, near Groveland.....	690	Control, definition of.....	497
Big Creek (San Joaquin River basin) below		Cooperation, report of.....	496
Huntington Lake.....	630	Cosumnes River at McConnell.....	751
Big Creek (tributary to Tuolumne River) near		at Michigan Bar.....	749
Groveland.....	691	Middle Fork, near Somerset.....	747
Big Creek (Tulare Lake basin) above Pine Flat		North Fork, near El Dorado.....	746
Reservoir, near Trimmer.....	610	South Fork, near River Pines.....	748
Big Creek diversion near Fish Camp.....	659	Cottonwood Creek (Sacramento River basin), Middle	
Big Grizzly Creek near Portola.....	827	Fork, near Ono.....	790
Big Sandy Creek tributary near Tollhouse.....	643	near Cottonwood.....	793
Bitterwater Creek, near Lost Hills.....	1006	North Fork, near Igo.....	791
Black Butte Reservoir near Orland.....	812	South Fork, near Cottonwood.....	792
Blackwood Creek near Tahoe City.....	528	Courtright Reservoir, contents of.....	603
Boardman Canal near Emigrant Gap.....	913	Cow Creek near Millville.....	789
Boca Reservoir at Boca.....	541	Crunigen Creek below Mineral King Highway, near	
Borel Canal below Isabella Dam.....	557	Hammond.....	1004
Bowman Lake near Graniteville.....	900	Cubic foot per second, definition of.....	497
Bowman-Spaulding Canal, at intake, near Sierra			
City.....	901	Data, accuracy of.....	502
at Jordan Creek siphon venturi, near Emigrant		explanation of.....	499
Gap.....	902	other data available.....	503

	Page		Page
Davis, Lake.....	825	French Meadows Reservoir near Foresthill.....	934
Deer Creek (tributary to Cosumnes River) near Sloughhouse.....	750	Frenchman Lake.....	825
Deer Creek (tributary to Sacramento River), below Slate Creek, near Deer Creek Meadows.....	802	Fresno River, near Daulton.....	652
near Mt Shasta.....	1005	near Knowles.....	651
near Vina.....	803	Friant-Kern Canal at Friant.....	645
Deer Creek (tributary to Tulare Lake basin) near Fountain Springs.....	573	Gage height, definition of.....	498
Deer Creek (tributary to Yuba River) near Smartville.....	908	Gaging station, definition of.....	498
Definition of terms and abbreviations.....	497	Garzas Creek near Gastine.....	1006
Del Puerto Creek near Patterson.....	671	Gerle Creek below Loon Lake Dam, near Meeks Bay...	947
Delta-Mendota Canal at Tracy pumping plant, near Tracy.....	726	Golden Trout Creek near Cartago.....	1006
Discharge, definition of.....	497	Granite Creek near Cattle Mountain.....	618
Don Pedro Reservoir near La Grange.....	693	Green Creek near Bridgeport.....	508
Donnell Lake near Dardanelle.....	701	Grindstone Creek near Elk Creek.....	808
Donner Creek at Donner Lake, near Truckee.....	532	Hat Creek near Hat Creek.....	767
Downstream order and station numbers.....	498	Hell Hole Reservoir near Meeks Bay.....	943
Drainage area, definition of.....	497	Helms Creek below Courtright Dam.....	604
Drum Canal, above Drum Forebay, near Blue Canyon..	897	Hetch Hetchy Reservoir at Hetch Hetchy.....	675
at intake, near Emigrant Gap.....	896	Highland Creek (Sacramento River basin), above Highland Creek Dam.....	981
Dry Creek (tributary to Kaweah River) near Lemoncove.....	599	below Highland Creek Dam.....	982
Dry Creek (tributary to Mokelumne River basin), above Sutter Creek, near Ione.....	742	Highland Creek (San Joaquin River basin) below Spicer Meadows Reservoir.....	706
near Galt.....	744	Hunting Creek near Knoxville.....	996
Dry Creek (tributary to Pit River) near Dana.....	766	Huntington Lake near Big Creek.....	629
Dry Creek (tributary to Putah Creek) near Middletown.....	994	Huntington-Shaver conduit outlet near Shaver Lake..	632
Dry Creek (tributary to San Joaquin River) near Snelling.....	666	Hydrologic bench-mark station, definition of.....	498
Dry Creek (tributary to Yuba River) near Browns Valley.....	909	Hydrologic conditions.....	504
Duncan Creek, below diversion dam, near French Meadows.....	937	Ice House Reservoir near Kyburz.....	968
near French Meadows.....	936	Independence Creek near Truckee.....	537
Dutch Flat No. 1 powerplant near Dutch Flat.....	914	Indian Creek, near Boulder Creek Guard Station, near Taylorsville.....	852
Dutch Flat No. 2 flume near Blue Canyon.....	915	near Crescent Mills.....	855
Eagle Creek at Eagleville.....	550	near Taylorsville.....	854
Eagle Lake basin, crest-stage stations in.....	1006	International Hydrological Decade River Station, definition of.....	498
discharge measurements at miscellaneous sites in	1007	Introduction.....	495
East Park Reservoir near Stonyford.....	807	Iron Canyon Creek below Iron Canyon Dam, near Big Bend.....	773
East Walker River, above Strossnider ditch, near Mason, Nev.....	516	Iron Canyon Reservoir near Big Bend.....	769
near Bridgeport.....	515	Isabella Reservoir near Isabella.....	559
Echo Lake conduit near Phillips.....	960	Jackson Meadows Reservoir near Sierra City.....	877
Elder Creek near Paskenta.....	798	James B. Black powerplant near Big Bend.....	772
Eleanor Creek near Hetch Hetchy.....	681	Jenkinson Lake, contents of.....	745
Eleanor, Lake, near Hetch Hetchy.....	680	Jesus Maria Creek near Mokelumne Hill.....	1006
Esperanza Creek near Mokelumne Hill.....	1006	Judge Francis Carr powerplant near French Gulch...	783
Explanation of surface-water data.....	499	Kaweah Lake near Lemoncove.....	596
Fall River (tributary to Middle Fork Feather River) near Feather Falls.....	832	Kaweah River, at Three Rivers.....	593
Fallen Leaf Lake near Tahoe Valley.....	526	below Terminus Dam.....	598
Falls Creek near Hetch Hetchy.....	674	East Fork, above Monarch Creek, near Hammond...	1003
Feather River, at Nicolaus.....	925	at Sequoia National Park boundary, near Hammond.....	590
at Oroville.....	871	below Eagle Creek, near Hammond.....	1003
at Yuba City.....	875	below Monarch Creek, near Hammond.....	1003
below Shanghai Bend, near Olivehurst.....	912	below Mosquito Creek, near Hammond.....	589
East Branch of North Fork, near Rich Bar.....	858	near Three Rivers.....	591
Middle Fork, at Delleker.....	1005	Marble Fork, at Potwisha Camp.....	585
below Long Valley Creek, at Sloat.....	1005	Middle Fork, near Potwisha Camp.....	583
near Clio.....	830	Middle Fork, tributary near Hammond.....	587
near Merrimac.....	831	South Fork, at Three Rivers.....	594
near Portola.....	829	Kaweah River basin, schematic diagram of.....	582
near Gridley.....	872	Kelsey Creek near Kelseyville.....	985
North Fork, at Pulga.....	860	Kern River, at Kernville.....	556
below Belden Dam.....	851	below Isabella Dam.....	560
near Prattville.....	849	near Bakersfield.....	563
South Fork, above Little Grass Valley Reservoir..	834	near Democrat Springs.....	561
at Ponderosa Dam.....	845	near Kernville.....	554
below diversion dam, near Strawberry Valley...	837	near Quaking Aspen Camp.....	553
below Forbestown Dam.....	842	South Fork, near Olancha.....	1006
below Little Grass Valley Dam.....	836	near Onyx.....	558
West Branch, near Paradise.....	861	Kern River basin, schematic diagram of.....	552
Feather River at Lake Oroville, schematic diagram of.....	862	Kings River, above North Fork, near Trimmer.....	601
Feather River basin, North Fork, schematic diagram of.....	847	below North Fork, near Trimmer.....	609
South Fork, schematic diagram of.....	833	below Pine Flat Dam.....	613
reservoirs in.....	825	North Fork, above Dinkey Creek, at Balch Camp...	606
Florence Lake near Big Creek.....	620	below Dinkey Creek, near Balch Camp.....	608
Folsom Lake near Folsom.....	976	below Meadow Brook.....	602
Foothill ditch below Terminus Dam.....	597	near Cliff Camp.....	605
Forbes Creek, North Fork, near Dutch Flat.....	930	Kings River basin, schematic diagram of.....	600
Fordyce Creek below Fordyce Dam, near Cisco.....	894	Lake Valley Canal near Emigrant Gap.....	929
Forest Creek near Wilseyville.....	733	Lakes and reservoirs:	
		Almanor, Lake, at Prattville.....	848
		Antelope Lake.....	825
		Bass Lake near Bass Lake.....	638
		Beardsley Lake near Strawberry.....	703
		Berryessa, Lake, near Winters.....	1001

Page		Page	
Lakes and reservoirs--Continued			
Black Butte Reservoir near Orland.....	812	Madera Canal at Friant.....	644
Boca Reservoir at Boca.....	541	Mammoth Pool Reservoir near Big Creek.....	626
Bowman Lake near Graniteville.....	900	Mariposa Creek near Catheys Valley.....	655
Bridgeport Reservoir near Bridgeport.....	514	Marsh Creek near Byron.....	754
Britton, Lake, near Burney.....	769	Martis Creek near Truckee.....	533
Bucks Lake near Bucks Lodge.....	859	Maxwell Creek at Coulterville.....	662
Camanche Reservoir near Clements.....	738	McCloud-Iron Canyon diversion tunnel near McCloud.....	776
Cherry Lake near Hetch Hetchy.....	678	McCloud Reservoir near McCloud.....	769
Clear Lake at Lakeport.....	986	McCloud River, above Shasta Lake.....	779
Courtright Reservoir.....	603	at Ah-Di-Na, near McCloud.....	778
Davis, Lake.....	825	below McCloud Dam, near McCloud.....	777
Don Pedro Reservoir near La Grange.....	693	near McCloud.....	775
Donnell Lake near Dardanelle.....	701	McCloud River basin, reservoirs in.....	769
East Park Reservoir near Stonyford.....	807	schematic diagram of.....	758
Eleanor, Lake, near Hetch Hetchy.....	680	McClure, Lake, at Exchequer.....	663
Fallen Leaf Lake near Tahoe City.....	526	Melones Reservoir at Melones Dam.....	714
Florence Lake near Big Creek.....	620	Merced River, at Happy Isles Bridge, near Yosemite	657
Folsom Lake near Folsom.....	976	at Pohono Bridge, near Yosemite.....	658
French Meadows Reservoir near Foresthill.....	934	at Shaffer Bridge, near Cressey.....	665
Frenchman Lake.....	825	below Merced Falls Dam, near Snelling.....	664
Hell Hole Reservoir near Meeks Bay.....	943	near Briceburg.....	661
Hetch Hetchy Reservoir at Hetch Hetchy.....	675	near Stevinson.....	667
Huntington Lake near Big Creek.....	629	South Fork, at Wawona.....	1006
Ice House Reservoir near Kyburz.....	968	near El Portal.....	660
Iron Canyon Reservoir near Big Bend.....	769	Merced River Slough near Newman.....	668
Isabella Reservoir near Isabella.....	559	Miami Creek near Oakhurst.....	650
Jackson Meadows Reservoir near Sierra City.....	877	Middle Tuolumne River at Oakland Recreation Camp..	686
Jenkinson Lake.....	745	Middle Yuba River, below Jackson Meadows Dam,	
Kaweah, Lake, near Lemoncove.....	596	near Sierra City.....	879
Little Grass Valley Reservoir near La Porte.....	835	below Our House Dam.....	882
Loon Lake near Meeks Bay.....	946	near Camptonville.....	881
Lower Twin Lake near Bridgeport.....	509	Mill Creek (Sacramento River basin), near Los	
McCloud Reservoir near McCloud.....	769	Molinos.....	799
McClure, Lake, at Exchequer.....	663	near Quincy.....	856
Mammoth Pool Reservoir near Big Creek.....	626	Mill Creek (Tulare Lake basin) near Piedra.....	614
Melones Reservoir at Melones Dam.....	714	Millerton Lake at Friant.....	646
Millerton Lake at Friant.....	646	Milton-Bowman tunnel outlet near Graniteville....	880
New Bullards Bar Reservoir near North San Juan..	890	Miners Ranch Canal below Ponderosa Dam, near	
New Camp Far West Reservoir near Wheatland.....	922	Forbestown.....	843
New Hogan Reservoir near Valley Springs.....	723	Miscellaneous measurements.....	1007
Oroville, Lake, near Oroville.....	863	Modesto Canal near La Grange.....	695
Pardee Reservoir near Valley Springs.....	737	Mokelumne River, at Woodbridge.....	741
Partial-record station, discharge at.....	1003	below Camanche Dam.....	739
Pine Flat Reservoir near Piedra.....	612	Middle Fork, at West Point.....	734
Prosser Creek Reservoir near Boca.....	534	near Mokelumne Hill.....	736
Redding Lake near Auberry.....	634	North Fork, below Salt Springs Dam.....	730
Rollins Reservoir near Colfax.....	919	South Fork, near West Point.....	735
Salt Springs Reservoir near West Point.....	728	Mokelumne River basin, schematic diagram of.....	727
Shasta Lake near Redding.....	780	Monarch Creek near Hammond.....	588
Shaver Lake near Big Creek.....	633	Mono Creek below Lake Thomas A. Edison.....	624
Siskiyou, Lake, near Mt Shasta.....	755	Morrison Creek near Sacramento.....	752
Sly Creek Reservoir near Strawberry Valley.....	839	Mud Creek near Chico.....	805
Spaulding, Lake, near Emigrant Gap.....	895	Murray Creek near San Andreas.....	1006
Stampede Reservoir near Boca.....	539		
Stony Gorge Reservoir near Elk Creek.....	807	Nevada Creek near Knoxville.....	999
Success, Lake, near Success.....	580	New Bullards Bar Reservoir near North San Juan...	890
Tahoe, Lake, at Tahoe City.....	530	New Camp Far West Reservoir near Wheatland.....	922
Thomas A. Edison, Lake, near Big Creek.....	622	New Hogan Reservoir near Valley Springs.....	723
Topaz Reservoir near Topaz.....	520	North Fork Long Canyon Creek diversion tunnel near	
Tulare Lake in Kings County.....	569	Volcanoville.....	952
Tulloch Reservoir near Knights Ferry.....	715	North Fork of Middle Fork Tule River near	
Union Valley Reservoir near Riverton.....	967	Springville.....	575
Upper Twin Lake near Bridgeport.....	509	North Honcut Creek near Bangor.....	873
Whiskeytown Lake near Igo.....	785	North Shirttail Creek near Dutch Flat.....	931
Wishon Reservoir.....	603	North Yuba River, above Slate Creek, near	
Lemoncove ditch below Terminus Dam.....	595	Strawberry Valley.....	886
Lily Creek near Pinecrest.....	687	below Goodyears Bar.....	885
Little Butte Creek near Maglia.....	818	below New Bullards Bar Dam, near North San Juan.	891
Little Grass Valley Reservoir near La Porte.....	835		
Little Grizzly Creek near Genesee.....	853	Oak Run Creek near Oak Run.....	1006
Little Kern River near Quaking Aspen Camp.....	1006	Oakdale Canal near Knights Ferry.....	717
Little Last Chance Creek near Chilcoot.....	826	Onion Creek near Soda Springs.....	928
Little Stony Creek above East Park Reservoir, near		Oregon Creek, at Camptonville.....	883
Lodoga.....	806	below Log Cabin Dam, near Camptonville.....	884
Little Truckee River, above Boca Reservoir, near		Orestimba Creek near Newman.....	670
Boca.....	540	Oroville, Lake, near Oroville.....	863
at Boca.....	542	Oroville-Wyandotte Canal near Clipper Mills.....	840
near Hobart Mills.....	536	Other data available.....	503
Little Walker River near Bridgeport.....	517		
Long Canyon Creek near French Meadows.....	953	Pacific Gas and Electric Co. conduit No. 3 near	
Loon Lake near Meeks Bay.....	946	Bass Lake.....	639
Los Gatos Creek (Tulare Lake basin), above Nunez		Pacific Gas and Electric Co. lateral at intake,	
Canyon, near Coalinga.....	615	near Oroville.....	868
Lost Creek, above Sly Creek Reservoir.....	838	Palermo Canal near Oroville.....	864
near Clipper Mills.....	841	Panoche Creek below Silver Creek, near Panoche....	649
Lower Twin Lake near Bridgeport.....	509	Pardee Reservoir near Valley Springs.....	737
		Partial-record station, definition of.....	498
		discharge at.....	1003
		Pastoria Creek near Lebec.....	566
		Paynes Creek near Red Bluff.....	1006
Maclure Creek below Maclure Glacier, near			
Tuolumne Meadows.....	672		

	Page		Page
Philadelphia Canal near Strawberry.....	711	San Joaquin River, at Miller Crossing.....	617
Pilot Creek, above Stumpy Meadows Reservoir.....	949	below Friant.....	647
below Mutton Canyon, near Georgetown.....	950	below Kerckhoff powerhouse, near Prather.....	642
Pine Creek, near Susanville.....	549	near Newman.....	669
near Westwood.....	1006	near Vernalis.....	720
Pine Flat Reservoir near Piedra.....	612	South Fork, near Florence Lake.....	621
Pioneer ditch below Success Dam.....	579	San Joaquin River basin, discharge measurements	
Pit River, at Big Bend.....	771	at miscellaneous sites in.....	1007
below Pit No. 4 Dam.....	770	low-flow partial-record stations in.....	1004
near Alturas.....	760	schematic diagram of.....	616
near Bieber.....	764	Santiago Creek near Maricopa.....	1006
near Canby.....	761	Scott Camp Creek at diversion dam, near Mt Shasta.....	1005
near Lookout.....	762	Scotts Creek near Lakeport.....	983
near Montgomery Creek.....	774	Seigler Creek at Lower Lake.....	984
South Fork, near Likely.....	759	Selected references.....	505
Pit River basin, reservoirs in.....	769	Shaffer Creek near Litchfield.....	548
schematic diagram of.....	758	Shasta Lake near Redding.....	780
Pitman Creek below Tamarack Creek.....	631	Shaver Lake near Big Creek.....	633
Poorman Creek near Washington.....	905	Silver Creek (American River basin), below Camino	
Pope Creek near Pope Valley.....	1000	diversion dam.....	971
Porcupine Creek at Porcupine Flat Campgrounds,		South Fork, near Ice House.....	970
near Yosemite Village.....	1004	Silver Lake Outlet near Kirkwood.....	962
Poso Creek near Oildale.....	572	Siskiyou, Lake, near Mt Shasta.....	755
Precipitation:		Slate Creek below diversion dam, near Strawberry	
Beaver Creek near Hat Creek.....	765	Valley.....	888
Big Sandy Creek tributary near Tollhouse.....	643	Slate Creek tunnel near Strawberry Valley.....	887
Dry Creek near Dana.....	766	Sly Creek Reservoir near Strawberry Valley.....	839
Kaweah River tributary, Middle Fork, near		Smoky Jack Creek at Smoky Jack Campgrounds, near	
Hammond.....	587	Yosemite Village.....	1004
Mill Creek near Quincy.....	856	Soquel diversion near Sugar Pine.....	636
Shaffer Creek near Litchfield.....	548	South Cow Creek near Millville.....	788
Sweetland Creek near North San Juan.....	892	South Diversion Canal near Orland.....	811
Thomes Creek tributary at Paskenta.....	800	South Fork Long Canyon Creek diversion tunnel	
Wagonwheel Creek near Reward.....	564	near Volcanoville.....	951
Wellman Creek near Smartville.....	924	South Honcut Creek near Bangor.....	874
Willow Creek tributary near Susanville.....	546	South San Joaquin Canal near Knights Ferry.....	716
Prosser Creek near Boca.....	535	South Yuba Canal near Emigrant Gap.....	898
Prosser Creek Reservoir near Boca.....	534	South Yuba River, at Jones Bar, near Grass Valley.....	906
Publications.....	503	at Langs Crossing, near Emigrant Gap.....	899
Putah Creek, near Guenoc.....	995	near Cisco.....	893
near Winters.....	1002	near Washington.....	904
Pyramid Creek near Phillips.....	961	Spanish Creek above Blackhawk Creek, at Keddie.....	857
Red Bank Creek near Red Bluff.....	796	Spaulding, Lake, near Emigrant Gap.....	895
Redinger Lake near Auberry.....	634	Special networks and programs.....	498
Redwood Creek above Mineral King Highway, near		Spring Creek powerplant at Keswick.....	784
Hammond.....	1004	Squaw Creek above Shasta Lake.....	1006
References, selected.....	505	Squirrel Creek below Mineral King Highway, near	
Reservoirs. See Lakes and reservoirs.		Hammond.....	1004
Richvale Canal at intake, near Oroville.....	867	Stage-discharge relation, definition of.....	498
Robbs Peak powerplant near Kyburz.....	945	Stampede Reservoir near Boca.....	539
Robinson Creek at Twin Lakes outlet, near		Stanislaus River, at Ripon.....	719
Bridgeport.....	510	below Goodwin Dam, near Knights Ferry.....	718
Rock Creek at Dinkey Creek.....	607	Clark Fork, near Dardanelle.....	700
Rollins Reservoir near Colfax.....	919	Middle Fork, at Hells Half Acre Bridge.....	702
Rubicon River, at Rubicon Springs, near Meeks Bay.....	941	at Kennedy Meadows, near Dardanelle.....	699
below Hell Hole Reservoir, near Meeks Bay.....	944	below Beardsley Dam.....	704
near Foresthill.....	954	near Hathaway Pines.....	708
South Fork, below Gerle Creek, near Georgetown.....	948	North Fork, below Silver Creek.....	705
Rubicon River basin, schematic diagram of.....	933	near Avery.....	707
Rubicon-Rockbound tunnel near Meeks Bay.....	940	South Fork, at Strawberry.....	710
Sacramento River, above Bend Bridge, near Red		near Long Barn.....	713
Bluff.....	795	Stanislaus River basin, schematic diagram of.....	698
above Lake Siskiyou, near Mt Shasta.....	1004	Stone Corral Creek near Sites.....	823
at Butte City.....	815	Stony Creek, below Black Butte Dam, near Orland.....	813
at Colusa.....	816	near Fruto.....	809
at Delta.....	757	near Hamilton City.....	814
at Keswick.....	781	North Fork, near Neville.....	810
at Knights Landing.....	824	Stony Gorge Reservoir near Elk Creek.....	807
at Sacramento.....	979	Sucker Run near Forbestown.....	846
at Shasta Retreat, near Dunsmuir.....	1005	Susan River at Susanville.....	545
at Soda Creek road, near Dunsmuir.....	1005	Sutter-Butte Canal near Oroville.....	869
at Verona.....	926	Sutter Creek near Sutter Creek.....	743
below Wilkins Slough, near Grimes.....	820	Swager Creek near Bridgeport.....	512
near Mt Shasta.....	756	Sweetland Creek near North San Juan.....	892
Sacramento River basin, crest-stage stations in.....	1006	Sycamore Creek above Pine Flat Reservoir, near	
discharge measurements at miscellaneous sites in.....	1009	Trimmer.....	611
low-flow partial-record stations in.....	1004	Tamarack Creek at Tamarack Flat Campground, near	
Sacramento Weir spill to Yolo Bypass, near		El Portal.....	1004
Sacramento.....	927	Taylor Creek near Tahoe Valley.....	527
Sagehen Creek near Truckee.....	538	Tehachapi Creek near Tehachapi.....	568
Salt Springs Reservoir near West Point.....	728	Thermalito Afterbay near Oroville.....	865
San Antonio Creek near San Andreas.....	1006	Thermalito Afterbay release to Feather River near	
San Domingo Creek near San Andreas.....	1006	Oroville.....	870
San Emigdio Creek at San Emigdio Ranchhouse.....	565	Thomas A. Edison, Lake, near Big Creek.....	623
San Joaquin River, above Shakeflat Creek, near		Thomes Creek at Paskenta.....	801
Big Creek.....	627	Thomes Creek tributary at Paskenta.....	800
above Willow Creek, near Auberry.....	635	Tiger Creek powerhouse conduit below Salt	
at Fremont Ford Bridge.....	656	Springs Dam.....	729
		Topaz Reservoir near Topaz.....	520

	Page		Page
Trout Creek near Tahoe Valley.....	529	Walker Creek at Artois.....	822
Truckee River, at Farad.....	543	Ward tunnel intake at Florence Lake.....	619
at Reno, Nev.....	544	Ward tunnel outlet at Huntington Lake.....	628
at Tahoe City.....	531	Wellman Creek near Smartville.....	924
Tulare Lake basin, crest-stage stations in.....	1006	West Walker River, at Hoyo Bridge, near	
low-flow partial-record stations in.....	1003	Wellington, Nev.....	521
reservoirs in.....	603	below Little Walker River, near Coleville.....	518
Tulare Lake in Kings County.....	569	near Coleville.....	519
Tule River, below Success Dam.....	581	Western Canal at intake, near Oroville.....	866
near Springville.....	577	Whiskeytown Lake near Igo.....	785
North Fork, of Middle Fork, near Springville....	576	Willow Creek (Honey Lake basin) near	
South Fork, near Success.....	578	Susanville.....	547
Tule River basin, schematic diagram of.....	574	Willow Creek (Sacramento River basin), South Fork,	
Tulloch Reservoir near Knights Ferry.....	715	near Fruto.....	821
Tuolumne Canal near Long Barn.....	712	Willow Creek (tributary to San Joaquin River), at	
Tuolumne River, above La Grange Dam, near		mouth, near Auberry.....	641
La Grange.....	694	North Fork, near Bass Lake.....	640
at Modesto.....	697	near Sugar Pine.....	637
below Early Intake, near Mather.....	677	Willow Creek tributary near Susanville.....	546
near Hetch Hetchy.....	676	Wishon Reservoir, contents of.....	603
North Fork, near Long Barn.....	692	Woodbridge Canal at Woodbridge.....	740
South Fork, near Oakland Recreation Camp.....	685	WRD, definition of.....	498
Tuolumne River basin, schematic diagram of.....	673	WSP, definition of.....	498
Turlock Canal near La Grange.....	696		
		Yolo Bypass near Woodland.....	993
Union Valley Reservoir near Riverton.....	967	Yosemite Creek at Yosemite Creek Campgrounds,	
Upper Truckee River near Meyers.....	525	near Yosemite Village.....	1004
Upper Twin Lake near Bridgeport.....	509	Yuba River, below Englebright Dam, near	
		Smartville.....	907
Virginia Creek near Bridgeport.....	507	near Marysville.....	910
Wagon Creek near Mt Shasta.....	1005	Yuba River basin, schematic diagram of.....	876
Wagonwheel Creek near Reward.....	564	Zapato Chino Creek near Avenal.....	1006











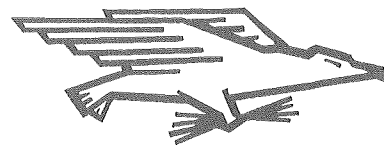








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