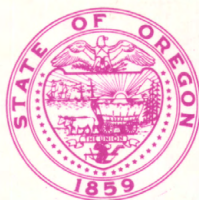
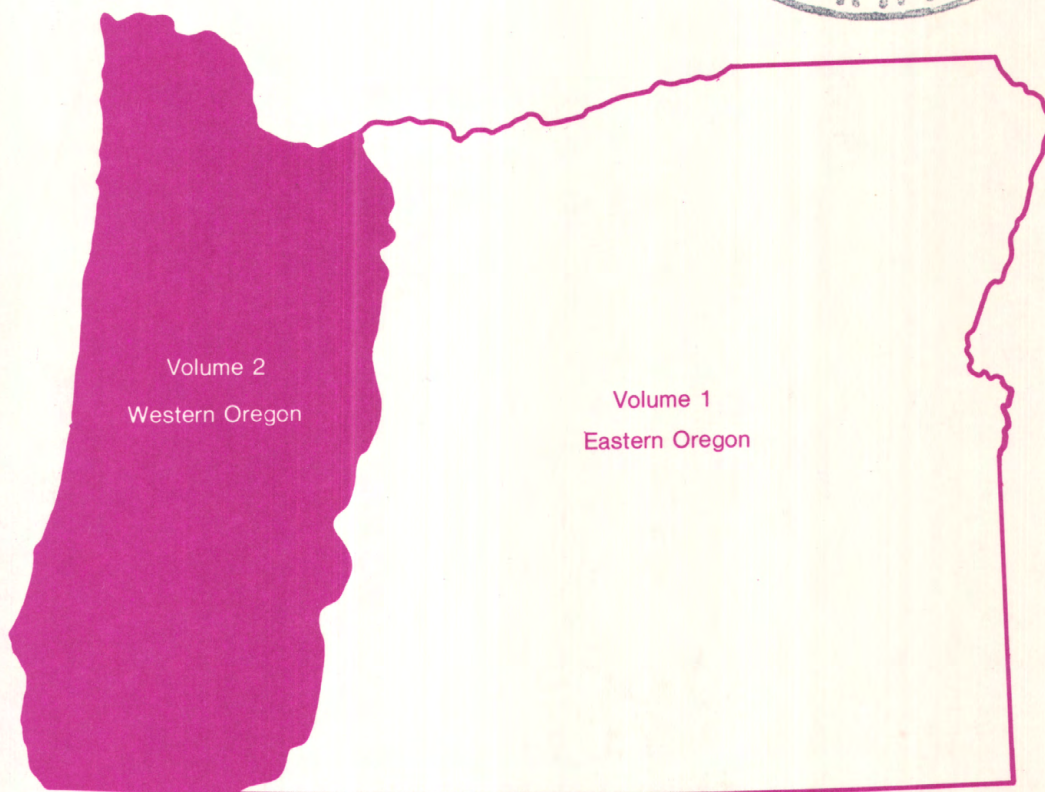
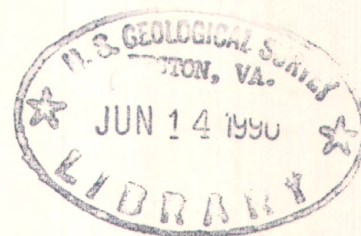


R
(200)
Ga3
Oregon
1989
2



Water Resources Data Oregon Water Year 1989

Volume 2. Western Oregon



Volume 2
Western Oregon

Volume 1
Eastern Oregon

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT OR-89-2
Prepared in cooperation with the Oregon Water Resources
Department and with other agencies

[illegible][illegible]

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

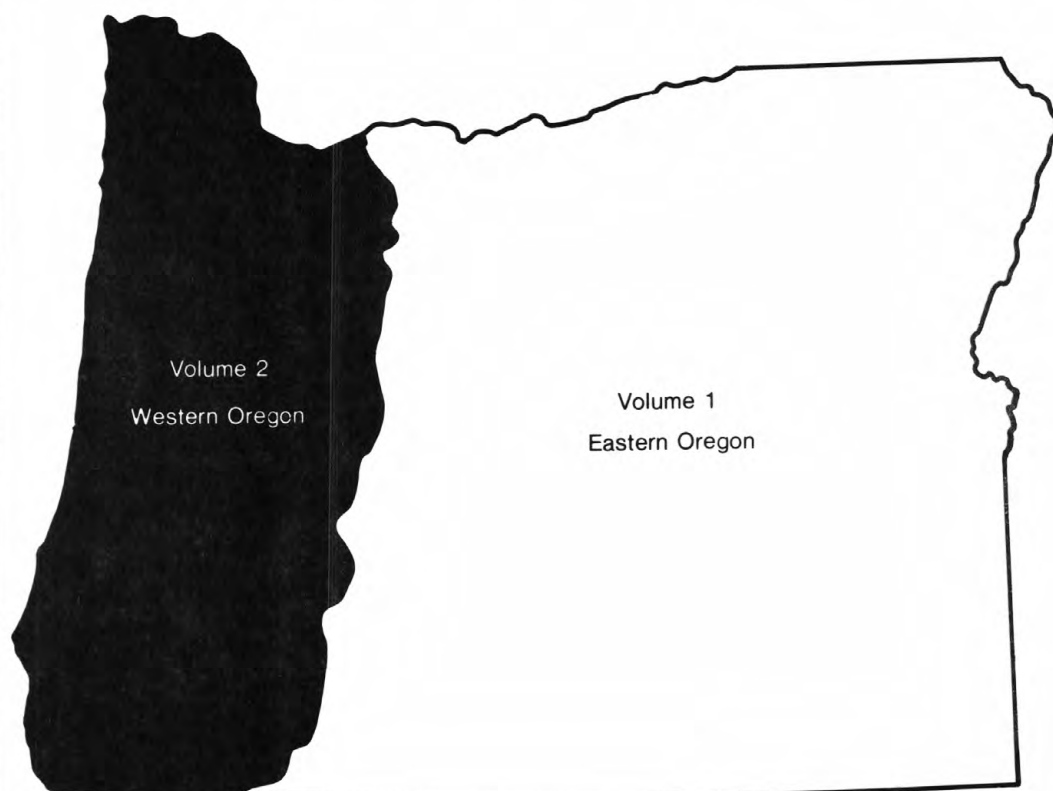
[illegible][illegible]



Water Resources Data Oregon Water Year 1989

Volume 2. Western Oregon

by L.E. Hubbard, T.A. Herrett, R.L. Kraus, and R.L. Moffatt



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT OR-89-2
Prepared in cooperation with the Oregon Water Resources
Department and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

MANUEL LUJAN, JR., Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For additional information write to:

State Chief, Oregon Office
Water Resources Division
U.S. Geological Survey
10615 S. E. Cherry Blossom Drive
Portland, Oregon 97216

1990

PREFACE

This volume of the annual Oregon hydrologic data report is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data-collection networks in each State, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, and quality of water provide the hydrologic information needed by State, local and Federal agencies, and the private sector for developing and managing our Nation's land and water resources. Hydrologic data for Oregon are contained in two volumes as follows:

Volume 1: Eastern Oregon
Volume 2: Western Oregon

The report is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey who collected, compiled, analyzed, verified, and organized the data, and who edited and assembled the reports. In addition to the authors, who had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to Geological Survey policy and established guidelines, the following individuals contributed significantly to the collection, processing, and tabulation of the data:

Charles J. Bartholet	William A. Hart	Jacqueline C. Olson
Gilbert C. Bortleson	Richard A. Hollway	James K. Parham
Milo D. Crumrine	Jon G. House	Donita J. Parker
Douglas O. Cushman	Larry L. Hubbard	James E. Poole
Jack D. Doyle	Richard L. Kittelson	Earl L. Skinner
Thomas K. Edwards	Carl G. Kroll	Margaret L. Smith
Frederick R. Engelmann	Juliya M. Laenen	Timothy N. Tanada
Patricia J. Fiedler	Karl K. Lee	Roger S. Tippet
Michael A. Gentile	Gary S. Lipari	Mary J. Warwick
Janice M. Gordon	James L. Moffett	Roy E. Wellman
Brenda L. Groskinsky	Melanie A. North	Holly S. Zogg
Steven A. Gustafson	Gregory W. Olsen	

This report was prepared in cooperation with the State of Oregon and with other agencies under the general supervision of Marvin O. Fretwell, State Chief, Oregon Office, Garald G. Parker, Jr., Pacific Northwest District Chief, and T. John Conomos, Regional Hydrologist, Western Region.

REPORT DOCUMENTATION PAGE		1. REPORT NO. USGS/WRD/HD-90/269	2.	3. Recipient's Accession No.
4. Title and Subtitle Water Resources Data for Oregon Water Year 1989 Volume 2. Western Oregon			5. Report Date March 1990	
			6.	
7. Author(s)			8. Performing Organization Rept. No. USGS-WDR-OR-89-2	
9. Performing Organization Name and Address U.S. Geological Survey, Water Resources Division 10615 S.E. Cherry Blossom Drive Portland, Oregon 97216			10. Project/Task/Work Unit No.	
			11. Contract(C) or Grant(G) No. (C) (G)	
			12. Sponsoring Organization Name and Address U.S. Geological Survey, Water Resources Division 10615 S.E. Cherry Blossom Drive Portland, Oregon 97216	
13. Type of Report & Period Covered Annual - Oct. 1, 1988 to Sept. 30, 1989			14.	
15. Supplementary Notes Prepared in cooperation with the State of Oregon and with other agencies.				
16. Abstract (Limit: 200 words) Water Resources Data for the 1989 water year for Oregon consist of records of stage, discharge, and water quality of streams; and stage, contents, and water quality of lakes and reservoirs. This report, in two volumes, contains discharge records for 251 gaging stations; stage only records for 7 gaging stations; stage and contents for 39 lakes and reservoirs; water quality for 43 stations, and water quality for 3 precipitation stations. Also included are 5 crest-stage, partial-record stations. Additional water data were collected at various sites, not part of the systematic data collection program, and are published as miscellaneous measurements. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in Oregon.				
17. Document Analysis a. Descriptors *Oregon, *Hydrologic Data, *Surface water, *Water quality, *Gaging stations, Flow rate, Lakes, Reservoirs, Chemical analyses, Sediment, Water temperatures, Sampling sites, Water analyses. b. Identifiers/Open-Ended Terms c. COSATI Field/Group				
18. Availability Statement: No restriction on distribution This report may be purchased from: National Technical Information Service Springfield, VA 22161		19. Security Class (This Report) UNCLASSIFIED		21. No. of Pages 326
		20. Security Class (This Page) UNCLASSIFIED		22. Price

CONTENTS

	Page
Preface.....	III
List of gaging stations, in downstream order, for which records are published.....	VII
Introduction.....	1
Cooperation.....	2
Summary of hydrologic conditions.....	2
Surface water.....	2
Surface-water conditions.....	3
Special networks and programs.....	4
Explanation of the records.....	4
Station identification numbers.....	5
Downstream order system.....	5
Records of stage and water discharge.....	5
Data collection and computation.....	6
Data presentation.....	7
Identifying estimated daily discharge.....	9
Accuracy of the records.....	9
Other records available.....	10
Records of surface-water quality.....	10
Classification of records.....	10
Arrangement of records.....	11
On-site measurements and sample collection.....	11
Water temperature.....	12
Sediment.....	12
Laboratory measurements.....	13
Data presentation.....	13
Remark codes.....	14
Access to WATSTORE data.....	14
Definition of terms.....	15
Publications on Techniques of Water-Resources Investigations.....	26
Gaging station records.....	33
Chemical quality of precipitation.....	307
Discharge at partial-record stations and miscellaneous sites.....	309
Crest-stage partial-record stations.....	309
Miscellaneous sites.....	310
Index.....	313

	Page
Figure 1. Comparison of discharge at two long-term representative gaging stations during 1989 water year with median discharge for water years 1951-80:	
a. Eastern Oregon.....	29
b. Western Oregon.....	30
Location of surface-water and water-quality stations in the:	
2. Lower Deschutes River, Middle and Lower Columbia River, and Sandy River basins.....	32
3. Willamette River, upstream from the Luckiamute River, and McKenzie River basins.....	71
4. Santiam River, Willamette River, downstream from the Luckiamute River, Yamhill River, Molalla-Pudding River, Tualatin River, and Clackamas River basins.....	125
5. Oregon Coastal Drainages north of the Siuslaw River basin.....	179
6. Umpqua River, Coos River, and Coquille River basins.....	201
7. Rogue River, Applegate River, Illinois River, and Chetco River basins.....	244

TABLES

Table 1. Comparison of peak discharge for the 1989 water year with peak discharge for the period of record at long-term stations.....	3
---	---

GAGING STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED

VII

NOTE.--Data for chemical quality of precipitation, partial-record stations, and miscellaneous sites are published in separate sections of the data report. See references at the end of this list of page numbers for these sections.

Letter after station name designates type of data: (d) discharge; (e) elevation; (g) gage height; (v) contents; (c) chemical, including periodic biological, microbiological, sediment, pesticide, and radio-chemical where applicable; (s) daily suspended sediment; (t) water temperature; and (k) specific conductance.

	Page
COLUMBIA RIVER BASIN	
LOWER COLUMBIA RIVER BASIN	
Columbia River below Bonneville Dam (g).....	33
Columbia River at Warrendale (c,k,t).....	35
SANDY RIVER BASIN	
Zigzag River near Rhododendron (d).....	41
Salmon River near Government Camp (d).....	42
Sandy River near Marmot (d).....	43
Blazed Alder Creek near Rhododendron (d).....	44
Bull Run River near Multnomah Falls (d,k,t).....	45
Fir Creek near Brightwood (d,k,t).....	50
North Fork Bull Run River near Multnomah Falls (d,k,t).....	55
Bull Run Reservoir Number One near Bull Run (e).....	60
South Fork Bull Run River:	
Cedar Creek near Brightwood (d).....	61
South Fork Bull Run River near Bull Run (d,k,t).....	62
Bull Run Reservoir Number Two near Bull Run (e).....	67
Bull Run River near Bull Run (d).....	68
Little Sandy River near Bull Run (d).....	69
Sandy River below Bull Run River, near Bull Run (d).....	70
WILLAMETTE RIVER BASIN	
MIDDLE FORK WILLAMETTE RIVER BASIN	
Middle Fork Willamette River near Oakridge (d).....	72
Hills Creek Lake near Oakridge (e).....	73
Middle Fork Willamette River above Salt Creek, near Oakridge (d,t).	74
Salmon Creek near Oakridge (d).....	77
North Fork of Middle Fork Willamette River near Oakridge (d).....	78
Middle Fork Willamette River below North Fork, near Oakridge (d)...	79
Lookout Point Lake near Lowell (e).....	80
Middle Fork Willamette River near Dexter (d,t).....	81
Fall Creek near Lowell (d).....	84
Fall Creek Lake near Lowell (e).....	85
Fall Creek below Winberry Creek, near Fall Creek (d,t).....	86
Middle Fork Willamette River at Jasper (d).....	89

VIII GAGING STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED

Page

COLUMBIA RIVER BASIN--Continued

LOWER COLUMBIA RIVER BASIN--Continued

WILLAMETTE RIVER BASIN--Continued

COAST FORK WILLAMETTE RIVER BASIN

Cottage Grove Lake near Cottage Grove (e).....	90
Coast Fork Willamette River below Cottage Grove Dam (d).....	91
Row River above Pitcher Creek, near Dorena (d).....	92
Dorena Lake near Cottage Grove (e).....	93
Row River near Cottage Grove (d).....	94
Coast Fork Willamette River near Goshen (d).....	95

MCKENZIE RIVER BASIN

McKenzie River at Outlet of Clear Lake (d).....	96
Smith River above Smith River Reservoir, near Belknap Springs (d).....	97
Smith River Reservoir near Belknap Springs (e,v).....	98
McKenzie River below Trail Bridge Dam, near Belknap Springs (d).....	99
McKenzie River at McKenzie Bridge (d).....	100
Cougar Lake near Rainbow (e).....	101
South Fork McKenzie River near Rainbow (d,t).....	102
Blue River below Tidbits Creek, near Blue River (d).....	105
Lookout Creek near Blue River (d).....	106
Blue River Lake near Blue River (e).....	107
Blue River at Blue River (d,t).....	108
McKenzie River near Vida (d).....	111
Gate Creek at Vida (d).....	112
Mohawk River near Springfield (d).....	113
Willamette River at Harrisburg (d).....	114
Long Tom River near Noti (d).....	115
Fern Ridge Lake near Elmira (e).....	116
Long Tom River near Alvadore (d).....	117
Long Tom River at Monroe (d).....	118
Calapooia River at Holley (d,t).....	119
Calapooia River at Albany (t).....	122
Willamette River at Albany (d).....	124

SANTIAM RIVER BASIN

NORTH SANTIAM RIVER BASIN

North Santiam River (Head of Santiam River) below Boulder Creek, near Detroit (d).....	126
East Humbug Creek near Detroit (d).....	127
Detroit Lake near Detroit (e).....	128
North Santiam River at Niagara (d,t).....	129
Little North Santiam River near Mehama (d).....	132
North Santiam River at Mehama (d).....	133

COLUMBIA RIVER BASIN--Continued	
LOWER COLUMBIA RIVER BASIN--Continued	
WILLAMETTE RIVER BASIN--Continued	
SANTIAM RIVER BASIN--Continued	
SOUTH SANTIAM RIVER BASIN	
South Santiam River below Cascadia (d).....	134
Middle Santiam River near Upper Soda (d).....	135
Quartzville Creek near Cascadia (d).....	136
Green Peter Lake near Foster (e).....	137
Foster Lake at Foster (e).....	138
Wiley Creek near Foster (d).....	139
South Santiam River near Foster (d,t).....	140
South Santiam River at Waterloo (d).....	143
Santiam River at Jefferson (d).....	144
Luckiamute River near Suver (d).....	145
Willamette River at Salem (d).....	146
YAMHILL RIVER BASIN	
South Yamhill River (Head of Yamhill River) near Willamina (d).....	147
Willamina Creek near Willamina (d).....	148
South Yamhill River near Whiteson (d).....	149
North Yamhill River near Fairdale (d).....	150
Haskins Creek Reservoir near McMinnville (e,v).....	151
Haskins Creek below Reservoir, near McMinnville (d).....	152
MOLALLA-PUDDING RIVER BASIN	
Molalla River above Pine Creek, near Wilhoit (d).....	153
TUALATIN RIVER BASIN	
Henry Hagg Lake near Gaston (e,v).....	154
Scoggins Creek below Henry Hagg Lake, near Gaston (d).....	155
Tualatin River near Dilley (d).....	156
Oswego Canal near Lake Oswego (d).....	157
Tualatin River at West Linn (d,c).....	158
Willamette River above Falls, at Oregon City (g).....	161
Willamette River below Falls, at Oregon City (g).....	162
CLACKAMAS RIVER BASIN	
Timothy Lake near Government Camp (e,v).....	164
Oak Grove Fork near Government Camp (d).....	165
Oak Grove Fork above Powerplant Intake (d).....	166
Clackamas River above Three Lynx Creek (d).....	167
Clackamas River at Estacada (d).....	168
Clackamas River near Clackamas (g).....	169
LOWER WILLAMETTE RIVER BASIN	
Johnson Creek at Sycamore (d).....	170
Johnson Creek at Milwaukie (d).....	171
Willamette River at Portland (d,c).....	172
COWLITZ RIVER BASIN	
Cowlitz River at Longview, Wash. (g).....	175
Columbia River at Longview, Wash. (g).....	177

X GAGING STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED

	Page
PACIFIC SLOPE BASINS IN OREGON	
NEHALEM RIVER BASIN	
Nehalem River near Foss (d,c).....	180
WILSON RIVER BASIN	
Wilson River near Tillamook (d).....	183
NESTUCCA RIVER BASIN	
McGuire Lake near Fairdale (e,v).....	184
Nestucca River near Fairdale (d).....	185
Tucca Creek near Blaine (d).....	186
Nestucca River near Beaver (d).....	187
SILETZ RIVER BASIN	
Sunshine Creek near Valsetz (d).....	188
Rock Creek:	
Big Rock Creek near Valsetz (d).....	189
Siletz River at Siletz (d).....	190
YAQUINA RIVER BASIN	
Yaquina River near Chitwood (d).....	191
ALSEA RIVER BASIN	
North Fork Alsea River at Alsea (d).....	192
Five Rivers:	
Lobster Creek:	
East Fork Lobster Creek near Alsea (d).....	193
Five Rivers near Fisher (d).....	194
Alsea River near Tidewater (d).....	195
BIG CREEK BASIN	
Big Creek near Roosevelt Beach (d).....	196
SIUSLAW RIVER BASIN	
Deadwood Creek:	
Lake Creek near Deadwood (d).....	197
Siuslaw River near Mapleton (d,c).....	198
UMPQUA RIVER BASIN	
SOUTH UMPQUA RIVER BASIN	
South Umpqua River at Tiller (d).....	202
Elk Creek near Drew (d).....	203
South Umpqua River at Days Creek (d).....	204
Cow Creek above Galesville Reservoir, near Azalea (d).....	205
Galesville Reservoir near Azalea (e).....	206
Cow Creek near Azalea (d,c).....	207
West Fork Cow Creek near Glendale (d).....	210
Cow Creek near Riddle (d).....	211
Lookingglass Creek at Brockway (d).....	212
South Umpqua River near Brockway (d).....	213
South Umpqua River near Roseburg (c,k,t).....	214
NORTH UMPQUA RIVER BASIN	
Lemolo Lake near Toketee Falls (e,v).....	225
North Umpqua River below Lemolo Lake, near Toketee Falls (d).....	226
Clearwater River above Trap Creek, near Toketee Falls (d).....	227
Fish Creek at Big Camas Ranger Station, near Toketee Falls (d)...	228
North Umpqua River above Copeland Creek, near Toketee Falls (d)....	229
Steamboat Creek near Glide (d).....	230
Little River at Peel (d).....	231

PACIFIC SLOPE BASINS IN OREGON--Continued

UMPQUA RIVER BASIN--Continued

NORTH UMPQUA RIVER BASIN--Continued

North Umpqua River at Winchester (d,t).....	232
---	-----

Calapooya Creek:

Gassy Creek near Nonpareil (d).....	235
-------------------------------------	-----

Calapooya Creek near Oakland (d).....	236
---------------------------------------	-----

Umpqua River near Elkton (d,t).....	237
-------------------------------------	-----

Elk Creek near Elkhead (d).....	240
---------------------------------	-----

COOS RIVER BASIN

Pony Creek at Coos Bay (d).....	241
---------------------------------	-----

COQUILLE RIVER BASIN

South Fork Coquille River at Powers (d).....	243
--	-----

ROGUE RIVER BASIN

UPPER ROGUE RIVER BASIN

Rogue River above Prospect (d).....	245
-------------------------------------	-----

Rogue River below Prospect (d,t).....	246
---------------------------------------	-----

South Fork Rogue River near Prospect (d).....	249
---	-----

South Fork Rogue River, south of Prospect (d,t).....	250
--	-----

Lost Creek Lake near McLeod (e).....	253
--------------------------------------	-----

Rogue River at McLeod (t).....	254
--------------------------------	-----

South Fork Big Butte Creek above Willow Creek, near Butte Falls (d)	256
---	-----

South Fork Big Butte Creek near Butte Falls (d).....	257
--	-----

Big Butte Creek near McLeod (d,t).....	258
--	-----

Rogue River near McLeod (d,t).....	261
------------------------------------	-----

Elk Creek near Cascade Gorge (d,t).....	264
---	-----

Elk Creek below Alco Creek, near Trail (d,t).....	267
---	-----

West Branch Elk Creek near Trail (d,t).....	270
---	-----

Elk Creek near Trail (d,t).....	273
---------------------------------	-----

Rogue River at Trail (t).....	276
-------------------------------	-----

Rogue River at Dodge Bridge, near Eagle Point (d,t).....	278
--	-----

Little Butte Creek:

North Fork Little Butte Creek at Fish Lake, near Lakecreek (d)...	281
---	-----

MIDDLE ROGUE RIVER BASIN

Bear Creek at Medford (d).....	282
--------------------------------	-----

Rogue River at Raygold, near Central Point (d,t).....	283
---	-----

Rogue River at Grants Pass (d).....	286
-------------------------------------	-----

APPLEGATE RIVER BASIN

Applegate Lake near Copper (e).....	287
-------------------------------------	-----

Applegate River near Copper (d,t).....	288
--	-----

Star Gulch near Ruch (d).....	291
-------------------------------	-----

Applegate River near Applegate (d,t).....	292
---	-----

Applegate River near Wilderville (d,t).....	295
---	-----

LOWER ROGUE RIVER BASIN

Grave Creek at Pease Bridge, near Placer (d).....	298
---	-----

Rogue River near Agness (d,c).....	299
------------------------------------	-----

XII GAGING STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED

	Page
PACIFIC SLOPE BASINS IN OREGON--Continued	
ROGUE RIVER BASIN--Continued	
LOWER ROGUE RIVER BASIN--Continued	
ILLINOIS RIVER BASIN	
East Fork Illinois River (Head of Illinois River) near	
Takilma (d).....	302
Sucker Creek below Little Grayback Creek, near Holland (d).....	303
West Fork Illinois River:	
Elk Creek near O'Brien (d).....	304
Illinois River near Kerby (d).....	305
CHETCO RIVER BASIN	
Chetco River near Brookings (d).....	306
Chemical quality of precipitation.....	307
Crest-stage partial-record stations.....	309
Discharge at miscellaneous sites.....	310

WATER RESOURCES DATA FOR OREGON 1989

INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with state agencies, obtains a large amount of data pertaining to the water resources of Oregon each water year. These data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of the State. To make these data readily available to interested parties outside the Geological Survey, the data are published annually in this report series entitled "Water Resources Data - Oregon."

This report includes records on surface water in the State. Specifically, it contains: (1) Discharge records for 251 stream-gaging stations, stage only records for 7 gaging stations, 20 partial-record or miscellaneous streamflow stations, and 5 crest-stage, partial-record streamflow stations; (2) stage and content records for 39 lakes and reservoirs; and (3) water-quality records for 38 streamflow-gaging stations and 5 ungaged streamsites.

This series of annual reports for Oregon began with the 1961 water year with a report that contained only data relating to the quantities of surface water. For the 1964 water year, a similar report was introduced that contained only data relating to water quality. Beginning with the 1975 water year, the report format was changed to present, in one or two volumes, data on quantities of surface water, quality of surface and ground water, and ground-water levels. In 1981, the annual report was divided into two volumes: Volume 1 described the activities for Eastern Oregon, while Volume 2 described the activities for Western Oregon. Beginning with the 1985 water year, presentation of ground-water levels in this report was discontinued.

Prior to introduction of this series and for several water years concurrent with it, water-resources data for Oregon were published in U.S. Geological Survey Water-Supply Papers. Data on stream discharge and stage and on lake or reservoir contents and stage, through September 1960, were published annually under the title "Surface-Water Supply of the United States, Parts 10, 11, 13, and 14." For the 1961 through 1970 water years, the data were published in two 5-year reports. Data on chemical quality, temperature, and suspended sediment for the 1941 through 1970 water years were published annually under the title "Quality of Surface Waters of the United States," and water levels for the 1935 through 1974 water years were published under the title "Ground-Water Levels in the United States." These Water-Supply Papers may be consulted in the libraries of the principal cities of the United States and may be purchased from Distribution Branch, Text Products Section, U.S. Geological Survey, 604 South Pickett Street, Alexandria, VA 22304.

Publications similar to this report are published annually by the Geological Survey for all states. These official Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this report is identified as "U.S. Geological Survey Water-Data Report OR-89-1" and "U.S. Geological Survey Water-Data Report OR-89-2." For archiving and general distribution, the reports for 1971-74 water years also are identified as water-data reports. These water-data reports are for sale in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the Office Chief at the address given on back of title page or by telephone (503) 231-2009.

COOPERATION

The U.S. Geological Survey and organizations of the State of Oregon have had cooperative agreements for the systematic collection of surface-water records since 1905. Organizations that supplied data are acknowledged in station descriptions. Organizations that assisted in collecting data through cooperative agreements with the Survey are:

State of Oregon Water Resources Department, W. F. Young, Director.
State of Oregon Department of Fish and Wildlife, Randy Fisher, Director.
Coos Bay-North Bend Water Board, P. A. Matson, General Manager.
Eugene Water and Electric Board, J. R. Reeder, General Manager.
Douglas County, M. J. Youngquist, Coordinator.
City of McMinnville, J. L. Harshman, General Manager.
City of Portland, Bureau of Water Works, Edward Tenny, Administrator.
The Confederated Tribes of the Umatilla Indian Reservation,
E. H. Patawa, Chairman, Board of Trustees.
The Confederated Tribes of the Warm Springs Indian Reservation,
Zane Jackson, Chairman of Tribal Council.

Assistance in the form of funds or services was provided by the Forest Service, U.S. Department of Agriculture; Corps of Engineers, U.S. Army; Bonneville Power Administration, U.S. Department of Energy; Bureau of Land Management, Bureau of Reclamation, Fish and Wildlife Service, National Park Service, U.S. Department of the Interior in collection of records for stage and discharge stations and water-quality stations published in this report.

The following organizations aided in collecting records for stations under Federal Energy Regulatory Commission licenses: Eugene Water & Electric Board; Pacific Power & Light Co.; Portland General Electric Co.; Middle Fork Irrigation District; Idaho Power Co., Idaho.

SUMMARY OF HYDROLOGIC CONDITIONS

Surface Water

The hydrology of Oregon is influenced by five mountain ranges with the Cascade Range providing a natural division between western and eastern Oregon. These ranges divide the state into drainage basins and greatly affect the distribution of precipitation. Hydrologic patterns are generally uniform from drainage basin to drainage basin throughout western Oregon; whereas in eastern Oregon, hydrologic patterns vary widely between drainage basins.

Western Oregon, which composes about one-third of the total area of the state, has a climate characterized by moderate temperatures, wet winters, and dry summers. About 80 percent of the precipitation occurs between October and March. Annual precipitation ranges from about 20 inches per year in the lower elevations in the southern part of the area to about 200 inches per year in the Coast and Cascade Ranges. In general, streamflow characteristics are similar, with most of the runoff and flooding on both large and small streams being caused by winter rains. Major floods have occurred when winter rains combine with melting snow.

Eastern Oregon has more complex hydrologic patterns than western Oregon. Precipitation is less than 10 inches per year in the semiarid regions, such as parts of the north-central area, the closed basin in south-central Oregon, and southeastern Oregon. The northeastern part of the state receives as much as 80 inches of precipitation per year, much of it occurring as snowfall. On large streams, flooding can result from winter rains and (or) seasonal snowmelt; in smaller drainage basins, flooding can result from winter rains, seasonal snowmelt, and convection storms.

Surface-water Conditions

Average precipitation and snowpack resulted in near-normal streamflow for the 1989 water year, a departure from the two previous years of below-normal conditions.

Precipitation averaged near normal across the Pacific Northwest during the 1989 water year. Despite below-average precipitation during midyear, greater-than-normal precipitation during the latter half of the year resulted in the year's total precipitation being normal.

Temperatures across the Pacific Northwest were also near normal during the 1989 water year. A cold, dry, spell during the first two weeks of February set new record minimum temperatures at numerous weather stations.

The average Columbia Basin snowpack remained near or slightly below average throughout the 1989 accumulation season, representing a significant improvement over conditions for the past three years. Snow-accumulation season began in November. As of January 1, the snow water equivalent ranged from 100 percent of average in the Deschutes River basin to 180 percent of average in the Owyhee River basin. Snowmelt season, which began in April, found all basins in Oregon reporting above-average conditions.

In southeastern Oregon, streamflow at the Donner Und Blitzen River near Frenchglen (10396000) began the water year with flows ranging from slightly below normal to near normal. Outside of the snowmelt runoff season, flows were near average. The runoff during the snowmelt months of March through May were 190 percent of the 30-year median (1951-80 water years). The mean annual flow for this stream was 133 percent of the 30-year median. The Williamson River in south-central Oregon followed a similar pattern; flows were below the 30-year median value through February. During the months of March and April, flows were above the 30-year median. Beginning with May, flows returned to the normal to below-normal range and continued in this range for the remainder of the water year. The mean annual flow for the Williamson River near Chiloquin gage (11502500) was 93 percent of the 30-year median. Monthly and annual mean discharges for these two gages are compared with the 30-year medians in figure 1a.

West of the Cascades, streamflow followed the same general pattern, with the exception of November, which was above normal. The Wilson River near Tillamook (14301500) mean annual flow was 86 percent of the 30-year median. The mean annual flow for the Umpqua River near Elkton (14321000) was 91 percent of the 30-year median. Figure 1b compares the 1989 water year monthly and annual mean discharges to the 30-year median values for these two sites.

Peak discharges for the 1989 water year at selected Oregon sites are shown in Table 1. No new peaks of record were established at long-term gaging stations during the water year.

Table 1.--Comparison of peak discharge for the 1989 water year with peak discharge for the period of record at long-term stations

Station number	Station name	Drainage area (mi ²)	Peak discharge 1989 water year Date	ft ³ /s	Exceedance probability	Peak discharge period of record Date	ft ³ /s
10396000	Donner und Blitzen River near Frenchglen	a200	Mar. 9	3,450	.03	Apr. 26, 1978	4,270
11502500	Williamson River below Sprague River, near Chiloquin	a3,000	Mar. 14	5,290	.17	Dec. 26, 1964	16,100
13181000	Owyhee River near Rome	a8,000	Mar. 10	24,300	---	Feb. 19, 1986	41,400
13214000	Malheur River near Drewsey	a910	Mar. 11	3,550	.23	Dec. 23, 1964	12,000
13331500	Minam River at Minam	a240	June 15	2,930	.59	June 16, 1974	6,260
14048000	John Day River at McDonald Ferry	a7,580	May 11	21,600	.13	Dec. 24, 1964	42,800
14137000	Sandy River near Marmot	262	Jan. 9	20,900	.23	Dec. 22, 1964	61,400
14178000	North Santiam River below Boulder Creek, near Detroit	216	Nov. 22	5,670	.71	Dec. 22, 1964	26,700
14301000	Nehalem River near Foss	667	Jan. 10	b14,400	.99	Jan. 20, 1972	46,900
14321000	Umpqua River near Elkton	3,683	Jan. 10	100,000	.47	Dec. 23, 1964	265,000
14325000	South Fork Coquille River at Powers	169	Nov. 22	12,000	.66	Dec. 22, 1964	48,900

a Approximately.

b Estimate based on hydrologic comparison with nearby stations.

NOTE.--Exceedance probability refers to the probability that an event will exceed a specific magnitude in a given time period. A flow of 200 ft³/s with an exceedance probability of 0.5 means that there is a 50 percent chance that the flow will exceed 200 ft³/s in any one year.

WATER RESOURCES DATA FOR OREGON 1989

SPECIAL NETWORKS AND PROGRAMS

Hydrologic Bench-Mark Network is a network of more than 50 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in national or regional water-quality planning and management. The several hundred sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objective of NASQAN is to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting. The design of the network is intended to provide data for (1) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (2) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (3) a nationally consistent data base useful for water-quality assessment and hydrologic research.

The National Trends Network (NTN) is a 150 station network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Tritium network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

EXPLANATION OF THE RECORDS

The surface-water records published in this report are for the 1989 water year that began October 1, 1988, and ended September 30, 1989. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, and water-quality data for surface water. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

Each data station in this report is assigned a unique identification number. This number is unique in that it applies specifically to a given station and to no other. The number usually is assigned when a station is first established and is retained for that station indefinitely. The two systems used by the U.S. Geological Survey to assign identification numbers for surface-water stations are based on geographic location. The "downstream order" system is used for regular surface-water stations and the "latitude-longitude" system is used for surface-water stations where only miscellaneous measurements are made. Basin designation is based on the Hydrologic Unit Map for Oregon prepared in cooperation with the U.S. Water Resources Council (1974).

Downstream Order System

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a mainstream station are listed before that station. A station on a tributary that enters between two mainstream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary with respect to the stream to which it is immediately tributary is indicated by an indentation in the "List of Stations" in the front of this report. Each indentation represents one rank. This downstream order and system of indentation show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

The station-identification number is assigned according to downstream order. In assigning station numbers, no distinction is made between partial-record stations and other 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 series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete eight-digit number for each station, such as 14105700, which appears just to the left of the station name, includes the two-digit Part number "14" plus the six-digit downstream-order number "105700." The Part number designates the major river basin; for example, part "14" refers to the Pacific slope basins in Oregon and lower Columbia River basin.

Records of Stage and Water Discharge

Records of stage and water discharge may be complete or partial. Complete records of discharge are those obtained using a continuous stage-recording device through which either instantaneous or mean daily discharges may be computed for any time, or any period of time, during the period of record. Complete records of lake or reservoir content, similarly, are those for which stage or content may be computed or estimated with reasonable accuracy for any time, or period of time. They may be obtained using a continuous stage-recording device, but need not be. Because daily mean discharges and end-of-day contents commonly are published for such stations, they are referred to as "daily stations."

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table titles such as "Crest-stage partial records," or "Low-flow partial records." Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately in this report.

Data Collection and Computation

The data obtained at a complete-record gaging station on a stream or canal consist of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relations between stage and discharge. These data, together with supplemental information, such as weather records, are used to compute daily discharges. The data obtained at a complete-record gaging station on a lake or reservoir consist of a record of stage and of notations regarding factors that may affect the relation between stage and lake content. These data are used with stage-area and stage-capacity curves or tables to compute water-surface areas and lake storage.

Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage or with digital recorders that punch stage values on paper tapes at selected time intervals. Measurements of discharge are made with current meters using methods adapted by the Geological Survey that are described in standard textbooks, in Water-Supply Paper 2175, and in U.S. Geological Survey Techniques of Water-Resources Investigations (TWRI), Book 3, Chapter A6.

In computing discharge records, results of individual measurements are plotted against the corresponding stages, and stage-discharge relation curves are then constructed. From these curves, rating tables indicating the approximate discharge for any stage within the range of the measurements are prepared. If it is necessary to define extremes of discharge outside the range of the current-meter measurements, the curves are extended using: (1) logarithmic plotting; (2) velocity-area studies; (3) results of indirect measurements of peak discharge, such as slope-area or contracted-opening measurements, and computations of flow-over-dams or weirs; or (4) step-backwater techniques.

Daily mean discharges are computed by applying the daily mean stages (gage heights) to the stage-discharge curves or tables. 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 the individual discharge measurements and notes of the personnel making the measurements are applied to the gage heights before the discharges are determined from the curves or tables. This shifting-control method also is used if the stage-discharge relation is changed temporarily because of aquatic growth or debris on the control. For some stations, formation of ice in the winter may so obscure the stage-discharge relations that daily mean discharges must be estimated from other information such as temperature and precipitation records, notes of observations, and records for other stations in the same or nearby basins for comparable periods.

At some stream-gaging stations the stage-discharge relation is affected by the 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 computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations an acoustic velocity meter (AVM) is used instead of the slope method. The AVM measures both water-surface elevation and velocity from which discharge can be computed directly.

In computing records of lake or reservoir contents, it is necessary to have information available from surveys, curves, or tables that define the relation of stage to content. The application of stage to the stage-content curves or tables gives the contents from which daily, monthly, or yearly changes then are determined. If the stage-content relation changes because of deposition of sediment in a lake or reservoir, periodic resurveys may be necessary to redefine the relation. Discharges over lake or reservoir spillways are computed from stage-discharge relations much as other stream discharges are computed.

For some gaging stations there are periods when no gage-height record is obtained, or the validity of the recorded gage height is so questionable 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 from the recorded range in stage, previous or following record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated from operator's logs, previous or following record, inflow-outflow studies, and other information. Information explaining how estimated daily-discharge values are identified in station records is included in the next two sections, "Data Presentation" (REMARKS paragraph) and "Identifying Estimated Daily Discharge."

Data Presentation

The records published for each gaging station consist of two parts, the manuscript or station description and the data table for the current water year. The manuscript provides, under various headings, descriptive information, such as station location; period of record; average discharge; historical extremes; record accuracy; and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments to follow clarify information presented under the various headings of the station description.

LOCATION.--Information on locations is obtained from the most accurate maps available. The location of the gage with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given. River mileages are based on information developed by the Hydraulics and Hydrology Committee of the Pacific Northwest River Basins Commission.

DRAINAGE AREA.--Drainage areas are measured using the most accurate maps available. Because the type of maps available varies from one drainage basin to another, the accuracy of drainage areas likewise varies. Drainage areas are updated as better maps become available.

PERIOD OF RECORD.--This indicates the period for which there are published records for the station or for an equivalent station. An equivalent station is one that was in operation at a time that the present station was not, and whose location was such that records from it can reasonably be considered equivalent with records from the present station.

REVISED RECORDS.--Published records, because of new information, occasionally are found to be incorrect, and revisions are printed in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years to which the revisions apply. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted after the year dates as follows: "(M)" means the instantaneous maximum discharge was revised; "(m)" the instantaneous minimum was revised; and "(P)" the peak discharges were revised. If the drainage area has been revised, the report in which the most recently revised figure was first published is given.

GAGE.--The type of gage in current use, the datum of the current gage referred to National Geodetic Vertical Datum of 1929 (see "DEFINITION OF TERMS"), and a condensed history of the types, locations, and datums of previous gages are given under this heading.

REMARKS.--All periods of estimated daily-discharge record will either be identified by date in this paragraph of the station description for water-discharge stations or flagged in the daily-discharge table. (See next section, "Identifying Estimated Daily Discharge.") If a remarks statement is used to identify estimated record, the paragraph will begin with this information presented as the first entry. The paragraph is also used to present information relative to the accuracy of the records, special methods of computation, conditions that affect natural flow at the station and, possibly, other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

AVERAGE DISCHARGE.--The discharge value given is the arithmetic mean of the water-year mean discharges. It is computed only for stations having at least 5 water years of complete record, and only water years of complete record are included in the computation. It is not computed for stations where diversions, storage, or other water-use practices cause the value to be meaningless. If water developments significantly altering flow at a station are put into use after the station has been in operation for a period of years, a new average is computed as soon as 5 water years of record have accumulated following the development.

EXTREMES FOR PERIOD OF RECORD.--Extremes may include maximum and minimum stages and maximum and minimum discharges or content. Unless otherwise qualified, the maximum discharge or content is the instantaneous maximum corresponding to the highest stage that occurred. The highest stage may have been obtained from a graphic or digital recorder, a crest-stage gage, or by direct observation of a nonrecording gage. If the maximum stage did not occur on the same day as the maximum discharge or content, it is given separately. Similarly, the minimum is the instantaneous minimum discharge, unless otherwise qualified, and was determined and is reported in the same manner as the maximum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Included here is information concerning major floods or unusually low flows that occurred outside the stated period of record. The information may or may not have been obtained by the U.S. Geological Survey.

EXTREMES FOR CURRENT YEAR.--Extremes given here are similar to those for the period of record, except the peak discharge listing may include secondary peaks. For stations meeting certain criteria, all peak discharges and stages occurring during the water year and greater than a selected base discharge are presented under this heading. The peaks greater than the base discharge, excluding the highest one, are referred to as secondary peaks. Peak discharges are not published for canals, ditches, drains, or streams for which the peaks are subject to substantial control by man. The time of occurrence for peaks is expressed in 24-hour local standard time. For example, 12:30 a.m. is 0030, and 1:30 p.m. is 1330. The minimum for the current water year appears below the table of peak data.

REVISIONS.--If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error.

Although rare, occasionally the records of a discontinued gaging station may need revision. Because, for these stations, there would be no current or, possibly, future station manuscript published to document the revision in a "Revised Records" entry, users of data for these stations who obtained the record from previously published data reports may wish to contact the Oregon office to determine if the published records were ever revised after the station was discontinued. Of course, if the data were obtained by computer retrieval, the data would be current and there would be no need to check because any published revision of data is always accompanied by revision of the corresponding data in computer storage.

Manuscript information for lake or reservoir stations differs from that for stream stations in the nature of the "Remarks" and in the inclusion of a skeleton stage-capacity table when daily contents are given.

The daily table for stream-gaging stations gives mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. 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 usually expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN."), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion or if the drainage area includes large noncontributing areas. In the yearly summary below the monthly summary, the figures shown are the appropriate discharges for the calendar and water years. At some stations monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversions or reservoir contents are given. These figures are identified by a symbol and corresponding footnote.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of annual maximum stage and discharge at crest-stage stations, and the second is a table of discharge measurements at low-flow partial-record stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. 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.

Identifying Estimated Daily Discharge

Estimated daily-discharge values published in the water-discharge tables of annual state data reports are identified either by flagging individual daily values with the letter symbol "e" and printing a table footnote, "e Estimated," or by listing the dates of the estimated record in the REMARKS paragraph of the station description.

Accuracy of the Records

The accuracy of streamflow records 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 measurements of stage, measurements of discharge, and interpretation of records.

The accuracy attributed to the records is indicated under the "REMARKS" paragraph. "Excellent" means that about 95 percent of the daily discharges are within 5 percent of the true; "good," within 10 percent; and "fair," within 15 percent. Records that do not meet the criteria mentioned, are rated "poor." Different accuracies may be attributed to different parts of a given record. Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second for values less than 1 ft³/s; the nearest tenth between 1.0 and 10 ft³/s; whole numbers between 10 and 1,000 ft³/s; and 3 significant figures for more than 1,000 ft³/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff because of the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation, or other factors. For such stations, figures of cubic feet per second per square mile and of runoff, in inches, are not published unless satisfactory adjustments can be made for diversions, changes in contents of reservoirs, or other changes incident to use and control. 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 losses are large in comparison with the observed discharge.

Other Records Available

Monthly records for several ungaged sites are given in a separate section following the gaged sites. The accuracy of records for ungaged sites is generally lower than that for gaged sites, depending on the precision of the computation method and the accuracy of data used in the computations. For most gaging stations, unpublished, detailed information, on file in the Oregon office, includes discharge measurements, gage-height records, and rating tables. Many gaging-station records in Oregon through 1982 have been analyzed to determine 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.

Other Federal and State agencies have collected discharge data at other sites in Oregon during the current water year. Although these records have not been published by the U.S. Geological Survey, the National Water Data Exchange, NAWDEX, Water Resources Division, U.S. Geological Survey, National Center, Reston, VA 22092, maintains an index of these sites and will furnish information about them.

Records of Surface-Water Quality

Records of surface-water quality ordinarily are obtained at or near stream-gaging stations because interpretation of records of surface-water quality nearly always requires corresponding discharge data. Records of surface-water quality in this report may involve a variety of types of data and measurement frequencies.

Classification of Records

Water-quality data for surface-water sites are grouped into one of three classifications. A continuing-record station is a site where data are collected on a regularly scheduled basis. Frequency may be one or more times daily, weekly, monthly, or quarterly. A partial-record station is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A miscellaneous sampling site is a location other than a continuing or partial-record station, where random samples are collected to give better areal coverage to define water-quality conditions in the river basin.

A careful distinction needs to be made between "continuing records" as used in this report and "continuous recordings," which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently.

Arrangement of Records

Water-quality records collected at a surface-water daily record station are published immediately following that record, regardless of the frequency of sample collection. Station number and name are the same for both records. Where a surface-water daily record station is not available or where the water quality differs significantly from that at the nearby surface-water station, the continuing water-quality record is published with its own station number and name in the regular downstream-order sequence. Water-quality data for partial-record stations and for miscellaneous sampling sites appear in separate tables following the table of discharge measurements at miscellaneous sites.

On-site Measurements and Sample Collection

In obtaining water-quality data, it is important that the data obtained represent the in situ quality of the water. To assure this, certain measurements, such as water temperature, pH, and dissolved oxygen, need to be made onsite when the samples are taken. To assure that measurements made in the laboratory also represent the in situ water, carefully prescribed procedures need to be followed in collecting the samples, treating the samples to prevent changes in quality pending analysis, and shipping the samples to the laboratory. Procedures for onsite measurements and for collecting, treating, and shipping samples are given in publications on "Techniques of Water-Resources Investigations," (TWRI), Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4. All of these references are listed under "PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS" in this report. Also, detailed information on collecting, treating, and shipping samples may be obtained from the Geological Survey Oregon office.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load. All samples obtained for the National Stream Quality Accounting Network (see "DEFINITION OF TERMS") are obtained from at least several verticals. Whether samples are obtained from the centroid of flow or from several verticals, depends on flow conditions and other factors which must be evaluated by the collector.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the U.S. Geological Survey office whose address is given on the back of the title page of this report.

Water Temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diurnal temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published. Water temperatures measured at the time of water-discharge measurements are on file in the Oregon office.

Sediment

Suspended-sediment concentrations are determined from samples collected by one of the standard sampling techniques discussed in TWRI, Book 3, Chapter C2, "Field methods for measurement of fluvial sediment." Samples are obtained using standard depth- or point-integrating samplers, or by means of an approved pumping sampler. Mean concentrations for the sampled cross section are in turn determined from these samples.

During periods of rapidly changing flow or rapidly changing suspended-sediment concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided-day method (time discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided-day method. For periods when no samples were collected, daily discharges of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow and in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of suspended-sediment discharge, periodic measurements of particle-size distributions for the suspended-sediment, bed-load, and bed-material samples are included for stations where samples were obtained to measure this parameter.

Laboratory Measurements

Sediment samples, samples for biochemical-oxygen demand (BOD), samples for identification of biological populations, samples for indicator bacteria, and daily samples for specific conductance are analyzed locally. All other samples are analyzed in the Geological Survey laboratory in Arvada, Colorado. Methods used in analyzing sediment samples and computing sediment records are given in TWRI, Book 5, Chap. C1. Methods used by the Geological Survey laboratory are given in TWRI, Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4.

In March 1989, the National Water-Quality Laboratory discovered a bias in the turbidimetric method for sulfate analysis, indicating that values below 75 mg/L have a median positive bias of 2 mg/L above the true value for the period between 1982 and 1989. Sulfate values in this report have not been corrected for this bias.

Data Presentation

For continuing-record stations, information pertinent to the history of station operation is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, drainage area, period of record, type of data available, instrumentation, general remarks, cooperation, and extremes for parameters currently measured daily. Tables of chemical, physical, biological, radiochemical data, and so forth, obtained at a frequency less than daily are presented first. Tables of "daily values" of specific conductance, pH, water temperature, dissolved oxygen, and suspended sediment then follow in sequence.

In the descriptive headings, if the location is identical to that of the discharge gaging station, neither the LOCATION nor the DRAINAGE AREA statements are repeated. The following information, as appropriate, is provided with each continuous-record station. Comments that follow clarify information presented under the various headings of the station description.

LOCATION.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

DRAINAGE AREA.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

PERIOD OF RECORD.--This indicates the periods for which there are published water-quality records for the station. The periods are shown separately for records of parameters measured daily or continuously and those measured less than daily. For those measured daily or continuously, periods of record are given for the parameters individually.

INSTRUMENTATION.--Information on instrumentation is given only if a water-quality monitor, sediment pumping sampler, or other sampling device is in operation at a station.

REMARKS.--Remarks provide added information pertinent to the collection, analysis, or computation of the records.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

EXTREMES.--Maximums and minimums are given only for parameters measured daily or more frequently. None are given for parameters measured weekly or less frequently, because the true maximums or minimums may not have been sampled. Extremes, when given, are provided for both the period of record and for the current water year.

WATER RESOURCES DATA FOR OREGON 1989

REVISIONS.--If errors in published water-quality records are discovered after publication, appropriate updates are made to the Water-Quality File in the U.S. Geological Survey's computerized data system, WATSTORE, and subsequently by monthly transfer of update transactions to the U.S. Environmental Protection Agency's STORET system. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from the appropriate computer file.

The surface-water-quality records for partial-record stations and miscellaneous sampling sites are published in separate tables following the table of discharge measurements at miscellaneous sites. No descriptive statements are given for these records. Each station is published with its own station number and name in the regular downstream-order sequence.

Remark Codes

The following remark codes may appear with the water-quality data in this report:

PRINTED OUTPUTREMARK

E	Estimated value
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptance range (non-ideal colony count)

ACCESS TO WATSTORE DATA

The National WATER Data STORAGE and RETRIEVAL System (WATSTORE) was established for handling water data collected through the activities of the U.S. Geological Survey and to provide for more effective and efficient means of releasing the data to the public. The system is operated and maintained on the central computer facilities of the Survey at its National Center in Reston, Virginia.

WATSTORE can provide a variety of useful products ranging from simple data tables to complex statistical analyses. A minimal fee, plus the actual computer cost incurred in producing a desired product, is charged to the requester. Information about the availability of specific types of data, the acquisition of data or products, and user charges can be obtained locally from each of the Water Resources Division's District offices (see address given on the back of the title page).

General inquiries about WATSTORE may be directed to:

Chief Hydrologist
U.S. Geological Survey
437 National Center
Reston, Virginia 22092

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. See also table for converting English units to International System (SI) Units on the inside of the back cover.

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equal to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Adenosine triphosphate (ATP) is an organic, phosphate-rich, compound important in the transfer of energy in organisms. Its central role in living cells makes it an excellent indicator of the presence of living material in water. A measure of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter of the original water sample.

Algae are mostly aquatic single-celled, colonial, or multicelled plants, containing chlorophyll and lacking roots, stems, and leaves.

Algal growth potential (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present at stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian means confined and is used to describe a well in which the water level stands above the top of the aquifer tapped by the well. A flowing artesian well is one in which the water level is above the land surface.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, while others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as all the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C plus or minus 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 milliliters (mL) of sample.

Fecal coliform bacteria are bacteria that are present in the intestine or feces of warmblooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms that produce blue colonies within 24 hours when incubated at 44.5°C plus or minus 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal streptococcal bacteria are bacteria found also in the intestine of warmblooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C plus or minus 1.0°C on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Base flow. See Base runoff.

Base runoff refers to sustained or fair weather runoff. In most streams, base runoff is composed largely of ground-water effluent. The term base flow is often used in the same sense as base runoff. However, the distinction is the same as that between streamflow and runoff. When the concept in the terms base flow and base runoff is that of the natural flow in a stream, base runoff is the logical term.

Bed material is the sediment mixture of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by micro-organisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m^3), and periphyton and benthic organisms in grams per square meter (g/m^2).

Dry mass refers to the mass of residue present after drying in an oven at 105°C for zooplankton and periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry-mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and the ash mass and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash and dry mass.

Wet mass is the mass of living matter plus contained water.

Bottom material: See Bed material.

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water, and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common green pigments in plants.

Color unit is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

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.

Control structure as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

Cubic foot per second (ft^3/s) 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 or 0.02832 cubic meters per second.

Cubic foot per second-day [$(\text{ft}^3/\text{s})/\text{d}$] 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, approximately 1.9835 acre-feet, about 646,000 gallons, or 2,445 cubic meters.

Cubic feet per second per square mile [$(\text{ft}^3/\text{s})/\text{mi}^2$] is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment) that passes a given point within a given period of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Instantaneous discharge is the discharge at a particular instant of time.

Dissolved refers to that material in a representative water sample which passes through a 0.45- μm membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Dissolved-solids concentration of water is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculation of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.492 to reflect the change.

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.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

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 hydrologic data are obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is computed as the sum of equivalents of polyvalent cations and is expressed as the equivalent concentration of calcium carbonate (CaCO_3).

Hydrologic Bench-Mark Network is a network of more than 50 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an eight-digit number.

Land-surface datum (lsd) is a datum plane that is approximately at land surface at each ground-water observation well.

Measuring point (MP) is an arbitrary permanent reference point from which the distance to the water surface in a well is measured to obtain the water level.

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

Methylene blue active substances (MBAS) are apparent detergents. The determination depends on the formation of a blue color when methylene blue dye reacts with synthetic anionic detergent compounds.

Micrograms per gram (ug/g) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

Micrograms per liter (UG/L, ug/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represents the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L and is based on the mass of dry sediment per liter of water-sediment mixture.

National Geodetic Vertical Datum of 1929 (NGVD of 1929) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in national or regional water-quality planning and management. The several hundred sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objective of NASQAN is to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting. The design of the network is intended to provide data for (1) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (2) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (3) a nationally consistent data base useful for water-quality assessment and hydrologic research.

National Trends Network (NTN) is a 150-station network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

Organism is any living entity.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per unit area habitat, usually square meter (m^2), acre, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume usually milliliter (mL) or liter (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Parameter Code is a 5-digit number used in the U.S. Geological Survey computerized data system, WATSTORE, to uniquely identify a specific constituent. The codes used in WATSTORE are the same as those used in the U.S. Environmental Protection Agency data system, STORET. The Environmental Protection Agency assigns and approves all requests for new codes.

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

Particle size is the diameter, in millimeters (mm), of a particle determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with the recommendation made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

<u>Classification</u>	<u>Size (mm)</u>	<u>Method of analysis</u>
Clay.....	0.00024 - 0.004	Sedimentation
Silt.....	.004 - .062	Sedimentation
Sand.....	.062 - 2.0	Sedimentation or sieve
Gravel.....	2.0 - 64.0	Sieve

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic matter is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native-water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population in terms of types, numbers, mass, or volume.

Periphyton is the assemblage of microorganisms attached to and living upon submerged solid surfaces. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms.

Pesticides are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

Picocurie (PC, pCi) is one trillionth (1×10^{-12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{10} radioactive disintegrations per second. A picocurie yields 2.22 disintegrations per minute (dpm).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment, and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algae mats or floating "moss" in lakes. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly, green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

Milligrams of carbon per area or volume per unit time [mg C/(m².time)] for periphyton and macrophytes and [mg C/(m³.time)] for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method, and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

Milligrams of oxygen per area or volume per unit time [mg O₂/(m².time)] for periphyton and macrophytes and [mg O₂/(m³.time)] for phytoplankton are units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Return period is the average time interval between occurrences of a hydrological event of a given or greater magnitude, usually expressed in years. May also be called recurrence interval.

Runoff in inches (IN, in) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Bed load is the sediment that is transported in a stream by rolling, sliding, or skipping along the bed very close to the bed surface. In this report, bed load is considered to consist of particles in transit within 0.25 ft of the streambed.

Bed load discharge (tons per day) is the quantity of bed load measured by dry weight that moves past a section as bed load in a given time.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Suspended-sediment discharge (tons/day) is the rate at which dry mass of sediment passes a section of a stream or is the quantity of sediment, as measured by dry mass or volume, that passes a section in a given time. It is calculated in units of tons per day as follows: concentration (mg/L) x discharge (ft³/s) x 0.0027.

Suspended-sediment load is a general term that refers to material in suspension. It is not synonymous with either discharge or concentration.

Total-sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry mass or volume, that passes a section during a given time.

Total-sediment load or total load is a term which refers to the total sediment (bed load plus suspended-sediment load) that is in transport. It is not synonymous with total-sediment discharge.

Seven-day 10-year low flow (7 Q10) is the discharge at the 10-year recurrence interval taken from a frequency curve of annual values of the lowest mean discharge for 7 consecutive days (the 7-day low flow).

Sodium-adsorption-ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to the soil. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Solute is any substance that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in microsiemens per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and the volume of water, per unit of time, flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lives.

Natural substrate refers to any naturally occurring emerged or submersed solid surface, such as a rock or tree, upon which an organism lives.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton.

Surface area of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimetered. All areas shown are those for the stage when the planimetered map was made.

Surficial bed material is the part (0.1 to 0.2 ft) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of undissolved material in a water-sediment mixture. It is associated with the material retained on a 0.45-um filter.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45-um membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45-um membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, Hexagenia limbata, is the following:

Kingdom.....	Animal
Phylum.....	Arthropoda
Class.....	Insecta
Order.....	Ephemeroptera
Family.....	Ephemeridae
Genus.....	<u>Hexagenia</u>
Species.....	<u>Hexagenia limbata</u>

Thermograph is an instrument that continuously records variations of temperature on a chart. The more general term "temperature recorder" is used in the table headings and refers to any instrument that records temperature whether on a chart, a tape, or any other medium.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration of the constituent, in milligrams per liter, by 0.00136.

Tons per day (T/DAY) is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour period.

Total is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determined all of the constituent in the sample.)

Total discharge is the total quantity of any individual constituent, as measured by dry mass or volume, that passes through a stream cross section per unit of time. This term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

Total, recoverable is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses, because different digestion procedures are likely to produce different analytical results.

Tritium Network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

Water year in Geological Survey reports dealing with surface-water supply is the 12-month period, October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1980, is called the "1980 water year."

WDR is used as an abbreviation for "Water-Data Report" in the REVISED RECORDS paragraph to refer to State annual hydrologic-data reports (WRD was used as an abbreviation for "Water-Resources Data" in reports published prior to 1976).

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

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

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

The U.S. Geological Survey publishes a series of manuals describing procedures for planning and conducting specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) pertains to surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises.

The reports listed below are for sale by the U.S. Geological Survey, Books and Open-File Reports Section, Federal Center, Box 25425, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be sent by check or money order payable to the U.S. Geological Survey. Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations."

- 1-D1. WATER TEMPERATURE--INFLUENTIAL FACTORS, FIELD MEASUREMENT, AND DATA PRESENTATION, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.
- 1-D2. GUIDELINES FOR COLLECTION AND FIELD ANALYSIS OF GROUND-WATER SAMPLES FOR SELECTED UNSTABLE CONSTITUENTS, by W. W. Wood: USGS--TWRI book 1, Chapter D2. 1976. 24 pages.
- 2-D1. APPLICATION OF SURFACE GEOPHYSICS TO GROUND-WATER INVESTIGATIONS, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.
- 2-D2. APPLICATION OF SEISMIC-REFRACTION TECHNIQUES TO HYDROLOGIC STUDIES, by F. P. Haeni: USGS--TWRI Book 2, Chapter D2. 1988. 86 pages.
- 2-E1. APPLICATION OF BOREHOLE GEOPHYSICS TO WATER-RESOURCES INVESTIGATIONS, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.
- 2-F1. APPLICATION OF DRILLING, CORING, AND SAMPLING TECHNIQUES TO TEST HOLES AND WELLS, by Eugene Shuter and Warren E. Teasdale: USGS--TWRI Book 2, Chapter F1. 1989. 97 pages.
- 3-A1. GENERAL FIELD AND OFFICE PROCEDURES FOR INDIRECT DISCHARGE MEASUREMENTS, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.
- 3-A2. MEASUREMENT OF PEAK DISCHARGE BY THE SLOPE-AREA METHOD, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.
- 3-A3. MEASUREMENT OF PEAK DISCHARGE AT CULVERTS BY INDIRECT METHODS, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.
- 3-A4. MEASUREMENT OF PEAK DISCHARGE AT WIDTH CONTRACTIONS BY INDIRECT METHODS, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages.
- 3-A5. MEASUREMENT OF PEAK DISCHARGE AT DAMS BY INDIRECT METHODS, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages.
- 3-A6. GENERAL PROCEDURE FOR GAGING STREAMS, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.
- 3-A7. STAGE MEASUREMENTS AT GAGING STATIONS, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.
- 3-A8. DISCHARGE MEASUREMENTS AT GAGING STATIONS, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.
- 3-A9. MEASUREMENT OF TIME OF TRAVEL AND DISPERSION IN STREAMS BY DYE TRACING, by E. F. Hubbard, F. A. Kilpatrick, L. A. Martens, and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1982. 44 pages.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

- 3-A10. DISCHARGE RATINGS AT GAGING STATIONS, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 pages.
- 3-A11. MEASUREMENT OF DISCHARGE BY MOVING-BOAT METHOD, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.
- 3-A12. FLUOROMETRIC PROCEDURES FOR DYE TRACING, by J. F. Wilson, Jr., E. D. Cobb, and F. A. Kilpatrick: USGS--TWRI Book 3, Chapter A12. Revised. 1986. 34 pages.
- 3-A13. COMPUTATION OF CONTINUOUS RECORDS OF STREAMFLOW, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A13. 1983. 53 pages.
- 3-A14. USE OF FLUMES IN MEASURING DISCHARGE, by F. A. Kilpatrick and V. R. Schneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 pages.
- 3-A15. COMPUTATION OF WATER-SURFACE PROFILES IN OPEN CHANNELS, by Jacob Davidian: USGS--TWRI Book 3, Chapter A15. 1984. 48 pages.
- 3-A16. MEASUREMENT OF DISCHARGE USING TRACERS, by F. A. Kilpatrick and E. D. Cobb: USGS--TWRI Book 3, Chapter A16. 1985. 52 pages.
- 3-A17. ACOUSTIC VELOCITY METER SYSTEMS, by Antonius Laenen: USGS--TWRI Book 3, Chapter A17. 1985. 38 pages.
- 3-A18. DETERMINATION OF STREAM REAERATION COEFFICIENTS BY USE OF TRACERS, by F. A. Kilpatrick, R. E. Rathbun, N. Yotsukura, G. W. Parker, and L. L. DeLong: USGS--TWRI Book 3, Chapter A18. 1989. 52 pages.
- 3-B1. AQUIFER-TEST DESIGN, OBSERVATION, AND DATA ANALYSIS, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.
- 3-B2. INTRODUCTION TO GROUND-WATER HYDRAULICS, A PROGRAMED TEXT FOR SELF-INSTRUCTION, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.
- 3-B3. TYPE CURVES FOR SELECTED PROBLEMS OF FLOW TO WELLS IN CONFINED AQUIFERS, by J. E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 pages.
- 3-B5. DEFINITION OF BOUNDARY AND INITIAL CONDITIONS IN THE ANALYSIS OF SATURATED GROUND-WATER FLOW SYSTEMS--AN INTRODUCTION, by O. L. Franke, T. E. Reilly, and G. D. Bennett: USGS--TWRI Book 3, Chapter B5. 1987. 15 pages.
- 3-B6. THE PRINCIPLE OF SUPERPOSITION AND ITS APPLICATION IN GROUND-WATER HYDRAULICS, by T. E. Reilly, O. L. Franke, and G. D. Bennett: USGS--TWRI Book 3, Chapter B6. 1987. 28 pages.
- 3-C1. FLUVIAL SEDIMENT CONCEPTS, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.
- 3-C2. FIELD METHODS FOR MEASUREMENT OF FLUVIAL SEDIMENT, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages.
- 3-C3. COMPUTATION OF FLUVIAL-SEDIMENT DISCHARGE, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.
- 4-A1. SOME STATISTICAL TOOLS IN HYDROLOGY, by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.
- 4-A2. FREQUENCY CURVES, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.
- 4-B1. LOW-FLOW INVESTIGATIONS, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.
- 4-B2. STORAGE ANALYSES FOR WATER SUPPLY, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.
- 4-B3. REGIONAL ANALYSES OF STREAMFLOW CHARACTERISTICS, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages.
- 4-D1. COMPUTATION OF RATE AND VOLUME OF STREAM DEPLETION BY WELLS, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages.
- 5-A1. METHODS FOR DETERMINATION OF INORGANIC SUBSTANCES IN WATER AND FLUVIAL SEDIMENTS, by M. W. Skougstad and others, editors: USGS--TWRI Book 5, Chapter A1. 1979. 626 pages.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

- 5-A2. DETERMINATION OF MINOR ELEMENTS IN WATER BY EMISSION SPECTROSCOPY, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.
- 5-A3. METHODS FOR ANALYSIS OF ORGANIC SUBSTANCES IN WATER, by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages.
- 5-A4. METHODS FOR COLLECTION AND ANALYSIS OF AQUATIC BIOLOGICAL AND MICROBIOLOGICAL SAMPLES, edited by P. E. Greeson, T. A. Ehlke, G. A. Irwin, B. W. Lium, and K. V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 pages.
- 5-A5. METHODS FOR DETERMINATION OF RADIOACTIVE SUBSTANCES IN WATER AND FLUVIAL SEDIMENTS, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.
- 5-A6. QUALITY ASSURANCE PRACTICES FOR THE CHEMICAL AND BIOLOGICAL ANALYSES OF WATER AND FLUVIAL SEDIMENTS, by L. C. Friedman and D. E. Erdmann: USGS--TWRI Book 5, Chapter A6. 1982. 181 pages.
- 5-C1. LABORATORY THEORY AND METHODS FOR SEDIMENT ANALYSIS, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.
- 6-A1. A MODULAR THREE-DIMENSIONAL FINITE-DIFFERENCE GROUND-WATER FLOW MODEL, by M. G. McDonald and A. W. Harbaugh: USGS--TWRI Book 6, Chapter A1. 1988. 586 pages.
- 7-C1. FINITE-DIFFERENCE MODEL FOR AQUIFER SIMULATION IN TWO DIMENSIONS WITH RESULTS OF NUMERICAL EXPERIMENTS, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.
- 7-C2. COMPUTER MODEL OF TWO-DIMENSIONAL SOLUTE TRANSPORT AND DISPERSION IN GROUND WATER, by L. F. Konikow and J. D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.
- 7-C3. A MODEL FOR SIMULATION OF FLOW IN SINGULAR AND INTERCONNECTED CHANNELS, by R. W. Schaffranek, R. A. Baltzer, and D. E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 pages.
- 8-A1. METHODS OF MEASURING WATER LEVELS IN DEEP WELLS, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages.
- 8-A2. INSTALLATION AND SERVICE MANUAL FOR U.S. GEOLOGICAL SURVEY MANOMETERS, by J. D. Craig: USGS--TWRI Book 8, Chapter A2. 1983. 57 pages.
- 8-B2. CALIBRATION AND MAINTENANCE OF VERTICAL-AXIS TYPE CURRENT METERS, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.

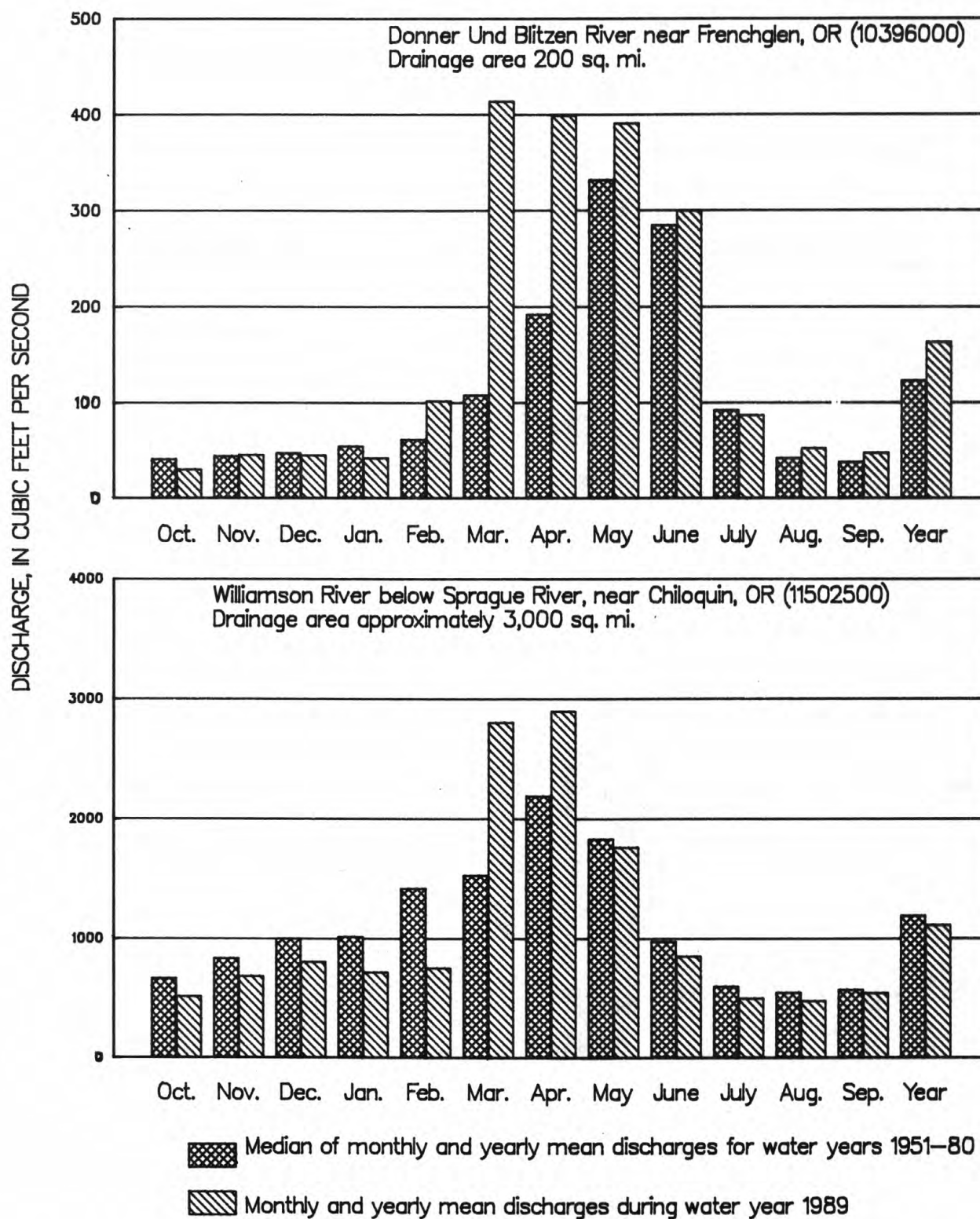


Figure 1a.--Discharge during 1989 water year compared with median discharge for period 1951-80 for two representative gaging stations in Eastern Oregon.

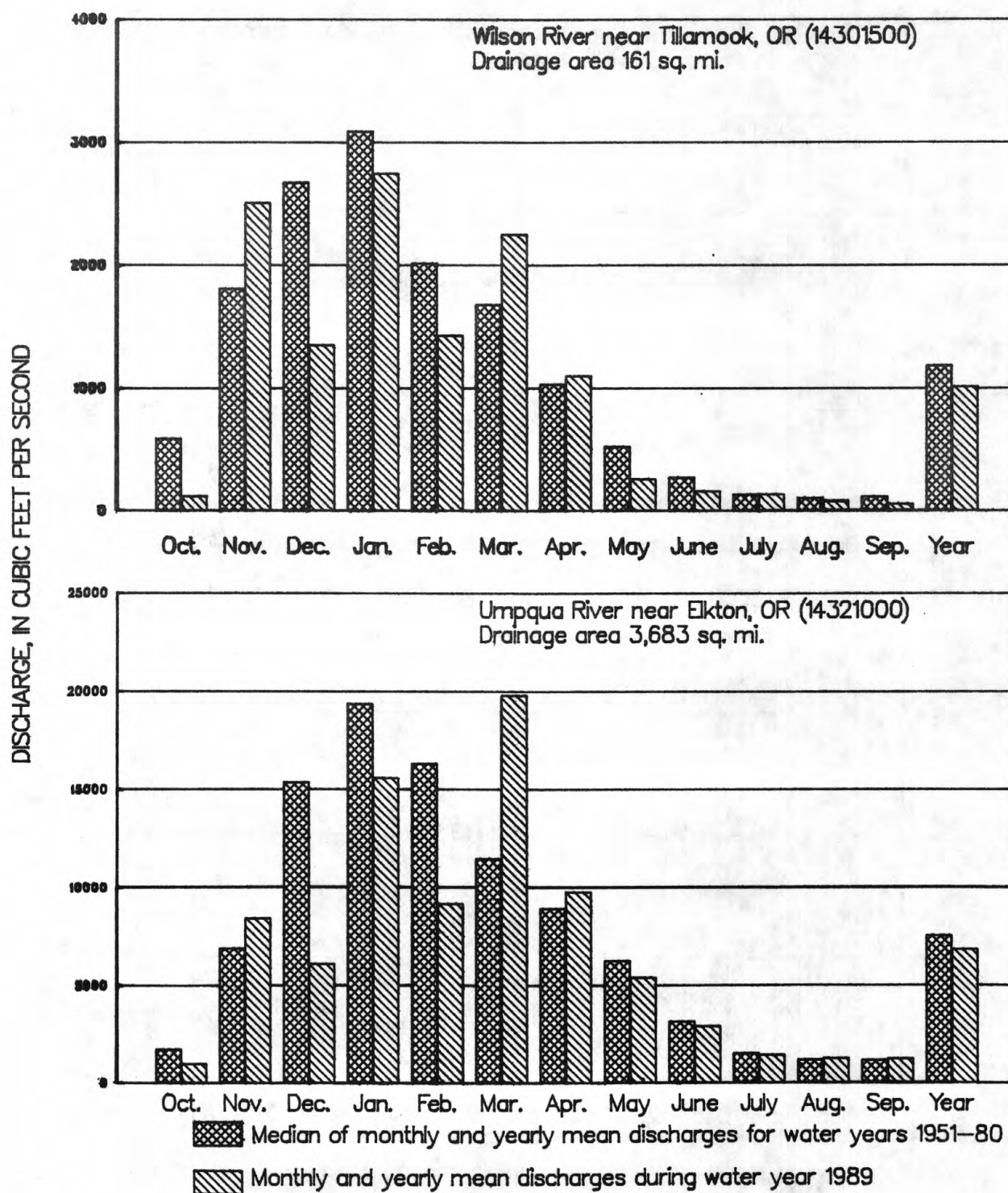


Figure 1b.--Discharge during 1989 water year compared with median discharge for period 1951-80 for two representative gaging stations in Western Oregon.

SURFACE-WATER RECORDS

31

REMARK CODES.--The following remark codes may appear with the water-quality data in this section:

PRINTED OUTPUT	REMARK
E	Estimated value
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptance range (non-ideal colony count)
M	Presence of material verified but not quantified

WATER RESOURCES DATA FOR OREGON, 1989

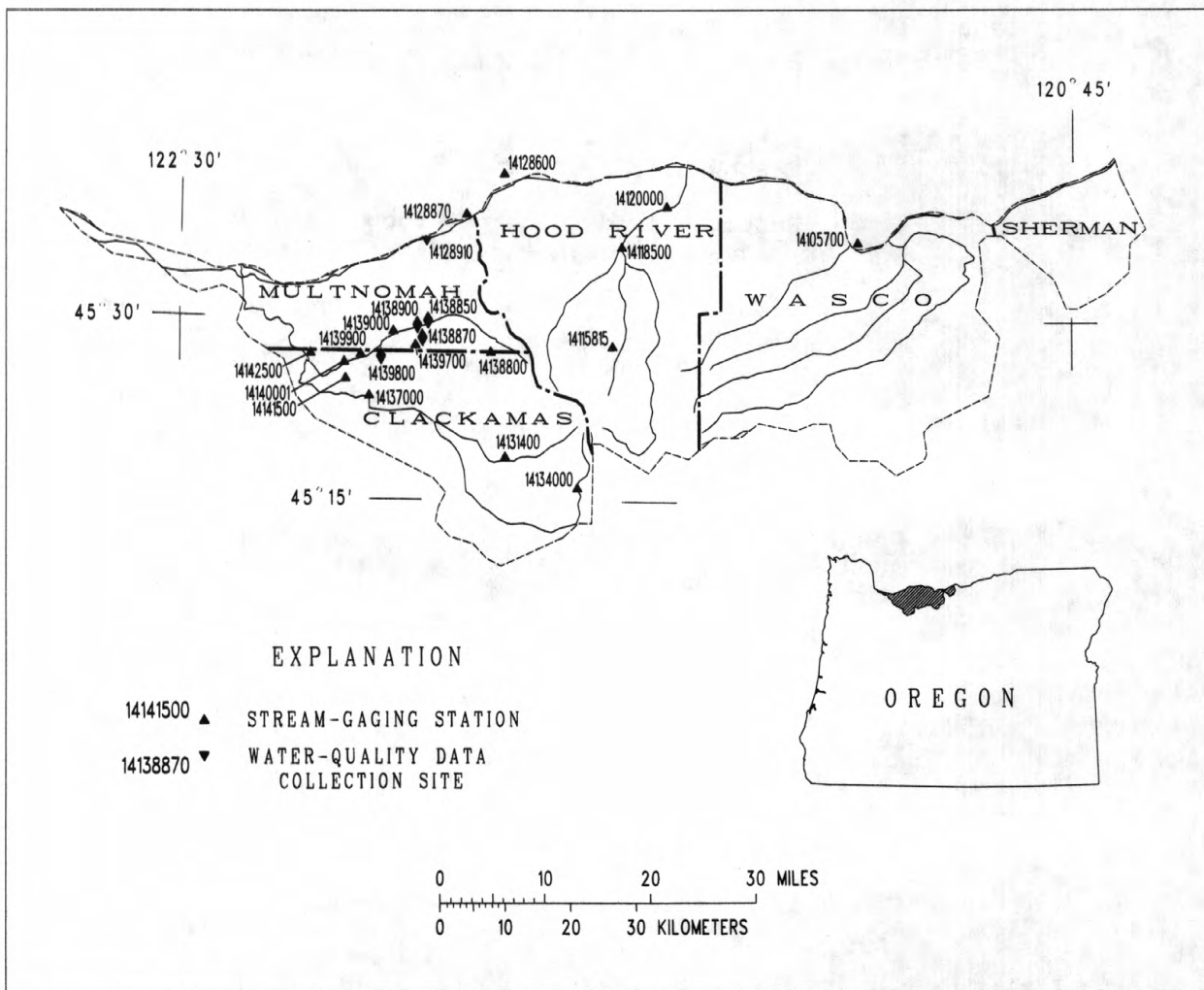


Figure 2.--Location of surface-water and water-quality stations in the Lower Deschutes River, Middle and Lower Columbia River, and Sandy River basins.

LOWER COLUMBIA RIVER BASIN

33

14128870 COLUMBIA RIVER BELOW BONNEVILLE DAM, OR

LOCATION.--Lat 45°38'20", long 121°57'16", in sec.21, T.2 N., R.7 E., Multnomah County, Hydrologic Unit 17080001, on left bank 0.4 mi downstream from Bonneville Dam left bank powerhouse, 0.5 mi upstream from Tanner Creek, and at mile 145.0.

DRAINAGE AREA.--239,900 mi², approximately.

PERIOD OF RECORD.--May 1981 to current year (gage heights only).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Flow regulated by many reservoirs upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 30.40 ft June 11, 1981; minimum, 6.69 ft Oct. 10, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 24.31 ft May 12; minimum, 6.69 ft Oct. 10.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	11.62	10.14	10.67	13.51	10.21	12.36	18.56	15.91	17.09	14.24	11.72	13.28
2	10.75	8.25	9.33	12.81	9.76	11.26	17.94	14.29	15.61	15.08	11.12	12.62
3	10.59	9.13	9.66	11.70	10.25	10.92	14.36	12.73	13.27	15.94	13.60	15.11
4	9.79	9.18	9.47	10.72	9.12	10.02	14.48	12.13	13.12	15.78	12.22	14.02
5	9.62	8.35	8.99	11.23	9.10	10.15	15.80	13.87	14.53	16.07	14.48	15.37
6	11.10	7.17	9.50	11.61	9.68	10.76	15.93	14.83	15.21	18.29	15.66	16.58
7	11.31	7.84	10.45	13.25	11.41	12.52	15.31	13.94	14.79	18.52	17.15	17.74
8	11.23	8.07	9.54	13.34	12.37	12.92	17.05	14.88	15.88	18.41	17.68	18.13
9	9.67	7.77	8.77	13.19	11.47	12.46	15.53	13.85	14.61	20.25	16.82	18.48
10	11.59	6.69	9.50	13.91	11.65	12.85	13.95	12.18	13.07	21.18	19.62	20.14
11	13.00	7.68	11.10	12.90	12.07	12.58	17.29	12.85	15.36	20.64	18.82	19.40
12	14.45	7.85	11.96	12.92	11.94	12.46	15.96	13.75	14.55	20.21	18.93	19.70
13	12.44	9.50	11.06	13.48	11.99	12.55	14.75	12.29	13.53	20.94	14.89	18.57
14	11.02	8.30	9.87	15.19	13.35	14.17	15.89	13.18	14.84	15.71	12.45	13.52
15	11.98	8.54	10.82	15.16	12.41	13.61	17.33	15.76	16.66	18.28	16.59	17.78
16	11.01	7.75	9.78	14.21	12.67	13.49	17.12	11.61	14.76	18.36	16.38	17.54
17	10.92	8.50	10.08	14.33	14.02	14.16	13.08	11.23	12.40	16.37	15.93	16.10
18	14.61	9.66	12.48	14.25	13.93	14.08	15.52	12.86	14.65	16.85	15.64	15.95
19	12.06	10.25	11.38	14.04	12.78	13.37	16.08	15.29	15.64	16.91	16.41	16.68
20	12.66	8.61	11.18	13.10	12.43	12.78	15.99	14.76	15.20	16.04	15.36	15.56
21	12.24	8.14	10.72	14.91	12.53	13.71	16.30	15.48	15.86	15.64	15.27	15.44
22	11.89	8.34	10.78	17.05	14.49	15.87	16.58	15.76	16.07	15.54	13.97	14.35
23	11.46	9.72	10.65	17.20	16.58	16.93	16.54	15.90	16.15	16.59	13.73	15.38
24	13.43	10.84	11.66	17.26	14.85	15.43	16.14	14.87	15.33	18.55	15.14	16.71
25	13.08	9.94	11.61	15.44	14.83	15.06	15.25	13.16	13.66	17.34	15.46	16.43
26	12.93	8.71	11.22	16.29	14.01	15.03	13.40	12.72	12.97	16.96	14.72	15.95
27	14.58	10.11	13.05	16.36	14.35	14.73	15.79	13.45	15.24	15.70	12.65	14.45
28	14.56	12.29	13.08	19.35	14.97	16.56	16.18	15.61	15.83	12.67	10.88	11.68
29	13.93	8.62	10.39	18.31	14.55	15.70	16.69	15.55	15.86	13.02	10.77	12.05
30	12.48	9.17	10.91	16.03	14.10	14.86	18.42	16.65	17.17	14.85	12.98	14.08
31	13.54	9.59	12.61	---	---	---	18.74	13.83	16.57	17.19	14.74	15.54
MONTH	14.61	6.69	10.72	19.35	9.10	13.44	18.74	11.23	15.02	21.18	10.77	15.95

LOWER COLUMBIA RIVER BASIN

14128870 COLUMBIA RIVER BELOW BONNEVILLE DAM, OR--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	20.97	17.13	19.02	---	---	---	17.73	15.90	16.44	21.30	18.54	19.67
2	19.87	18.41	19.26	---	---	---	16.04	14.60	15.23	22.78	20.37	21.58
3	18.84	16.93	17.60	---	---	---	16.64	15.35	16.26	23.90	20.72	22.45
4	17.02	10.46	13.72	---	---	---	17.39	15.62	16.49	24.20	22.38	23.46
5	14.47	9.11	11.82	---	---	---	17.39	15.84	16.58	24.07	21.65	22.34
6	18.13	13.84	16.15	---	---	---	16.16	14.93	15.41	21.96	19.21	20.88
7	19.34	14.36	16.39	---	---	---	18.00	14.58	15.78	21.98	19.04	20.32
8	15.49	12.55	14.50	---	---	---	18.03	15.79	17.18	23.62	19.81	21.19
9	15.73	14.33	14.93	---	---	---	19.01	15.39	17.05	23.67	21.57	22.41
10	14.70	13.87	14.42	---	---	---	18.71	17.10	17.90	23.20	21.71	22.68
11	13.92	10.60	12.47	---	---	---	18.26	16.77	17.66	24.20	23.15	23.63
12	---	---	---	---	---	---	16.78	15.27	16.24	24.31	23.51	23.77
13	---	---	---	---	---	---	17.25	15.13	16.29	24.01	21.05	22.61
14	---	---	---	---	---	---	16.87	14.77	16.08	21.60	17.85	20.12
15	---	---	---	---	---	---	16.96	15.14	15.89	21.79	17.81	20.09
16	---	---	---	18.34	15.56	17.74	18.61	15.17	17.27	22.21	20.35	21.49
17	---	---	---	18.50	13.84	16.17	19.96	17.77	19.41	23.02	20.01	21.68
18	---	---	---	17.82	14.61	15.25	19.61	19.08	19.26	22.20	20.39	21.40
19	---	---	---	15.52	14.38	14.97	20.35	19.10	19.88	22.24	19.88	20.88
20	---	---	---	16.67	14.29	16.03	20.95	19.45	20.34	22.37	20.56	21.50
21	---	---	---	16.72	16.27	16.47	20.87	19.41	20.20	20.55	19.21	19.82
22	---	---	---	17.42	16.27	16.80	21.00	18.60	20.15	21.82	20.01	20.84
23	---	---	---	17.69	16.80	16.96	19.34	17.75	18.14	21.55	19.70	20.64
24	---	---	---	16.98	16.06	16.27	21.70	18.91	20.43	20.47	18.75	19.53
25	---	---	---	16.40	15.37	16.19	20.57	19.93	20.40	20.56	17.55	18.97
26	---	---	---	16.30	14.18	14.97	21.45	20.31	20.79	21.02	19.97	20.56
27	---	---	---	18.72	14.28	16.09	20.50	18.86	19.94	21.16	17.03	19.15
28	---	---	---	19.14	15.29	17.14	23.00	20.11	21.70	19.07	18.33	18.59
29	---	---	---	17.90	16.29	17.23	22.90	20.71	21.27	20.73	17.54	19.00
30	---	---	---	18.80	15.08	17.07	21.66	17.81	19.22	20.58	17.59	18.99
31	---	---	---	18.23	16.87	17.58	---	---	---	20.73	17.53	19.12
MONTH	---	---	---	---	---	---	23.00	14.58	18.16	24.31	17.03	20.95
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	20.70	18.77	19.80	13.74	11.69	12.43	12.94	11.23	12.17	12.59	10.70	11.86
2	21.92	18.93	20.62	12.23	11.45	11.83	11.41	9.19	10.28	12.05	9.70	10.31
3	21.95	17.88	18.81	12.40	10.58	11.65	9.36	7.67	8.57	10.32	9.39	9.81
4	18.33	17.36	17.85	11.81	10.14	10.78	9.61	7.41	8.62	9.84	8.03	8.83
5	21.39	18.34	20.36	14.95	11.04	11.92	9.31	7.24	8.54	10.67	9.60	10.16
6	21.33	18.64	19.29	15.80	11.94	13.36	10.35	7.09	8.45	11.09	9.45	10.43
7	19.70	18.47	19.28	16.08	12.07	12.96	11.79	9.82	10.44	12.06	11.06	11.43
8	21.84	19.45	20.69	16.11	11.21	12.17	11.96	8.67	10.07	11.93	10.87	11.20
9	22.60	19.20	21.60	12.44	9.31	10.12	9.53	8.08	8.53	11.34	9.38	10.48
10	19.71	16.70	18.56	12.52	8.29	10.73	8.65	7.25	8.14	10.99	8.89	10.13
11	18.89	16.14	17.08	10.77	8.49	9.61	11.18	7.52	9.71	9.35	7.18	8.69
12	21.68	18.10	20.25	13.84	10.72	11.20	10.43	9.77	10.17	9.05	6.99	8.48
13	22.04	17.76	20.30	15.90	10.91	12.16	10.25	8.80	9.41	9.75	6.93	9.07
14	19.21	17.75	18.37	16.41	11.08	12.41	12.09	8.25	10.99	11.56	9.20	10.45
15	18.36	16.46	17.64	16.45	10.91	12.07	11.32	8.86	10.52	12.61	9.74	11.08
16	17.81	15.96	16.46	11.18	8.98	9.76	9.52	7.67	8.75	10.85	9.78	10.35
17	18.02	15.97	16.92	10.19	8.49	9.50	11.23	7.15	9.51	10.92	9.75	10.22
18	16.01	13.24	14.66	10.06	7.64	9.33	9.71	7.29	8.52	11.41	9.88	10.62
19	14.54	12.71	13.73	14.08	8.11	9.48	9.20	7.87	8.43	11.30	9.32	10.41
20	17.19	14.36	16.12	15.88	9.38	11.41	9.14	7.22	8.27	10.83	8.35	9.43
21	16.33	14.56	15.56	16.05	9.21	11.31	10.01	7.52	8.57	11.11	8.24	9.95
22	16.85	13.70	14.76	15.86	8.19	10.31	12.63	8.26	11.09	11.41	9.38	10.24
23	15.85	12.67	14.27	9.08	7.65	8.37	11.45	8.72	10.09	10.99	8.32	10.02
24	16.27	12.24	13.45	9.67	8.18	9.18	9.85	7.75	9.07	11.26	8.32	10.14
25	12.70	10.51	11.54	10.17	8.50	9.32	10.25	7.40	8.93	10.45	9.63	10.03
26	13.13	11.47	12.03	11.84	10.24	10.96	9.99	7.81	9.31	10.67	9.50	9.98
27	12.95	11.56	12.31	11.87	9.17	10.84	8.80	7.40	8.17	11.13	8.49	10.19
28	13.48	10.19	13.15	9.91	8.11	9.14	10.72	7.09	9.11	12.26	9.78	11.38
29	14.09	12.86	13.32	9.24	7.65	8.30	11.23	9.21	10.59	13.32	11.24	12.28
30	13.86	11.95	13.03	9.26	7.65	8.28	10.02	8.00	9.01	12.36	9.88	10.59
31	---	---	---	11.84	7.80	10.64	10.97	7.18	9.83	---	---	---
MONTH	22.60	10.19	16.73	16.45	7.64	10.69	12.94	7.09	9.41	13.32	6.93	10.27

LOWER COLUMBIA RIVER BASIN
14128910 COLUMBIA RIVER AT WARRENDALE, OR
WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1975 to current year.

WATER TEMPERATURE: October 1975 to current year.

INSTRUMENTATION.--Specific conductance and temperature recorders from October 1975 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 244 microsiemens Jan. 7, 1988; minimum, 95 microsiemens June 26, 27, 1982.

WATER TEMPERATURE: Maximum, 22.5°C Aug. 17, 18, 1977, Aug. 11, 1980; minimum recorded, 0.0°C many days in January and February, 1979.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 228 microsiemens Mar. 31; minimum recorded, 103 microsiemens June 21-23, but may have been less during period of missing record June 23 to Aug. 28.

WATER TEMPERATURE: Maximum recorded, 21.5°C Aug. 29 to Sept. 1, but may have been higher during period of missing record June 23 to Aug. 28; minimum, 1.5°C Feb. 11.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TURBIDITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED SATURATION (%)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CaCO3)	HARDNESS NONCARB (MG/L AS CaCO3)
NOV 29...	1220	E134000	151	7.8	9.0	3.0	11.0	94	K2	--	63	4
MAR 21...	1135	E169000	196	8.0	6.5	12	12.9	104	K7	K7	80	0
MAY 16...	1215	E275000	142	8.2	13.5	8.1	11.4	--	--	K2	59	2
SEP 05...	1130	E106000	145	7.8	20.0	1.1	8.3	91	K3	K22	59	1
DATE		CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORPTION RATIO PERCENT	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY WATER DIS IT FIELD (MG/L AS CaCO3)	BICARBONATE WATER DIS IT FIELD (MG/L AS HCO3)	CARBONATE WATER DIS IT FIELD (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS Cl)	FLUORIDE, DIS-SOLVED (MG/L AS F)
NOV 29...	17	4.9	6.4	18	0.4	1.2	57	70	0	14	3.3	0.2
MAR 21...	21	6.6	9.0	19	0.5	1.9	78	95	0	18	4.8	0.2
MAY 16...	16	4.6	6.1	18	0.4	1.4	56	68	0	12	2.6	0.2
SEP 05...	16	4.6	5.6	17	0.3	1.1	58	70	0	10	2.7	0.2
DATE		SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHOROUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOSPHOROUS DIS-SOLVED (MG/L AS P)	PHOSPHOROUS TOTAL (MG/L AS P)
NOV 29...		8.7	97	93	E35100	E0.13	<0.01	0.28	0.3	0.03	0.03	0.05
MAR 21...	15		133	128	E60700	E0.18	0.03	0.41	<0.2	0.07	0.04	0.06
MAY 16...	12		77	90	E57200	E0.10	0.03	0.12	0.4	0.01	0.02	0.03
SEP 05...		6.6	89	82	E25500	E0.12	0.03	<0.10	<0.2	0.02	<0.01	0.01

E - Estimated value.

K - Results based on colony count outside acceptable range (non-ideal colony count).

LOWER COLUMBIA RIVER

14128910 COLUMBIA RIVER AT WARRENDALE, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
NOV 29...	<10	1	23	<0.5	<1	1	<3	5	13	<5	<4	2
MAR 21...	430	2	32	<0.5	<1	2	<3	11	370	9	4	26
MAY 16...	40	1	22	<0.5	<1	1	<3	3	47	1	<4	1
SEP 05...	<10	<1	24	<0.5	<1	1	<3	5	7	<1	<4	1

DATE	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDI- MENT, DIS- SUS- PENDE (MG/L)	SED- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 29...	<0.1	<10	8	<1	1	100	<6	8	7	E2530	98
MAR 21...	<0.1	<10	6	<1	<1	120	<6	13	19	E8670	98
MAY 16...	<0.1	<10	<1	<1	<1	82	<6	<3	25	E18600	95
SEP 05...	<0.1	<10	<1	<1	<1	89	<6	10	6	E1720	98

E - Estimated value.

LOWER COLUMBIA RIVER BASIN

14128910 COLUMBIA RIVER AT WARRENDALE, OR--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	153	151	152	153	151	152	160	155	158	160	158	159
2	154	152	153	152	151	151	162	160	161	163	160	161
3	154	153	153	153	150	152	161	159	160	166	163	164
4	154	153	153	153	151	152	160	159	159	169	166	167
5	154	151	153	153	151	152	161	159	160	173	168	170
6	154	153	154	151	149	150	163	161	162	175	172	174
7	155	153	154	152	150	151	164	161	163	179	176	177
8	156	155	155	152	151	152	168	164	166	180	178	179
9	157	155	156	152	151	152	169	167	168	178	169	174
10	156	154	155	151	149	150	172	169	170	171	169	170
11	156	155	156	150	148	149	176	172	174	171	166	169
12	156	155	156	148	145	146	176	175	176	175	170	173
13	156	155	156	148	146	147	175	171	173	178	176	177
14	159	155	156	151	148	149	172	170	171	178	177	178
15	157	156	156	151	150	150	173	171	172	178	176	177
16	158	156	157	151	148	149	172	166	170	177	173	176
17	158	157	158	148	146	147	167	162	165	173	170	171
18	158	157	157	147	146	146	165	162	164	171	169	170
19	158	157	158	149	147	148	166	164	165	171	169	170
20	158	157	157	150	148	149	168	165	167	175	170	172
21	158	157	157	150	148	149	169	168	169	178	175	177
22	158	157	158	149	146	148	169	168	168	179	177	178
23	159	157	158	149	145	147	168	167	168	178	176	177
24	159	157	158	151	148	149	170	167	168	178	176	177
25	158	155	157	153	150	151	172	170	171	183	179	180
26	156	154	155	154	152	153	175	172	173	188	183	186
27	154	151	152	155	151	153	175	173	174	190	188	189
28	153	151	152	152	150	151	174	173	173	190	189	190
29	153	152	152	154	152	153	173	168	171	192	189	190
30	154	152	153	155	153	154	168	161	165	194	192	193
31	154	152	153	---	---	---	161	158	159	193	191	192
MONTH	159	151	155	155	145	150	176	155	167	194	158	176
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	192	189	190	173	172	173	227	223	225	154	151	152
2	192	189	190	173	171	172	225	221	223	152	148	150
3	198	192	195	171	168	170	222	220	221	148	146	148
4	198	197	198	169	168	168	222	215	219	147	146	146
5	198	196	197	168	167	168	216	210	213	147	144	145
6	197	193	195	166	163	164	210	203	207	144	142	143
7	193	186	189	166	162	164	202	198	200	143	142	142
8	186	184	184	169	165	166	198	195	197	142	140	141
9	185	183	184	171	167	169	198	195	197	139	139	139
10	183	181	182	174	169	172	198	196	197	140	139	140
11	185	181	183	180	174	176	199	195	197	141	139	140
12	188	185	186	189	180	184	201	198	199	140	139	140
13	190	189	189	198	190	193	201	199	200	140	139	140
14	189	187	188	199	195	197	201	200	201	141	138	140
15	188	187	187	199	194	196	202	197	199	140	138	139
16	188	186	187	194	185	188	198	194	196	140	139	140
17	185	181	183	185	181	182	194	189	192	140	138	139
18	181	177	179	183	179	181	189	183	186	138	134	136
19	178	174	176	186	181	184	183	177	180	134	130	132
20	176	174	175	192	184	189	176	170	173	130	125	128
21	181	175	178	194	190	192	171	166	169	125	123	124
22	183	180	182	197	194	196	167	165	166	126	123	124
23	182	180	181	204	198	201	166	164	165	128	125	127
24	181	179	180	214	205	210	168	164	166	129	127	128
25	179	178	178	220	215	218	170	168	168	129	127	128
26	180	178	179	221	219	220	167	165	166	128	127	127
27	179	176	178	223	219	221	165	159	162	127	125	126
28	177	173	175	227	222	224	159	155	157	126	125	126
29	---	---	---	227	225	226	156	154	154	125	124	125
30	---	---	---	226	225	225	154	153	154	125	124	124
31	---	---	---	228	225	227	---	---	---	125	123	124
MONTH	198	173	185	228	162	191	227	153	188	154	123	136

LOWER COLUMBIA RIVER BASIN

14128910 COLUMBIA RIVER AT WARRENDALE, OR--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	126	123	124	---	---	---	---	---	---	141	139	140
2	126	124	125	---	---	---	---	---	---	142	140	141
3	127	124	126	---	---	---	---	---	---	143	142	143
4	127	125	126	---	---	---	---	---	---	144	142	143
5	126	125	126	---	---	---	---	---	---	145	143	144
6	126	124	125	---	---	---	---	---	---	145	144	144
7	125	124	125	---	---	---	---	---	---	146	144	145
8	126	124	125	---	---	---	---	---	---	147	145	146
9	127	125	126	---	---	---	---	---	---	149	146	147
10	127	125	126	---	---	---	---	---	---	149	148	148
11	127	125	126	---	---	---	---	---	---	148	145	147
12	126	124	125	---	---	---	---	---	---	146	144	145
13	125	123	124	---	---	---	---	---	---	147	145	146
14	124	121	123	---	---	---	---	---	---	149	146	147
15	121	119	120	---	---	---	---	---	---	150	148	149
16	118	116	117	---	---	---	---	---	---	152	150	151
17	116	113	114	---	---	---	---	---	---	153	151	152
18	113	111	112	---	---	---	---	---	---	155	153	154
19	110	107	109	---	---	---	---	---	---	156	154	155
20	107	105	106	---	---	---	---	---	---	179	155	157
21	105	103	104	---	---	---	---	---	---	178	155	158
22	105	103	104	---	---	---	---	---	---	157	155	156
23	---	---	---	---	---	---	---	---	---	158	156	157
24	---	---	---	---	---	---	---	---	---	159	157	158
25	---	---	---	---	---	---	---	---	---	160	158	159
26	---	---	---	---	---	---	---	---	---	161	159	160
27	---	---	---	---	---	---	---	---	---	161	160	160
28	---	---	---	---	---	---	---	---	---	161	159	160
29	---	---	---	---	---	---	138	136	137	164	161	162
30	---	---	---	---	---	---	139	137	138	166	163	164
31	---	---	---	---	---	---	140	138	139	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	179	139	151

LOWER COLUMBIA RIVER BASIN

39

14128910 COLUMBIA RIVER AT WARRENDALE, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	17.0	17.0	17.0	15.5	15.0	15.0	9.5	9.5	9.5	6.5	6.5	6.5
2	17.5	17.0	17.0	15.0	15.0	15.0	9.5	9.5	9.5	6.5	6.5	6.5
3	17.5	17.5	17.5	15.0	14.5	14.5	9.5	9.0	9.0	6.5	6.5	6.5
4	17.5	17.5	17.5	14.5	14.5	14.5	9.0	9.0	9.0	6.5	6.5	6.5
5	17.5	17.5	17.5	14.5	14.0	14.5	9.0	9.0	9.0	6.5	6.5	6.5
6	17.5	17.5	17.5	14.0	14.0	14.0	9.0	9.0	9.0	6.5	6.0	6.0
7	17.5	17.5	17.5	14.0	13.5	13.5	9.5	9.0	9.5	6.0	6.0	6.0
8	17.5	17.5	17.5	13.5	13.5	13.5	9.5	9.0	9.0	6.0	6.0	6.0
9	17.5	17.5	17.5	13.5	13.0	13.0	9.0	9.0	9.0	6.0	6.0	6.0
10	17.5	17.0	17.5	13.0	12.5	13.0	9.0	9.0	9.0	6.0	6.0	6.0
11	17.5	17.0	17.5	13.0	12.5	12.5	9.0	9.0	9.0	6.5	6.0	6.0
12	17.5	17.0	17.0	13.0	12.5	12.5	9.5	9.0	9.0	6.5	6.5	6.5
13	17.0	17.0	17.0	12.5	12.5	12.5	9.5	9.0	9.0	6.5	6.0	6.0
14	17.0	17.0	17.0	12.5	12.5	12.5	9.0	8.5	9.0	6.0	6.0	6.0
15	17.0	17.0	17.0	12.5	12.0	12.5	8.5	8.0	8.5	6.0	6.0	6.0
16	17.0	17.0	17.0	12.0	12.0	12.0	8.0	8.0	8.0	6.5	6.0	6.0
17	17.0	17.0	17.0	12.0	11.5	12.0	8.0	8.0	8.0	6.5	6.5	6.5
18	17.0	16.5	17.0	11.5	11.5	11.5	8.0	7.5	8.0	6.5	6.5	6.5
19	17.0	17.0	17.0	11.5	11.5	11.5	8.0	8.0	8.0	6.5	6.5	6.5
20	17.0	17.0	17.0	11.5	11.0	11.0	8.0	8.0	8.0	6.5	6.0	6.0
21	17.0	16.5	17.0	11.5	11.0	11.0	8.0	8.0	8.0	6.0	6.0	6.0
22	17.0	16.5	16.5	11.0	10.5	11.0	8.0	8.0	8.0	6.0	5.5	6.0
23	16.5	16.5	16.5	10.5	10.5	10.5	8.0	8.0	8.0	6.0	5.5	5.5
24	16.5	16.5	16.5	10.5	10.0	10.0	8.0	8.0	8.0	5.5	5.5	5.5
25	16.5	16.0	16.5	10.0	10.0	10.0	8.0	7.5	7.5	5.5	5.0	5.5
26	16.0	16.0	16.0	10.0	10.0	10.0	7.5	7.5	7.5	5.5	5.0	5.5
27	16.0	15.0	15.5	10.0	9.5	10.0	7.5	7.0	7.0	5.5	5.0	5.5
28	15.0	15.0	15.0	10.0	9.5	9.5	7.0	6.0	7.0	5.5	5.5	5.5
29	15.0	15.0	15.0	10.0	9.5	9.5	7.0	6.5	6.5	5.5	5.5	5.5
30	15.0	15.0	15.0	9.5	9.5	9.5	7.0	6.5	7.0	6.0	5.5	5.5
31	15.5	14.5	15.0	---	---	---	7.0	6.5	6.5	6.0	6.0	6.0
MONTH	17.5	14.5	16.5	15.5	9.5	12.0	9.5	6.0	8.5	6.5	5.0	6.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	6.0	5.0	5.5	4.0	3.5	4.0	7.5	7.5	7.5	12.0	12.0	12.0
2	5.0	4.0	4.5	3.5	3.5	3.5	7.5	7.5	7.5	12.5	12.0	12.0
3	4.0	3.0	3.5	3.5	3.5	3.5	8.0	7.5	8.0	12.5	12.0	12.0
4	3.0	3.0	3.0	3.5	3.0	3.5	8.0	8.0	8.0	12.5	12.0	12.5
5	3.0	2.5	2.5	3.5	3.0	3.5	8.5	8.0	8.0	12.5	12.5	12.5
6	2.5	2.5	2.5	4.0	3.5	3.5	9.0	8.0	8.5	13.0	12.5	13.0
7	2.5	2.5	2.5	4.0	4.0	4.0	9.0	8.5	9.0	13.5	13.0	13.0
8	2.5	2.5	2.5	4.5	4.0	4.5	9.5	9.0	9.0	13.5	13.0	13.5
9	2.5	2.0	2.0	5.0	4.5	4.5	9.5	9.0	9.5	13.5	13.0	13.5
10	2.0	2.0	2.0	5.0	5.0	5.0	9.5	9.0	9.5	13.0	13.0	13.0
11	2.0	1.5	2.0	5.5	5.0	5.5	10.0	9.5	9.5	13.0	13.0	13.0
12	2.0	2.0	2.0	5.5	5.5	5.5	10.0	9.5	10.0	13.5	13.0	13.0
13	2.5	2.0	2.5	5.5	5.5	5.5	10.0	10.0	10.0	13.5	13.0	13.5
14	2.5	2.5	2.5	5.5	5.5	5.5	10.5	10.0	10.0	14.0	13.5	13.5
15	2.5	2.0	2.0	6.0	5.5	5.5	10.5	10.0	10.5	14.0	13.5	13.5
16	2.0	2.0	2.0	6.0	5.5	5.5	10.5	10.0	10.5	14.0	13.5	13.5
17	2.0	2.0	2.0	6.0	5.5	5.5	10.5	10.0	10.0	14.0	13.5	13.5
18	2.0	2.0	2.0	6.0	5.5	6.0	10.5	10.0	10.5	13.5	13.5	13.5
19	2.0	2.0	2.0	6.0	6.0	6.0	11.0	10.5	11.0	13.5	13.5	13.5
20	2.0	2.0	2.0	6.5	6.0	6.5	11.5	11.0	11.0	14.0	13.5	13.5
21	2.5	2.0	2.5	6.5	6.5	6.5	11.5	11.0	11.0	14.0	13.5	13.5
22	2.5	2.5	2.5	7.0	6.5	6.5	11.5	11.0	11.0	14.0	13.0	14.0
23	2.5	2.5	2.5	7.0	6.5	7.0	11.5	11.0	11.0	14.0	13.5	14.0
24	2.5	2.5	2.5	7.0	7.0	7.0	12.0	11.0	11.5	14.0	13.5	13.5
25	3.0	2.5	3.0	7.0	7.0	7.0	12.0	11.5	12.0	13.5	13.5	13.5
26	3.0	3.0	3.0	7.5	7.0	7.0	11.5	11.5	11.5	13.5	13.5	13.5
27	3.5	3.0	3.5	7.5	7.0	7.5	12.0	11.5	11.5	13.5	13.5	13.5
28	4.0	3.5	3.5	7.5	7.5	7.5	11.5	11.5	11.5	14.0	13.5	13.5
29	---	---	---	7.5	7.5	7.5	11.5	11.5	11.5	13.5	13.5	13.5
30	---	---	---	7.5	7.5	7.5	12.0	11.5	12.0	14.0	13.5	13.5
31	---	---	---	7.5	7.5	7.5	---	---	---	14.5	14.0	14.0
MONTH	6.0	1.5	2.5	7.5	3.0	5.5	12.0	7.5	10.0	14.5	12.0	13.5

LOWER COLUMBIA RIVER BASIN

14128910 COLUMBIA RIVER AT WARRENDALE, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	15.0	14.0	14.5				---	---	---	21.5	21.0	21.0
2	15.0	14.5	15.0				---	---	---	21.0	21.0	21.0
3	15.5	14.5	15.0				---	---	---	21.0	20.5	20.5
4	15.5	15.0	15.5				---	---	---	21.0	20.5	20.5
5	16.0	15.5	15.5				---	---	---	21.0	20.5	20.5
6	16.0	15.5	16.0				---	---	---	20.5	20.5	20.5
7	16.0	15.5	16.0				---	---	---	21.0	20.5	20.5
8	16.5	16.0	16.0				---	---	---	21.0	21.0	21.0
9	16.5	16.0	16.5				---	---	---	21.0	20.5	20.5
10	17.0	16.5	16.5				---	---	---	20.5	20.5	20.5
11	17.0	16.5	17.0				---	---	---	20.5	20.0	20.5
12	17.5	17.0	17.0				---	---	---	20.5	20.0	20.5
13	17.5	17.5	17.5				---	---	---	20.5	20.0	20.5
14	17.5	17.5	17.5				---	---	---	20.5	20.0	20.0
15	17.5	17.0	17.5				---	---	---	20.5	20.0	20.0
16	17.5	17.0	17.0				---	---	---	20.5	20.0	20.0
17	17.5	17.0	17.0				---	---	---	20.0	19.5	19.5
18	17.5	17.0	17.5				---	---	---	19.5	19.5	19.5
19	17.5	17.0	17.5				---	---	---	19.5	19.0	19.0
20	17.5	17.0	17.0				---	---	---	19.0	19.0	19.0
21	18.0	16.5	17.5				---	---	---	19.0	19.0	19.0
22	18.0	17.5	17.5				---	---	---	19.0	18.5	18.5
23	---	---	---				---	---	---	19.0	18.5	19.0
24	---	---	---				---	---	---	19.5	19.0	19.5
25	---	---	---				---	---	---	19.5	19.5	19.5
26	---	---	---				---	---	---	19.5	19.0	19.5
27	---	---	---				---	---	---	19.0	19.0	19.0
28	---	---	---				---	---	---	19.0	19.0	19.0
29	---	---	---				21.5	21.5	21.5	19.0	19.0	19.0
30	---	---	---				21.5	21.5	21.5	19.0	18.5	19.0
31	---	---	---				21.5	21.0	21.5	---	---	---
MONTH	---	---	---				---	---	---	21.5	18.5	20.0

SANDY RIVER BASIN

14131400 ZIGZAG RIVER NEAR RHODODENDRON, OR

LOCATION.--Lat 45°18'32", long 121°51'31", in NE 1/4 SE 1/4 sec.18, T.3 S., R.8 E., Clackamas County, Hydrologic Unit 17080001, in Mount Hood National Forest, on right bank at bridge, 0.5 mi upstream from Devil Canyon Creek, 1.2 mi downstream from Lady Creek, and 2.8 mi southeast of Rhododendron.

DRAINAGE AREA.--14.8 mi².

PERIOD OF RECORD.--July 1981 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,191.52 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. No regulation. Small diversion for private water supply from Lady Creek.

AVERAGE DISCHARGE.--8 years (water years 1982-89), 78.4 ft³/s, 71.94 in/yr, 56,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.---Maximum discharge, 438 ft³/s Jan. 6, 1983, gage height, 5.35 ft; minimum discharge, 32 ft³/s Oct. 26, 1987.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 25, 1980, reached a stage of 6.0 ft, discharge, 863 ft³/s, from slope-area measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 220 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 9	2000	*258	4.99	Feb. 7	2130	(a)	*5.14

Minimum discharge, 40 ft³/s Feb. 2, 3, result of freezeup.

(a) Backwater due to ice.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	55	67	61	e55	58	78	125	95	67	57	49
2	56	67	66	64	e40	57	82	112	98	68	62	53
3	56	70	66	72	e40	57	79	110	105	68	61	50
4	56	80	66	72	e42	55	76	115	117	68	56	48
5	57	68	68	68	e45	54	89	149	130	67	56	48
6	56	85	91	64	e50	59	99	160	124	66	56	48
7	56	64	101	62	e55	111	111	157	113	66	56	47
8	55	66	79	63	e62	92	113	133	122	66	57	47
9	55	66	87	142	61	79	98	131	104	68	57	48
10	56	77	77	153	58	76	99	152	93	66	54	46
11	55	67	72	104	58	85	100	153	92	65	53	47
12	56	79	72	88	58	87	101	132	96	66	53	47
13	54	66	84	84	57	87	111	99	91	65	52	47
14	59	61	72	78	55	89	122	95	88	65	52	46
15	66	63	69	79	55	82	128	94	86	65	51	46
16	63	69	66	86	54	80	115	95	79	67	51	46
17	63	67	62	88	53	81	108	95	77	66	51	46
18	65	66	61	90	59	78	113	91	77	64	51	46
19	63	68	63	91	66	80	136	88	78	64	52	46
20	56	76	61	88	65	76	170	86	80	62	53	46
21	61	104	59	89	61	76	155	86	72	60	56	45
22	59	133	59	85	61	92	140	84	73	60	65	44
23	59	91	58	87	62	84	131	87	75	60	59	45
24	60	68	57	72	67	79	125	86	77	59	54	45
25	62	62	54	69	64	81	142	88	77	58	52	44
26	67	57	53	67	61	85	157	84	76	58	50	46
27	67	73	52	69	59	82	142	92	74	58	50	44
28	58	85	50	68	58	82	130	86	71	57	49	44
29	61	70	64	67	---	82	129	86	71	57	49	45
30	64	68	78	66	---	80	137	84	70	57	49	61
31	56	---	65	65	---	80	---	88	---	55	50	---
TOTAL	1833	2191	2099	2501	1581	2426	3516	3323	2681	1958	1674	1410
MEAN	59.1	73.0	67.7	80.7	56.5	78.3	117	107	89.4	63.2	54.0	47.0
MAX	67	133	101	153	67	111	170	160	130	68	65	61
MIN	54	55	50	61	40	54	76	84	70	55	49	44
AC-FT	3640	4350	4160	4960	3140	4810	6970	6590	5320	3880	3320	2800
CFSM	4.00	4.93	4.57	5.45	3.82	5.29	7.92	7.24	6.04	4.27	3.65	3.18
IN.	4.61	5.51	5.28	6.29	3.97	6.10	8.84	8.35	6.74	4.92	4.21	3.54

CAL YR 1988 TOTAL 27939 MEAN 76.3 MAX 161 MIN 39 AC-FT 55420 CFMS 5.16 IN. 70.23
WTR YR 1989 TOTAL 27193 MEAN 74.5 MAX 170 MIN 40 AC-FT 53940 CFMS 5.03 IN. 68.35

e Estimated

SANDY RIVER BASIN

14134000 SALMON RIVER NEAR GOVERNMENT CAMP, OR

LOCATION.--Lat 45°15'55", long 121°43'00", in SE 1/4 NW 1/4 sec.31, T.3 S., R.9 E., Clackamas County, Hydrologic Unit 17080001, in Mount Hood National Forest, on right bank near lower end of Red Top Meadows and 3.0 mi southeast of Government Camp.

DRAINAGE AREA.--8.00 mi².

PERIOD OF RECORD.--May 1910 to May 1912, April 1926 to current year. Published as "near Rowe" 1910-12.

REVISED RECORDS.--WSP 1398: 1911-12, 1926-27, 1933(M), 1949. WDR OR-77-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,445.53 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 21, 1910, nonrecording gage at site 0.2 mi upstream at different datum. Nov. 21, 1910, to May 31, 1912, and Apr. 21, 1926, to Sept. 30, 1933, at site 75 ft upstream from former site at different datums. Oct. 1, 1933, to Sept. 30, 1960, at datum 1.00 ft higher.

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--64 years (water years 1911, 1927-89), 44.2 ft³/s, 75.03 in/yr, 32,020 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,300 ft³/s Dec. 23, 1964, gage height, 4.75 ft, from rating curve extended above 310 ft³/s, on basis of slope-area measurement of peak flow; minimum discharge, 10 ft³/s Nov. 27, 1952.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 150 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	1700	*142	*1.86				
Minimum discharge, 17 ft ³ /s Sept. 22-24.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	20	32	31	e25	28	35	95	66	43	30	22
2	21	31	30	35	e22	27	36	86	68	42	35	26
3	20	35	29	41	e20	26	35	83	72	43	32	23
4	20	42	29	38	e20	27	39	91	75	43	30	21
5	20	32	30	35	e20	40	56	101	72	42	29	21
6	20	47	46	32	e21	58	58	106	70	41	29	21
7	20	28	58	31	e22	40	76	106	67	41	29	20
8	20	29	42	31	e23	34	70	99	65	38	30	21
9	20	29	55	73	e24	37	64	99	64	38	35	22
10	20	44	47	72	26	42	66	93	62	38	29	21
11	19	33	42	48	26	45	69	81	62	37	27	20
12	19	43	46	42	26	45	74	74	61	37	26	20
13	19	30	66	40	e25	44	78	73	59	37	26	20
14	20	27	46	38	e24	38	88	69	61	36	26	21
15	28	29	40	37	e24	37	91	70	60	37	25	21
16	21	33	38	45	e25	37	84	71	56	39	25	21
17	22	29	35	51	29	36	77	71	55	40	25	20
18	21	26	33	55	30	39	87	67	52	36	24	19
19	23	26	34	53	28	36	113	68	54	35	24	19
20	20	32	33	45	28	36	113	62	60	34	27	19
21	20	51	31	44	29	56	91	62	52	33	31	19
22	20	84	31	38	34	48	79	61	52	32	41	19
23	20	55	30	36	30	40	73	64	54	31	31	20
24	19	39	30	34	29	38	72	67	55	31	27	19
25	19	34	28	33	28	42	85	68	52	30	26	19
26	19	31	27	33	27	41	92	62	49	30	24	20
27	19	41	27	33	27	40	82	69	46	32	23	19
28	18	46	27	33	27	43	73	62	46	30	23	20
29	18	34	35	33	---	40	76	62	47	30	23	20
30	19	33	51	35	---	35	85	61	47	30	23	33
31	19	---	34	e30	---	36	---	62	---	30	23	---
TOTAL	624	1093	1162	1255	719	1211	2217	2365	1761	1116	858	626
MEAN	20.1	36.4	37.5	40.5	25.7	39.1	73.9	76.3	58.7	36.0	27.7	20.9
MAX	28	84	66	73	34	58	113	106	75	43	41	33
MIN	18	20	27	30	20	26	35	61	46	30	23	19
AC-FT	1240	2170	2300	2490	1430	2400	4400	4690	3490	2210	1700	1240
CFSM	2.52	4.65	4.69	5.06	3.21	4.88	9.24	9.54	7.34	4.50	3.46	2.61
IN.	2.90	5.08	5.40	5.84	3.34	5.63	10.31	11.00	8.19	5.19	3.99	2.91

CAL YR 1988 TOTAL 14891 MEAN 40.7 MAX 107 MIN 18 AC-FT 29540 CFSM 5.09 IN. 69.24
WTR YR 1989 TOTAL 15007 MEAN 41.1 MAX 113 MIN 18 AC-FT 29770 CFSM 5.14 IN. 69.78

e Estimated

SANDY RIVER BASIN

43

14137000 SANDY RIVER NEAR MARMOT, OR

LOCATION.--Lat 45°23'30", long 122°07'40", in SE 1/4 sec.13, T.2 S., R.5 E., Clackamas County, Hydrologic Unit 17080001, on right bank 0.7 mi southwest of Marmot, 0.8 mi upstream from Sandy River Dam of Portland General Electric Co., 6.6 mi downstream from Salmon River, and at mile 30.9.

DRAINAGE AREA.--262 mi².

PERIOD OF RECORD.--August 1911 to current year. Published as "at Marmot" October 1912 to September 1913. Records for January 1916 to June 1919, published as "below dam, near Marmot," obtained by combining records for Sandy River below dam, near Marmot, with records for Sandy River Canal near Marmot.

REVISED RECORDS.--WSP 594: Drainage area. WSP 1288: 1912(M), 1915, 1922, 1924, 1934(M). WSP 1318: 1932(M).

GAGE.--Water-stage recorder. Elevation of gage is 730 ft, from river-profile map. Aug. 15, 1911, to Dec. 20, 1915, and July 2, 1919, to Oct. 19, 1933, nonrecording gage at site 1.0 mi upstream at different datum. Oct. 20, 1933, to Sept. 30, 1958, water-stage recorder at site 0.6 mi upstream at different datum.

REMARKS.--Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--78 years, 1,358 ft³/s, 70.39 in/yr, 983,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 61,400 ft³/s Dec. 22, 1964, gage height, 17.05 ft, from rating curve extended above 7,000 ft³/s; maximum gage height, 17.10 ft, Feb. 23, 1986; minimum, 195 ft³/s Nov. 27, 28, 1952.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 7,700 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	2130	7,720	11.37	Jan. 9	2200	*20,900	*14.53

Minimum discharge, 235 ft³/s Oct. 28-30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	291	252	1760	1450	1970	975	1870	2030	1240	588	389	339
2	293	363	1600	1490	1610	958	2040	1850	1240	557	469	386
3	285	616	1500	1990	e1480	858	1810	1730	1220	562	438	359
4	281	931	1390	2120	e1340	807	1810	1700	1250	563	418	334
5	280	593	1350	1880	e1210	1350	2310	1850	1180	542	407	328
6	281	1510	1940	1570	e1090	4670	2500	1950	1130	536	411	320
7	281	838	3020	1350	e980	3220	2850	1910	1040	544	419	316
8	275	689	2190	1450	e860	2320	2670	1780	981	523	428	318
9	268	739	2070	8240	e830	2070	2270	1710	946	515	427	318
10	264	1040	1840	9050	e800	2330	2120	1710	892	521	396	310
11	265	1240	1590	3880	e760	2430	2100	1520	862	509	366	301
12	262	1600	1460	2670	754	2490	2220	1330	866	517	362	297
13	261	1350	1820	2320	716	2660	2400	1210	860	535	362	296
14	283	987	1540	1930	690	2210	2620	1140	889	528	353	297
15	372	932	1320	1880	662	2020	2640	1090	925	525	342	298
16	333	1180	1170	2570	869	2060	2280	1100	797	534	333	298
17	309	1420	1050	2800	1710	1920	2030	1110	733	611	340	292
18	285	1260	979	2970	1870	1960	1970	1140	706	527	342	285
19	316	1100	1160	2850	1610	1820	2490	1110	729	536	339	281
20	295	1710	1100	2440	1510	1650	2900	1030	886	513	359	280
21	276	3030	1110	2280	1480	2270	2560	975	729	465	417	278
22	296	5260	1110	2050	1660	2370	2120	938	678	443	778	274
23	269	4780	1060	1710	1740	2000	1830	997	691	448	604	283
24	261	2670	997	1490	1510	1820	1660	1210	722	429	478	286
25	259	2190	909	1340	1310	1940	1900	1390	699	421	419	291
26	254	1930	829	1240	1170	1940	3160	1240	681	432	389	295
27	243	2730	781	1250	1080	1880	2610	1700	635	449	368	293
28	239	4490	726	1170	1010	2030	2170	1710	599	415	354	281
29	236	2800	1100	1120	---	2040	1940	1520	597	411	350	301
30	239	2080	2300	1260	---	1860	1920	1370	632	428	343	480
31	241	---	1810	2370	---	1970	---	1270	---	409	347	---
TOTAL	8593	52310	44581	74180	34281	62898	67770	44320	26035	15536	12547	9315
MEAN	277	1744	1438	2393	1224	2029	2259	1430	868	501	405	310
MAX	372	5260	3020	9050	1970	4670	3160	2030	1250	611	778	480
MIN	236	252	726	1120	662	807	1660	938	597	409	333	274
AC-FT	17040	103800	88430	147100	68000	124800	134400	87910	51640	30820	24890	18480
CFSM	1.06	6.66	5.49	9.13	4.67	7.74	8.62	5.46	3.31	1.91	1.54	1.19
IN.	1.22	7.43	6.33	10.53	4.87	8.93	9.62	6.29	3.70	2.21	1.78	1.32

CAL YR 1988 TOTAL 464920 MEAN 1270 MAX 6500 MIN 236 AC-FT 922200 CFSM 4.85 IN. 66.01
WTR YR 1989 TOTAL 452366 MEAN 1239 MAX 9050 MIN 236 AC-FT 897300 CFSM 4.73 IN. 64.23

e Estimated

SANDY RIVER BASIN

14138800 BLAZED ALDER CREEK NEAR RHODODENDRON, OR

LOCATION.--Lat 45°27'10", long 121°53'25", in NW 1/4 SE 1/4 sec.25, T.1 S., R.7 E., Clackamas County, Hydrologic Unit 17080001, in Mount Hood National Forest, on right bank 600 ft below the confluence of Bedrock and Hickman Creeks and 8.6 mi north of Rhododendron.

DRAINAGE AREA.--8.17 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 2,540 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--26 years, 58.2 ft³/s, 96.74 in/yr, 42,170 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,610 ft³/s Dec. 22, 1964, gage height, 8.25 ft, from rating curve extended above 330 ft³/s, on basis of slope-area measurement of peak flow; minimum discharge, 1.4 ft³/s Oct. 17-30, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	1900	620	3.85	Jan. 9	1830	*1,180	*5.29

Minimum discharge, 2.9 ft³/s Oct. 8-14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.7	8.0	69	53	112	27	83	92	43	11	5.2	5.6
2	3.5	41	61	57	88	25	88	79	39	10	11	10
3	3.3	50	59	106	e65	22	67	71	37	9.1	7.6	7.3
4	3.3	137	55	117	e55	22	82	76	34	8.8	6.3	6.2
5	3.1	86	60	91	e45	72	144	85	31	8.0	5.6	5.6
6	3.1	215	248	62	e40	264	152	87	28	7.6	4.9	5.2
7	3.1	93	262	50	e36	147	178	80	25	7.4	4.6	4.9
8	2.9	88	134	72	e34	91	146	69	23	7.1	4.4	4.6
9	2.9	75	114	629	e32	79	116	63	21	7.1	4.3	4.2
10	2.9	125	87	345	e28	92	103	60	19	7.1	4.2	4.2
11	2.9	115	69	135	e27	122	105	56	18	6.9	4.0	4.0
12	2.9	206	64	81	25	136	125	42	17	6.5	3.8	3.8
13	2.9	132	115	63	22	139	139	37	16	6.1	3.8	3.8
14	4.6	78	71	47	19	90	159	34	17	5.8	3.8	3.7
15	10	88	53	67	18	76	149	32	17	5.8	3.8	3.5
16	5.9	150	40	163	31	75	117	32	15	9.3	3.8	3.5
17	5.2	123	34	183	105	66	92	34	13	12	3.7	3.5
18	4.5	83	30	183	83	75	95	40	12	8.0	3.5	3.5
19	8.8	78	52	153	61	67	151	43	14	7.0	3.3	3.3
20	6.9	175	37	110	65	59	173	37	36	6.6	3.7	3.3
21	5.7	363	32	89	61	130	132	34	20	6.2	6.7	3.3
22	7.6	460	29	73	77	125	99	31	17	5.8	22	3.3
23	5.7	275	26	55	77	84	88	37	15	5.4	14	3.1
24	4.9	130	24	43	58	74	76	73	13	5.2	10	3.1
25	4.5	87	21	37	44	105	112	76	12	5.0	8.9	3.1
26	4.2	63	19	34	37	108	224	65	11	5.0	8.1	3.2
27	4.0	158	18	35	32	121	147	126	11	5.0	7.1	3.3
28	4.2	244	26	32	29	124	103	105	11	4.8	6.5	3.2
29	4.0	130	66	31	---	93	92	81	11	4.6	6.1	3.1
30	4.0	87	144	46	---	77	92	62	12	4.6	5.8	14
31	4.0	---	72	187	---	89	---	49	---	4.3	5.7	---
TOTAL	139.2	4143.0	2191	3429	1406	2876	3629	1888	608	213.1	196.2	136.4
MEAN	4.49	138	70.7	111	50.2	92.8	121	60.9	20.3	6.87	6.33	4.55
MAX	10	460	262	629	112	264	224	126	43	12	22	14
MIN	2.9	8.0	18	31	18	22	67	31	11	4.3	3.3	3.1
AC-FT	276	8220	4350	6800	2790	5700	7200	3740	1210	423	389	271
CFSM	.55	16.9	8.65	13.5	6.15	11.4	14.8	7.45	2.48	.84	.77	.56
IN.	.63	18.86	9.98	15.61	6.40	13.10	16.52	8.60	2.77	.97	.89	.62

CAL YR 1988 TOTAL 20134.5 MEAN 55.0 MAX 460 MIN 1.7 AC-FT 39940 CFSM 6.73 IN. 91.68
WTR YR 1989 TOTAL 20854.9 MEAN 57.1 MAX 629 MIN 2.9 AC-FT 41370 CFSM 6.99 IN. 94.96

e Estimated

SANDY RIVER BASIN

14138850 BULL RUN RIVER NEAR MULTNOMAH FALLS, OR

LOCATION.--Lat 45°29'50", long 122°00'50", near center of sec.12, T.1 S., R.6 E., Multnomah County, Hydrologic Unit 17080001, in Mount Hood National Forest, on right bank 1.2 mi upstream from North Fork, 7.0 mi southeast of Multnomah Falls, and at mile 14.8.

DRAINAGE AREA.--47.9 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1966 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,080 ft, from topographic map.

REMARKS.--Water-discharge records fair. Regulation at times since 1915 by Bull Run Lake, usable capacity, 12,270 acre-ft No diversion upstream from station.

AVERAGE DISCHARGE.--23 years, 413 ft³/s, 117.09 in/yr, 299,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,610 ft³/s Jan. 20, 1972, gage height, 13.22 ft; minimum discharge, 30 ft³/s Oct. 28-31, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	1900	3,990	9.36	Jan. 9	1830	*5,590	*10.83

Minimum discharge, 40 ft³/s Oct. 10-14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	66	e560	433	741	276	669	564	357	112	84	87
2	47	353	e490	515	488	259	729	490	318	105	184	161
3	46	456	e440	1080	e375	220	601	447	295	99	133	121
4	45	930	e370	1040	e335	198	719	451	283	95	122	108
5	44	653	e490	742	e290	547	1090	475	256	91	118	101
6	44	1570	e1170	514	e260	2030	1020	482	243	88	114	97
7	43	641	e1150	396	e230	1150	1120	459	221	87	91	93
8	42	546	e810	545	e180	743	917	416	197	85	79	89
9	42	499	e740	3710	191	732	757	400	183	85	78	88
10	41	927	553	e2000	179	899	750	384	167	84	75	86
11	40	786	455	e1100	168	1100	750	367	153	83	73	83
12	40	1420	411	656	160	1150	740	312	147	80	71	82
13	40	874	590	540	150	1150	783	278	138	77	70	82
14	49	528	429	433	142	761	851	259	151	75	70	82
15	87	561	349	524	134	673	795	249	161	74	69	82
16	61	930	296	1340	212	712	650	246	137	115	69	81
17	58	833	256	1770	868	632	551	263	127	172	67	81
18	54	628	233	1640	639	702	543	317	120	106	66	81
19	96	524	414	1210	419	621	728	337	133	93	65	80
20	76	1050	363	825	515	537	895	295	295	89	65	79
21	65	1980	341	731	457	1100	746	267	205	88	116	78
22	74	2740	332	605	556	920	631	251	164	87	322	74
23	62	1820	292	474	579	662	543	286	147	86	197	69
24	57	878	253	419	396	591	475	565	136	84	145	65
25	54	620	213	365	352	890	628	635	126	83	126	63
26	53	537	180	331	352	903	1270	515	120	83	112	61
27	51	1170	160	331	352	899	932	884	115	83	102	61
28	49	1830	145	315	310	1020	677	742	110	83	94	59
29	48	956	387	305	---	835	606	576	111	82	88	58
30	48	e680	999	422	---	677	576	470	123	82	86	164
31	48	---	616	1320	---	766	---	396	---	82	85	---
TOTAL	1653	27986	14487	26631	10030	24355	22742	13078	5439	2818	3236	2596
MEAN	53.3	933	467	859	358	786	758	422	181	90.9	104	86.5
MAX	96	2740	1170	3710	868	2030	1270	884	357	172	322	164
MIN	40	66	145	305	134	198	475	246	110	74	65	58
AC-FT	3280	55510	28730	52820	19890	48310	45110	25940	10790	5590	6420	5150
CFSM	1.11	19.5	9.76	17.9	7.48	16.4	15.8	8.81	3.78	1.90	2.18	1.81
IN.	1.28	21.73	11.25	20.68	7.79	18.91	17.66	10.16	4.22	2.19	2.51	2.02

CAL YR 1988 TOTAL 144984 MEAN 396 MAX 2860 MIN 40 AC-FT 287600 CFSM 8.27 IN. 112.60
WTR YR 1989 TOTAL 155051 MEAN 425 MAX 3710 MIN 40 AC-FT 307500 CFSM 8.87 IN. 120.42

e Estimated

SANDY RIVER BASIN

14138850 BULL RUN RIVER NEAR MULTNOMAH FALLS, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1977 to current year.

WATER TEMPERATURE: October 1977 to current year.

SUSPENDED SEDIMENT DISCHARGE: October 1977 to September 1986.

INSTRUMENTATION.--Conductivity/temperature recorder since October 1977.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 44 microsiemens Sept. 17, 1988; minimum recorded, 9 microsiemens

Jan. 23, 1982, Feb. 23, 1986.

WATER TEMPERATURE: Maximum, 17.0°C July 19, 20, 1979, June 29, July 14, 1987, July 26, 1988; minimum, 0.0°C on many days during winter periods.

SEDIMENT CONCENTRATION: Maximum daily, 290 mg/L Dec. 2, 1977; minimum, 0 mg/L on many days.

SEDIMENT DISCHARGE: Maximum daily, 5,930 tons Dec. 2, 1977; minimum, 0 tons on many days.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 33 microsiemens Oct. 14; minimum, 13 microsiemens Jan. 9.

WATER TEMPERATURE: Maximum, 15.5°C Aug. 6-8; minimum, 0.0°C Dec. 29, Feb. 1-6.

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	30	29	30	29	27	29	20	19	20	21	19	20
2	30	29	30	27	24	26	20	20	20	20	19	19
3	30	30	30	24	23	24	21	20	21	22	18	19
4	30	30	30	23	21	22	21	21	21	21	18	19
5	30	30	30	23	21	22	21	20	21	21	18	19
6	30	30	30	23	19	20	20	17	18	20	19	19
7	30	30	30	25	20	21	18	16	17	20	19	20
8	31	30	30	24	20	21	19	18	19	20	17	19
9	31	30	31	23	20	21	20	19	19	19	13	16
10	31	30	30	23	19	20	21	19	20	18	15	16
11	31	30	30	23	19	21	22	20	21	---	---	---
12	30	30	30	24	19	21	22	21	22	19	17	18
13	30	30	30	26	21	22	21	19	19	19	17	18
14	33	30	31	22	21	22	20	20	20	19	17	18
15	31	29	30	25	20	22	21	20	21	19	17	18
16	30	30	30	21	20	20	21	21	21	17	16	17
17	30	30	30	23	20	21	22	21	22	17	16	16
18	30	30	30	23	22	22	22	22	22	17	16	17
19	30	28	29	22	21	21	23	20	21	18	17	17
20	29	28	29	21	18	19	21	20	21	18	17	18
21	29	28	29	21	18	19	21	20	20	19	18	19
22	28	28	28	21	18	19	21	20	20	19	18	19
23	28	28	28	19	18	19	20	19	20	20	18	19
24	29	28	28	20	19	19	19	19	19	20	19	20
25	29	28	29	20	19	20	20	19	19	21	19	20
26	29	28	29	20	20	20	20	19	20	21	21	21
27	28	28	28	20	18	19	23	20	21	21	20	21
28	28	28	28	19	18	18	23	20	21	21	21	21
29	29	28	28	19	19	19	23	18	21	22	21	21
30	29	28	29	19	19	19	18	18	18	21	19	21
31	29	29	29	---	---	---	19	18	19	18	16	17
MONTH	33	28	29	29	18	21	23	16	20	---	---	---

SANDY RIVER BASIN

47

14138850 BULL RUN RIVER NEAR MULTNOMAH FALLS, OR--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	19	17	18	20	18	19	19	18	19	22	21	21
2	19	17	18	20	17	19	20	18	19	22	21	22
3	19	18	19	20	18	19	21	20	20	22	21	22
4	20	19	20	21	19	20	21	19	20	21	21	21
5	23	19	21	21	14	19	19	19	19	21	20	21
6	24	21	22	15	14	14	19	19	19	21	20	21
7	---	---	---	16	14	15	19	19	19	20	20	20
8	---	---	---	17	16	16	20	19	19	20	20	20
9	26	22	23	17	15	17	20	20	20	21	20	21
10	26	23	24	16	15	16	20	20	20	20	19	20
11	25	23	23	16	15	15	21	20	20	20	20	20
12	23	23	23	15	15	15	22	20	21	21	20	21
13	23	23	23	16	15	15	21	20	21	22	20	21
14	24	23	23	17	16	16	21	20	20	22	21	21
15	24	23	24	18	17	18	21	20	21	21	21	21
16	24	19	22	18	17	18	22	21	21	21	21	21
17	19	16	18	18	18	18	22	22	22	21	20	21
18	20	17	17	18	17	18	22	22	22	20	19	20
19	18	17	17	18	18	18	22	20	21	20	19	19
20	18	17	17	19	18	18	21	20	20	20	19	20
21	18	17	18	19	16	17	22	20	21	20	20	20
22	18	17	18	17	16	17	23	22	22	21	20	21
23	18	17	17	18	17	18	23	23	23	21	19	20
24	18	17	18	19	18	19	24	23	23	19	17	18
25	19	18	18	19	17	18	24	21	23	17	16	17
26	19	18	19	18	17	18	21	20	20	18	17	17
27	20	19	20	18	17	18	21	20	21	18	15	16
28	20	19	19	18	17	17	22	21	21	17	16	16
29	---	---	---	18	18	18	22	22	22	18	17	17
30	---	---	---	19	18	19	22	21	22	18	18	18
31	---	---	---	19	18	18	---	---	---	19	18	18
MONTH	---	---	---	21	14	17	24	18	21	22	15	20
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	19	18	19	25	24	24	28	27	27	27	26	26
2	19	19	19	25	24	25	27	22	24	26	24	25
3	20	19	20	26	24	25	25	24	24	26	25	25
4	20	20	20	26	25	25	26	25	25	26	25	26
5	21	20	20	26	25	26	27	25	26	26	25	25
6	21	20	20	27	25	26	27	26	27	26	25	26
7	21	20	21	27	26	26	28	27	27	27	25	26
8	21	21	21	28	26	26	28	27	28	27	26	26
9	22	21	21	28	26	27	27	26	27	27	26	27
10	22	21	22	29	26	26	28	27	27	27	26	27
11	23	22	23	29	26	26	28	27	27	27	26	27
12	24	22	23	28	26	27	28	27	27	27	26	27
13	23	22	23	27	27	27	28	27	28	27	26	27
14	24	22	23	28	27	27	28	27	28	28	27	27
15	23	22	22	31	27	27	28	27	28	27	27	27
16	23	22	23	28	24	26	28	27	28	27	27	27
17	24	23	23	27	23	25	29	27	28	27	26	27
18	24	23	24	29	24	26	29	28	28	27	26	27
19	24	22	23	29	25	27	29	28	29	27	26	27
20	22	19	20	29	26	27	29	28	28	27	27	27
21	21	20	21	30	26	27	29	25	27	28	27	27
22	22	21	22	27	26	27	25	22	23	28	27	27
23	23	22	23	30	26	27	23	23	23	28	27	28
24	24	23	24	29	27	27	24	23	24	28	27	28
25	25	23	24	31	27	28	25	24	24	29	27	28
26	24	23	24	31	27	28	25	24	25	28	26	27
27	24	23	24	30	27	27	26	25	25	27	26	27
28	25	23	24	28	27	27	26	25	26	27	26	27
29	25	24	24	28	27	28	26	26	26	28	27	27
30	25	23	24	28	27	27	27	26	26	30	25	26
31	---	---	---	28	27	27	27	26	26	---	---	---
MONTH	25	18	22	31	23	26	29	22	26	30	24	27

SANDY RIVER BASIN

14138850 BULL RUN RIVER NEAR MULTNOMAH FALLS, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	12.0	11.0	11.5	9.5	9.0	9.0	5.0	4.0	4.5	3.5	3.0	3.5
2	12.0	11.5	11.5	10.0	9.5	9.5	5.0	4.5	4.5	4.0	3.0	3.5
3	11.5	11.5	11.5	10.0	9.5	9.5	5.0	4.0	4.5	4.5	3.5	4.0
4	11.5	11.0	11.0	9.5	9.5	9.5	4.0	3.5	3.5	4.5	3.0	4.0
5	12.0	11.0	11.5	10.0	9.5	9.5	5.0	4.0	4.5	3.5	2.5	3.0
6	12.0	11.0	11.5	9.5	8.0	8.5	5.5	5.0	5.5	2.5	1.5	2.0
7	12.0	11.0	11.5	8.0	7.5	8.0	5.5	5.0	5.0	1.5	1.0	1.5
8	12.0	11.5	11.5	8.0	7.5	7.5	5.5	4.5	5.0	2.5	1.0	1.5
9	11.5	11.0	11.5	7.5	7.0	7.5	6.0	5.0	5.5	3.5	2.5	3.0
10	12.0	11.5	11.5	8.0	7.0	7.5	5.5	5.0	5.0	4.5	3.0	4.0
11	12.0	12.0	12.0	7.5	7.0	7.5	6.0	5.0	5.5	3.5	3.0	3.5
12	12.0	11.0	11.5	8.0	7.0	7.5	6.5	6.0	6.0	3.5	3.0	3.0
13	11.5	11.0	11.5	7.5	7.0	7.0	6.5	4.0	5.5	3.0	2.0	2.5
14	11.5	11.5	11.5	7.0	6.5	7.0	4.0	3.0	3.5	2.0	1.5	2.0
15	11.5	11.5	11.5	7.0	6.0	6.5	3.0	2.5	2.5	3.0	2.0	2.0
16	12.0	11.5	12.0	7.5	7.0	7.0	2.5	2.0	2.5	3.5	2.0	3.0
17	12.0	11.5	12.0	7.0	6.5	6.5	2.5	2.0	2.0	3.5	3.0	3.5
18	11.5	11.0	11.5	7.5	6.5	7.0	3.0	1.5	2.0	4.0	3.0	3.5
19	12.0	11.0	11.5	6.5	5.5	6.0	3.5	3.0	3.5	3.5	3.0	3.0
20	11.5	10.5	10.5	6.5	6.0	6.5	3.5	3.0	3.0	3.5	3.0	3.5
21	10.5	10.0	10.5	7.5	6.0	6.5	3.5	2.5	3.0	3.5	3.0	3.0
22	11.0	9.5	10.5	8.0	6.5	7.5	4.0	3.5	3.5	3.0	1.5	2.0
23	9.5	8.5	9.0	7.0	6.0	6.5	4.0	3.5	4.0	1.5	.5	1.0
24	9.0	8.5	9.0	6.5	4.5	5.5	4.0	4.0	4.0	2.0	1.0	1.5
25	9.5	9.0	9.0	5.5	5.0	5.0	4.0	3.0	3.5	2.5	2.0	2.0
26	9.5	8.5	9.5	6.5	5.5	6.0	3.0	2.5	2.5	2.5	2.0	2.0
27	8.5	7.5	8.0	6.0	5.0	5.5	2.5	1.0	2.0	3.0	2.5	3.0
28	7.5	7.0	7.0	6.0	5.5	6.0	1.0	.5	.5	3.0	2.5	2.5
29	7.5	7.0	7.0	6.5	5.0	6.0	1.5	.0	1.0	4.0	3.0	3.0
30	9.0	7.5	8.5	5.0	4.5	5.0	3.5	1.5	3.0	4.5	3.5	4.0
31	9.0	9.0	9.0	---	---	---	4.0	3.0	3.5	4.5	2.0	3.0
MONTH	12.0	7.0	10.5	10.0	4.5	7.0	6.5	.0	3.5	4.5	.5	3.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	2.0	.0	1.0	3.5	1.5	3.0	5.0	4.0	4.5	8.0	7.0	7.5
2	.0	.0	.0	2.0	1.0	1.5	4.5	3.5	4.0	9.0	6.0	7.5
3	.0	.0	.0	2.5	1.5	2.0	5.0	3.5	4.5	9.0	6.0	7.5
4	.0	.0	.0	2.0	1.5	1.5	5.0	4.0	4.5	11.0	7.5	9.0
5	.0	.0	.0	2.5	1.5	2.0	6.5	5.0	5.5	11.0	8.0	9.5
6	.0	.0	.0	4.0	2.5	3.5	8.0	4.5	6.0	10.5	8.0	9.0
7	---	---	---	5.0	3.5	4.0	7.5	5.0	6.0	11.0	8.5	9.5
8	---	---	---	5.0	4.0	4.5	6.5	4.0	5.0	10.5	7.5	9.0
9	1.0	.5	1.0	5.5	4.0	4.5	7.0	5.0	5.5	9.5	7.5	8.0
10	2.0	1.0	1.5	6.0	5.0	5.0	7.5	5.0	6.0	7.5	7.0	7.0
11	2.5	2.0	2.0	5.0	4.5	5.0	8.0	5.0	6.0	7.5	6.0	6.5
12	2.5	2.5	2.5	5.5	4.5	4.5	8.0	5.0	6.5	8.0	6.0	7.0
13	2.5	2.5	2.5	4.5	3.5	4.0	8.0	5.0	6.5	8.5	5.5	7.0
14	3.0	2.5	2.5	5.0	3.5	4.0	8.0	5.5	6.5	10.0	7.0	8.0
15	2.5	2.0	2.0	5.5	4.0	4.5	7.0	5.5	6.0	10.5	7.5	9.0
16	2.5	1.0	2.0	5.0	4.0	4.5	7.0	5.0	6.0	9.5	8.0	8.5
17	3.0	1.0	2.0	5.0	4.0	4.5	8.0	5.0	6.0	8.5	7.5	8.5
18	4.5	2.5	3.5	5.5	4.5	5.0	9.0	5.5	7.0	7.5	6.0	6.5
19	4.5	4.0	4.0	5.5	4.5	4.5	8.0	6.5	7.0	8.0	6.0	7.0
20	4.5	3.5	4.0	6.0	3.5	4.5	7.0	6.0	6.5	9.0	6.0	7.5
21	4.5	3.5	4.0	5.5	4.5	5.0	6.5	5.5	6.0	8.5	7.0	7.5
22	4.5	4.0	4.0	5.0	4.0	4.5	6.5	5.0	6.0	9.0	7.5	8.0
23	4.5	3.5	4.0	5.5	3.5	4.5	8.0	4.5	6.0	8.0	7.0	7.5
24	4.5	3.0	3.5	5.5	4.5	5.0	7.5	5.5	6.5	7.0	5.5	6.0
25	4.5	3.5	4.0	5.0	4.5	5.0	7.0	6.0	6.5	7.5	6.0	6.5
26	4.0	3.0	3.5	5.0	4.5	4.5	6.0	5.5	5.5	7.5	6.0	7.0
27	4.0	3.5	3.5	5.0	4.5	5.0	7.5	5.0	6.0	7.5	6.5	7.0
28	4.5	3.0	4.0	5.0	4.5	4.5	8.0	5.0	6.5	8.0	6.0	6.5
29	---	---	---	5.0	4.0	4.5	9.0	6.0	7.5	7.0	6.5	6.5
30	---	---	---	5.0	4.0	4.5	9.0	7.0	8.0	9.0	6.5	7.5
31	---	---	---	5.5	4.0	4.5	---	---	---	11.0	7.0	8.5
MONTH	---	.0	---	6.0	1.0	4.0	9.0	3.5	6.0	11.0	5.5	7.5

SANDY RIVER BASIN

49

14138850 BULL RUN RIVER NEAR MULTNOMAH FALLS, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	12.5	8.5	10.5	10.5	9.5	10.0	12.0	11.0	11.5	12.0	11.0	11.0
2	12.0	9.5	10.5	12.5	9.5	10.5	11.5	10.5	11.0	11.5	10.5	11.0
3	13.0	9.5	11.0	12.0	10.5	11.0	11.5	11.0	11.0	11.5	9.5	10.5
4	13.5	10.5	11.5	13.5	10.5	12.0	14.0	11.0	12.0	11.5	10.0	10.5
5	13.5	10.0	11.5	13.0	10.5	11.5	14.5	12.0	13.0	11.5	10.5	11.0
6	12.5	10.5	11.5	14.0	10.5	12.0	15.5	13.0	14.0	11.0	9.5	10.5
7	13.0	9.5	11.0	14.0	11.5	12.5	15.5	14.0	15.0	11.5	9.5	10.5
8	11.5	10.0	10.5	13.5	11.5	12.0	15.5	13.5	14.5	12.0	10.0	11.0
9	11.0	10.0	10.5	11.5	10.5	10.5	14.5	13.5	14.0	12.0	11.0	11.5
10	13.0	9.0	11.0	11.0	10.0	10.5	14.0	12.5	13.5	11.5	9.5	10.5
11	14.0	10.5	12.0	13.5	10.0	11.0	13.5	11.5	12.5	11.0	9.5	10.5
12	13.5	11.5	12.0	14.5	12.0	13.0	13.0	11.5	12.0	11.0	9.5	10.0
13	12.5	11.0	12.0	14.5	13.0	13.5	14.0	12.0	12.5	11.0	9.5	10.0
14	12.0	11.0	11.5	14.0	12.5	13.0	13.5	12.5	13.0	11.0	9.5	10.5
15	11.0	10.5	10.5	12.5	12.0	12.0	12.5	12.0	12.0	11.0	9.5	10.5
16	12.0	9.5	10.5	12.0	11.0	11.5	12.0	11.5	11.5	10.5	9.5	10.0
17	11.0	9.0	10.0	13.0	11.5	12.0	13.5	11.5	12.0	10.0	9.5	10.0
18	11.5	10.0	10.5	13.5	12.0	12.5	14.0	12.5	13.0	10.0	9.0	9.5
19	11.5	9.5	10.0	15.0	12.5	13.5	14.0	13.0	13.0	9.5	8.0	8.5
20	9.5	8.5	9.0	14.5	12.0	12.5	13.0	12.5	13.0	9.5	8.0	8.5
21	12.0	8.0	10.0	12.5	11.5	12.0	13.0	12.0	12.5	10.0	8.5	9.0
22	13.0	9.5	11.0	14.0	10.5	12.0	13.0	12.0	12.5	10.5	7.5	10.0
23	14.5	10.5	12.5	14.0	12.0	13.0	12.0	11.5	11.5	11.0	10.0	10.5
24	15.0	11.5	13.0	14.0	12.0	13.0	11.5	11.0	11.0	11.0	10.5	10.5
25	15.0	12.0	13.5	14.0	11.5	13.0	13.0	10.5	11.5	11.0	11.0	11.0
26	14.0	11.5	12.5	14.0	11.5	12.5	13.0	11.5	12.0	11.0	10.5	10.5
27	12.0	10.0	11.0	12.0	11.5	11.5	13.0	11.5	12.5	10.5	9.5	10.0
28	11.5	10.5	11.0	13.5	10.5	12.0	13.0	11.5	12.0	11.5	10.0	10.5
29	11.0	10.0	10.5	13.0	11.5	12.0	13.0	11.5	12.0	11.5	11.0	11.5
30	10.5	10.0	10.0	12.5	11.0	11.5	12.5	11.5	12.0	11.5	11.0	11.5
31	---	---	---	12.5	11.0	12.0	12.0	11.0	11.5	---	---	---
MONTH	15.0	8.0	11.0	15.0	9.5	12.0	15.5	10.5	12.5	12.0	7.5	10.5

SANDY RIVER BASIN

14138870 FIR CREEK NEAR BRIGHTWOOD, OR

LOCATION.--Lat 45°28'56", long 122°01'36", in NE 1/4 SE 1/4 sec.14, T.1 S., R.6 E., Multnomah County, Hydrologic Unit 17080001, on right bank, 6.4 mi north of Brightwood and 0.6 mi above Bull Run Reservoir Number One.

DRAINAGE AREA.--5.46 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1975 to current year.

REVISED RECORDS.--WDR OR-78-1: 1976. WDR OR-82-2: 1976(P), 1978-79(P), 1981.

GAGE.--Water-stage recorder. Elevation of gage is 1,440 ft, from topographic map.

REMARKS.--Water-discharge records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--14 years, 34.3 ft³/s, 85.31 in/yr, 24,850 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,290 ft³/s Dec. 2, 1977, gage height, 5.64 ft; minimum discharge, 1.8 ft³/s Oct. 24-31, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 400 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 9	2030	*584	*4.74	No other peak greater than base discharge.			
Minimum discharge, 2.6 ft ³ /s Oct. 10-14.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	5.1	59	44	56	22	57	36	30	9.5	5.5	7.3
2	3.4	29	54	58	40	21	56	32	26	9.0	8.1	13
3	3.3	31	49	123	e35	18	51	29	23	8.5	6.7	9.0
4	3.1	64	43	108	e29	16	61	28	20	8.3	6.1	8.0
5	3.1	60	42	75	24	57	87	28	19	8.0	5.8	7.4
6	3.0	121	94	52	21	190	74	28	18	7.9	5.5	6.9
7	2.9	51	109	40	18	102	71	27	16	7.4	5.3	6.5
8	2.9	43	67	65	16	65	57	24	16	7.0	5.2	6.2
9	2.8	40	58	388	15	64	48	24	15	6.8	5.0	6.1
10	2.7	76	46	213	14	71	45	23	14	6.6	4.8	5.8
11	2.6	55	38	84	14	79	42	21	14	6.4	4.7	5.5
12	2.6	113	34	60	13	84	43	18	13	6.1	4.5	5.3
13	2.6	77	44	52	12	86	46	17	13	6.0	4.4	5.1
14	3.2	49	33	42	12	61	49	16	13	5.9	4.3	4.9
15	4.7	52	28	50	11	57	45	15	14	5.9	4.3	4.7
16	3.5	82	25	110	19	62	38	14	14	9.4	4.1	4.6
17	3.6	83	21	142	75	56	33	15	13	12	4.1	4.5
18	3.4	62	19	128	72	65	32	18	13	8.0	3.9	4.4
19	7.2	54	34	95	57	55	43	20	12	7.3	3.9	4.3
20	5.2	92	32	70	57	47	56	17	19	6.9	4.0	4.1
21	4.5	204	33	64	52	84	47	17	14	6.7	8.6	4.0
22	6.0	275	36	55	62	68	40	16	13	6.3	26	3.9
23	4.4	183	31	44	60	52	34	17	12	6.1	18	3.8
24	4.0	88	26	36	47	48	29	40	12	6.1	13	3.8
25	3.7	65	20	31	37	69	42	53	11	5.9	10	3.7
26	3.6	63	17	28	31	70	104	42	11	5.9	9.0	3.7
27	3.5	156	15	29	28	66	70	87	11	6.1	8.0	3.7
28	3.3	213	13	27	24	76	51	74	10	5.7	7.4	3.6
29	3.2	103	34	26	---	65	42	55	9.6	5.5	6.9	3.5
30	3.2	70	89	33	---	57	38	43	9.6	5.5	6.6	15
31	3.2	---	61	92	---	65	---	35	---	5.3	6.3	---
TOTAL	112.0	2659.1	1304	2464	951	1998	1531	929	448.2	218.0	220.0	172.3
MEAN	3.61	88.6	42.1	79.5	34.0	64.5	51.0	30.0	14.9	7.03	7.10	5.74
MAX	7.2	275	109	388	75	190	104	87	30	12	26	15
MIN	2.6	5.1	13	26	11	16	29	14	9.6	5.3	3.9	3.5
AC-FT	222	5270	2590	4890	1890	3960	3040	1840	889	432	436	342
CFSM	.66	16.2	7.70	14.6	6.22	11.8	9.35	5.49	2.74	1.29	1.30	1.05
IN.	.76	18.12	8.88	16.79	6.48	13.61	10.43	6.33	3.05	1.49	1.50	1.17

CAL YR 1988 TOTAL 13314.6 MEAN 36.4 MAX 284 MIN 2.3 AC-FT 26410 CFSM 6.66 IN. 90.71
WTR YR 1989 TOTAL 13006.6 MEAN 35.6 MAX 388 MIN 2.6 AC-FT 25800 CFSM 6.53 IN. 88.62

e Estimated

SANDY RIVER BASIN
14138870 FIR CREEK NEAR BRIGHTWOOD, OR--Continued
WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1977 to current year.

WATER TEMPERATURE: October 1977 to current year.

SUSPENDED SEDIMENT DISCHARGE: October 1977 to September 1986.

INSTRUMENTATION.--Conductivity/temperature recorder since October 1977.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 49 microsiemens May 6, 1988; minimum, 9 microsiemens Dec. 4, 1978.

WATER TEMPERATURE: Maximum recorded, 16.0°C Sept. 1, 1987; minimum recorded, 0.0°C on several days in 1978-80, 1983, 1989.

SEDIMENT CONCENTRATION: Maximum, 200 mg/L Jan. 23, Feb. 20, 1982; minimum, 0 mg/L on many days.

SEDIMENT DISCHARGE: Maximum, 345 tons Dec. 2, 1977; minimum, 0 tons on many days.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum recorded, 34 microsiemens Oct. 17; minimum recorded, 13 microsiemens Jan. 9.

WATER TEMPERATURE: Maximum recorded, 13.5°C Aug. 7; minimum, 0.0°C Feb. 2-4.

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	28	28	28	28	27	27	20	20	20	26	22	24
2	28	28	28	27	25	27	20	20	20	25	19	23
3	28	27	28	25	23	24	20	20	20	24	19	22
4	28	27	27	23	22	22	21	20	21	22	19	21
5	28	27	28	23	20	22	21	20	21	20	19	19
6	28	27	27	24	20	21	20	17	19	21	20	20
7	28	27	28	22	21	21	18	17	18	21	20	21
8	28	28	28	23	22	22	19	18	19	21	18	20
9	28	27	28	24	22	23	20	19	19	17	13	15
10	28	28	28	22	22	22	20	20	20	18	15	17
11	28	27	27	23	22	22	21	20	21	19	18	18
12	28	27	27	22	20	21	21	20	21	20	19	20
13	28	27	28	21	20	21	20	19	20	---	---	---
14	28	28	28	22	21	22	21	20	20	---	---	---
15	29	28	28	22	22	22	21	20	21	---	---	---
16	32	29	29	22	21	21	21	21	21	---	---	---
17	34	28	29	22	21	22	22	21	21	---	---	---
18	29	28	28	23	22	22	22	21	22	---	---	---
19	29	28	29	23	22	23	21	21	21	---	---	---
20	29	29	29	22	21	22	22	20	21	---	---	---
21	29	28	28	22	16	19	22	21	21	---	---	---
22	28	27	27	17	15	16	22	21	21	---	---	---
23	28	27	28	18	16	17	22	22	22	---	---	---
24	28	27	28	19	18	19	22	22	22	---	---	---
25	28	27	28	20	19	19	23	22	22	---	---	---
26	28	27	27	20	20	20	23	22	23	---	---	---
27	27	26	27	20	15	19	23	23	23	---	---	---
28	27	26	27	18	16	17	23	23	23	---	---	---
29	27	26	27	19	18	19	23	20	22	---	---	---
30	28	27	27	20	19	19	26	20	22	---	---	---
31	27	27	27	---	---	---	27	20	23	---	---	---
MONTH	34	26	28	28	15	21	27	17	21	---	---	---

SANDY RIVER BASIN

14138870 FIR CREEK NEAR BRIGHTWOOD, OR--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	---	---	---	19	18	19
2	---	---	---	---	---	---	---	---	---	19	19	19
3	---	---	---	---	---	---	---	---	---	21	19	19
4	---	---	---	---	---	---	---	---	---	23	20	20
5	---	---	---	---	---	---	---	---	---	20	20	20
6	---	---	---	---	---	---	---	---	---	20	20	20
7	---	---	---	---	---	---	---	---	---	20	20	20
8	---	---	---	---	---	---	---	---	---	20	20	20
9	---	---	---	---	---	---	---	---	---	20	20	20
10	---	---	---	---	---	---	---	---	---	24	20	20
11	---	---	---	---	---	---	---	---	---	20	20	20
12	---	---	---	---	---	---	---	---	---	20	19	20
13	---	---	---	---	---	---	---	---	---	20	20	20
14	---	---	---	---	---	---	---	---	---	21	20	20
15	---	---	---	---	---	---	---	---	---	21	20	21
16	---	---	---	---	---	---	---	---	---	21	20	20
17	---	---	---	---	---	---	---	---	---	20	19	20
18	---	---	---	---	---	---	---	---	---	19	19	19
19	---	---	---	---	---	---	---	---	---	19	19	19
20	---	---	---	---	---	---	---	---	---	19	19	19
21	---	---	---	---	---	---	---	---	---	20	19	19
22	---	---	---	---	---	---	18	17	18	20	19	20
23	---	---	---	---	---	---	19	18	18	20	19	19
24	---	---	---	---	---	---	19	18	19	19	18	18
25	---	---	---	---	---	---	19	17	19	18	17	17
26	---	---	---	---	---	---	17	16	16	18	17	18
27	---	---	---	---	---	---	17	17	17	18	16	16
28	---	---	---	---	---	---	18	17	18	17	16	16
29	---	---	---	---	---	---	19	18	18	18	17	17
30	---	---	---	---	---	---	19	18	19	22	18	18
31	---	---	---	---	---	---	---	---	---	19	18	19
MONTH	---	---	---	---	---	---	---	---	---	24	16	19
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	19	19	19	23	22	22	25	24	24	24	22	23
2	20	19	19	23	23	23	25	23	24	24	23	23
3	20	19	20	24	23	23	25	24	25	23	23	23
4	20	20	20	24	23	23	26	24	25	24	23	23
5	21	20	20	24	23	24	25	25	25	24	23	23
6	21	20	20	24	24	24	26	25	25	23	23	23
7	21	20	21	24	24	24	26	25	26	24	23	24
8	21	20	21	24	23	24	26	25	26	24	24	24
9	21	21	21	24	24	24	26	24	25	24	23	24
10	22	21	21	24	24	24	25	25	25	24	24	24
11	22	21	22	25	24	24	25	25	25	24	24	24
12	22	21	22	25	24	25	25	25	25	24	24	24
13	22	22	22	25	24	25	26	25	25	24	24	24
14	23	22	22	26	24	25	25	25	25	25	24	24
15	22	21	21	25	24	25	25	24	25	25	24	25
16	22	21	22	25	23	24	26	24	25	25	24	24
17	22	22	22	24	23	23	26	25	25	25	24	24
18	---	22	---	24	23	24	26	25	26	24	24	24
19	---	22	---	25	24	24	26	24	26	24	24	24
20	22	20	21	24	23	24	26	25	26	25	24	25
21	---	21	---	24	23	24	26	25	25	25	25	25
22	22	21	22	25	24	24	25	23	23	25	25	25
23	22	22	22	25	24	24	23	22	22	26	25	25
24	23	22	22	25	24	24	23	22	22	26	25	26
25	23	22	23	25	24	25	23	22	23	26	25	25
26	23	22	22	25	24	25	23	23	23	26	25	26
27	23	22	22	25	24	25	23	23	23	26	25	26
28	23	22	23	25	24	25	23	23	23	26	26	26
29	23	22	23	25	24	25	24	23	24	26	25	26
30	23	22	22	25	24	25	26	23	23	26	24	25
31	---	---	---	25	24	25	24	23	23	---	---	---
MONTH	---	19	---	26	22	24	26	22	24	26	22	24

SANDY RIVER BASIN

53

14138870 FIR CREEK NEAR BRIGHTWOOD, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	11.5	10.5	11.0	8.5	8.0	8.0	5.5	5.0	5.5	4.5	4.0	4.5
2	11.0	11.0	11.0	9.0	8.5	8.5	5.5	5.5	5.5	4.5	4.5	4.5
3	11.0	10.5	11.0	9.0	8.5	9.0	5.5	5.0	5.5	4.5	4.5	4.5
4	10.5	10.0	10.5	9.0	8.5	8.5	5.0	5.0	5.0	5.0	4.0	4.5
5	11.0	10.5	11.0	9.0	8.5	9.0	5.5	5.0	5.5	4.5	3.5	4.0
6	11.0	10.5	10.5	8.5	7.5	8.0	6.0	5.5	5.5	4.0	3.5	3.5
7	10.5	10.5	10.5	7.5	7.5	7.5	6.0	5.5	5.5	3.5	3.5	3.5
8	11.0	10.0	10.5	7.5	7.0	7.5	6.0	5.0	5.5	4.0	3.0	3.5
9	11.0	10.5	10.5	7.0	7.0	7.0	6.0	5.5	6.0	4.0	3.5	4.0
10	11.5	11.0	11.0	7.5	7.0	7.5	6.0	5.5	5.5	4.5	4.0	4.0
11	11.0	11.0	11.0	7.5	7.0	7.0	6.0	5.5	6.0	4.5	3.5	4.0
12	11.0	10.5	10.5	7.5	6.5	7.0	6.5	6.0	6.5	4.5	4.0	4.5
13	11.0	10.5	10.5	6.5	6.5	6.5	6.5	5.0	6.0	4.5	3.0	3.5
14	10.5	10.5	10.5	6.5	6.0	6.5	5.0	4.0	4.5	3.5	3.0	3.5
15	10.5	10.5	10.5	6.5	6.0	6.5	4.0	3.5	4.0	4.0	3.0	3.5
16	11.0	10.5	10.5	7.0	6.5	6.5	4.0	3.5	3.5	4.0	3.5	4.0
17	11.0	10.5	10.5	6.5	6.0	6.0	4.0	3.5	3.5	4.5	4.0	4.0
18	10.5	10.0	10.5	6.5	6.0	6.5	4.0	3.5	3.5	4.5	4.5	4.5
19	10.5	10.0	10.5	6.5	6.0	6.0	4.5	4.0	4.5	4.5	4.0	4.5
20	10.0	9.5	10.0	6.0	6.0	6.0	4.5	4.0	4.0	4.5	4.5	4.5
21	10.0	9.5	10.0	6.5	6.0	6.5	4.5	3.5	4.0	4.5	4.5	4.5
22	10.0	8.5	9.5	7.0	6.0	6.5	4.5	4.0	4.0	4.5	3.5	3.5
23	8.5	8.5	8.5	6.0	5.5	6.0	4.5	4.0	4.0	3.5	3.0	3.0
24	8.5	8.5	8.5	5.5	4.5	5.0	4.0	4.0	4.0	3.5	3.0	3.5
25	9.0	8.5	8.5	5.0	4.5	5.0	4.0	3.5	3.5	4.0	3.5	3.5
26	8.5	7.5	8.5	5.5	5.0	5.5	3.5	3.5	3.5	4.0	3.5	3.5
27	7.5	7.0	7.0	5.5	4.5	5.0	3.5	3.0	3.0	4.0	4.0	4.0
28	7.0	6.5	7.0	5.5	5.0	5.5	3.0	2.0	2.5	4.0	3.5	4.0
29	7.5	6.5	7.0	5.5	5.5	5.5	3.0	2.0	2.5	4.5	4.0	4.0
30	8.0	7.5	8.0	5.5	5.5	5.5	4.0	3.0	4.0	4.5	4.5	4.5
31	8.0	8.0	8.0	---	---	---	4.5	4.0	4.5	4.5	3.0	3.5
MONTH	11.5	6.5	10.0	9.0	4.5	6.5	6.5	2.0	4.5	5.0	3.0	4.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	3.0	1.5	2.5	4.0	2.5	3.5	4.5	4.0	4.5	7.0	6.5	7.0
2	1.0	.0	.5	3.0	2.0	2.5	4.5	3.5	4.0	7.5	6.0	7.0
3	.0	.0	.0	3.0	2.5	2.5	4.5	4.0	4.5	7.5	6.0	7.0
4	.5	.0	.0	2.5	2.0	2.5	5.0	4.5	4.5	8.5	7.0	8.0
5	1.5	.5	1.0	3.0	2.5	2.5	5.0	4.5	5.0	9.0	7.5	8.0
6	2.0	1.5	1.5	4.0	3.0	3.5	6.0	4.5	5.0	9.0	8.0	8.5
7	2.0	1.5	2.0	4.5	3.5	4.0	6.0	4.5	5.5	9.0	8.0	8.5
8	2.0	1.5	2.0	4.5	4.0	4.5	5.5	4.0	5.0	9.0	7.5	8.5
9	2.5	2.0	2.0	5.0	4.5	4.5	6.0	5.0	5.0	8.0	7.0	7.5
10	3.0	2.0	2.5	5.0	4.0	4.5	6.0	5.0	5.5	7.0	6.5	7.0
11	3.5	3.0	3.0	5.0	4.0	4.5	6.0	5.0	5.5	7.0	6.0	6.5
12	3.0	3.0	3.0	4.5	4.0	4.5	6.5	5.0	5.5	7.0	6.0	6.5
13	3.0	3.0	3.0	4.0	3.5	4.0	6.5	5.0	6.0	7.5	5.5	6.5
14	3.5	3.0	3.0	4.5	3.5	4.0	6.5	5.5	6.0	8.0	6.5	7.0
15	3.0	2.5	2.5	5.0	4.0	4.5	6.0	5.5	5.5	9.0	7.0	8.0
16	3.0	1.5	2.5	4.5	4.0	4.5	6.0	5.0	5.5	8.0	7.5	7.5
17	3.0	2.0	2.5	5.0	4.0	4.5	6.5	5.0	5.5	8.0	6.5	7.5
18	4.0	3.0	3.5	5.0	4.5	4.5	7.0	5.5	6.5	6.5	6.0	6.0
19	4.0	3.5	4.0	5.0	4.0	4.5	7.0	6.0	6.5	7.0	5.5	6.0
20	4.0	3.5	4.0	5.0	4.0	4.5	6.5	5.5	6.0	7.5	5.5	6.5
21	4.5	3.5	4.0	5.0	4.0	4.5	5.5	5.0	5.5	7.0	6.5	6.5
22	4.5	4.0	4.0	4.5	4.0	4.5	5.5	5.0	5.0	7.5	6.5	7.0
23	4.5	4.0	4.0	5.0	4.0	4.5	6.0	4.5	5.5	7.0	6.0	6.5
24	4.0	3.5	4.0	5.0	4.5	4.5	6.5	5.5	6.0	6.0	5.5	5.5
25	4.5	4.0	4.0	4.5	4.5	4.5	6.5	5.0	6.0	6.5	5.5	6.0
26	4.0	3.5	4.0	5.0	4.0	4.5	5.0	5.0	5.0	6.5	6.0	6.0
27	4.0	4.0	4.0	5.0	4.5	4.5	6.0	4.5	5.5	6.5	5.5	6.0
28	4.5	4.0	4.0	5.0	4.0	4.5	6.5	5.0	6.0	6.5	5.5	6.0
29	---	---	---	4.5	4.0	4.0	7.5	6.0	6.5	6.5	6.0	6.0
30	---	---	---	5.0	4.0	4.5	8.0	6.5	7.0	7.5	6.0	6.5
31	---	---	---	5.0	4.0	4.5	---	---	---	8.5	6.5	7.5
MONTH	4.5	.0	3.0	5.0	2.0	4.0	8.0	3.5	5.5	9.0	5.5	7.0

SANDY RIVER BASIN

55

14138900 NORTH FORK BULL RUN RIVER NEAR MULTNOMAH FALLS, OR

LOCATION.--Lat 45°29'40", long 122°02'05", near line between SE 1/4 and SW 1/4 sec.11, T.1 S., R.6 E., Multnomah County, Hydrologic Unit 17080001, Mount Hood National Forest, on left bank 7.0 mi southeast of Multnomah Falls and at mouth.

DRAINAGE AREA.--8.32 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1965 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,060 ft, from topographic map. Prior to Oct. 1, 1978, at site 700 ft upstream at datum 18.7 ft higher. Gage was moved to original site June 13, 1989, during bridge construction.

REMARKS.--Water-discharge records good. Regulation at times since 1958 by North Fork Reservoir, capacity, about 1,030 acre-ft. No diversion upstream from station.

AVERAGE DISCHARGE.--24 years, 75.0 ft³/s, 122.42 in/yr, 54,340 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,700 ft³/s, probably affected by surge from release of water temporarily impounded by landslide upstream from station, Jan. 20, 1972, gage height, 9.89 ft, from floodmark, from rating curve extended above 850 ft³/s on basis of estimate of peak flow from slope-area survey; minimum discharge, 8.6 ft³/s Oct. 19-29, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 9	1900	*1,690	*6.99	No other peak greater than base discharge.			
Minimum discharge, 11 ft ³ /s Oct. 10-13.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	22	85	74	91	53	110	85	54	22	18	21
2	12	67	74	118	72	51	120	74	50	21	55	30
3	12	56	66	243	e61	45	102	68	46	20	33	23
4	12	110	58	197	e56	43	136	66	42	19	26	21
5	12	89	72	124	e52	107	178	64	40	19	23	20
6	12	209	179	89	e48	280	144	62	38	18	21	20
7	12	82	194	71	e43	176	149	60	36	18	20	19
8	12	93	110	140	e39	119	122	55	34	17	20	18
9	12	81	100	902	37	123	109	57	33	17	20	18
10	11	148	79	374	36	136	105	55	32	17	19	17
11	11	137	67	164	35	170	101	55	30	17	18	17
12	11	243	62	112	34	182	103	47	29	16	17	17
13	11	136	85	96	32	196	107	43	e28	17	17	17
14	13	87	59	77	31	125	109	41	e39	17	17	17
15	19	108	50	98	30	129	105	39	34	17	17	16
16	14	175	44	222	58	133	94	39	27	35	17	16
17	13	141	40	320	213	115	86	42	24	45	17	16
18	13	105	38	264	161	124	84	51	24	25	16	15
19	20	93	84	187	122	102	99	50	33	22	16	15
20	15	171	65	124	129	89	125	42	57	20	17	15
21	14	297	63	115	109	165	108	39	38	20	30	15
22	16	420	66	93	125	120	100	38	32	19	51	14
23	14	262	58	75	116	96	87	49	28	19	35	14
24	13	145	52	64	92	102	78	112	26	18	28	14
25	13	119	44	56	78	195	99	103	24	18	25	14
26	12	102	38	52	69	168	207	79	24	17	23	14
27	12	229	35	52	62	160	134	142	23	18	22	14
28	12	286	31	48	55	193	103	101	22	17	21	13
29	12	145	70	47	---	143	91	86	22	17	20	13
30	13	102	142	67	---	121	86	73	25	17	20	34
31	13	---	98	164	---	125	---	62	---	17	20	---
TOTAL	404	4460	2308	4829	2086	4086	3381	1979	994	616	719	527
MEAN	13.0	149	74.5	156	74.5	132	113	63.8	33.1	19.9	23.2	17.6
MAX	20	420	194	902	213	280	207	142	57	45	55	34
MIN	11	22	31	47	30	43	78	38	22	16	16	13
AC-FT	801	8850	4580	9580	4140	8100	6710	3930	1970	1220	1430	1050
CFSM	1.57	17.9	8.95	18.7	8.95	15.8	13.5	7.67	3.98	2.39	2.79	2.11
IN.	1.81	19.94	10.32	21.59	9.33	18.27	15.12	8.85	4.44	2.75	3.21	2.36

CAL YR 1988 TOTAL 23256 MEAN 63.5 MAX 459 MIN 11 AC-FT 46130 CFMS 7.64 IN. 103.98
WTR YR 1989 TOTAL 26389 MEAN 72.3 MAX 902 MIN 11 AC-FT 52340 CFMS 8.69 IN. 117.99

e Estimated

SANDY RIVER BASIN

14138900 NORTH FORK BULL RUN RIVER NEAR MULTNOMAH FALLS, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1978 to current year.

pH: October 1980 to September 1981.

WATER TEMPERATURE: October 1978 to current year.

SUSPENDED SEDIMENT DISCHARGE: October 1978 to September 1986.

INSTRUMENTATION.--Water-quality monitor, prior to October 1980, conductivity/temperature recorder.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 103 microsiemens Jan. 13, 1981 (cement spill); minimum, 9 microsiemens Dec. 25, 1980, Jan. 6, 1983, Feb. 23, 1986.

pH: Maximum, 9.8 units Jan. 13, 1981 (cement spill); minimum, 6.3 units, June 19, 1981.

WATER TEMPERATURE: Maximum, 14.5°C Aug. 28, 1988; minimum, 0.0°C on several days during winter periods.

SEDIMENT CONCENTRATION: Maximum daily, 205 mg/L Dec. 25, 1980; minimum, 0 mg/L on many days.

SEDIMENT DISCHARGE: Maximum daily, 765 tons Feb. 23, 1986; minimum, 0 tons on many days.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum recorded, 44 microsiemens Oct. 3, 8-14, 16-18, 30, but may have been greater during period of missing record Oct. 4-7.; minimum, 11 microsiemens Jan. 9.

WATER TEMPERATURE: Maximum, 12.5°C June 4, July 19, Aug. 6, 7; minimum recorded, 0.5°C Feb. 2-5.

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	43	42	43	42	34	39	21	19	20	21	20	20
2	43	43	43	35	25	31	21	20	21	21	17	20
3	44	43	43	29	25	28	22	21	21	17	16	16
4	---	---	---	27	22	24	22	21	22	17	16	16
5	---	---	---	27	21	25	22	20	21	18	17	17
6	---	---	---	20	19	19	20	16	18	20	18	19
7	---	---	---	22	20	21	18	16	17	21	20	20
8	44	43	44	23	21	21	19	18	18	21	14	19
9	44	43	44	23	21	22	20	19	19	14	11	13
10	44	43	44	21	18	19	21	20	20	15	12	14
11	44	43	43	19	18	19	21	21	21	17	15	16
12	44	43	44	19	17	18	22	20	21	18	17	18
13	44	43	44	21	18	19	20	18	19	19	18	18
14	44	42	44	22	20	21	21	20	21	20	19	19
15	43	40	41	20	19	20	22	21	22	20	17	19
16	44	43	43	20	17	18	23	22	23	17	15	16
17	44	42	43	19	17	18	24	23	24	15	14	14
18	44	42	43	22	19	20	25	24	24	15	15	15
19	42	39	40	22	19	21	23	19	20	17	15	16
20	41	40	40	19	17	18	21	21	21	18	17	17
21	41	40	41	20	15	17	21	21	21	18	17	18
22	40	39	39	17	14	16	21	21	21	19	18	19
23	41	40	41	18	15	16	22	21	22	20	19	20
24	42	41	41	18	17	17	23	22	22	22	20	21
25	42	41	42	19	18	18	24	23	24	22	21	22
26	43	41	42	20	18	20	25	24	25	28	22	23
27	42	40	41	20	15	18	26	25	25	26	22	23
28	42	41	41	17	15	16	27	26	26	27	23	24
29	42	41	42	18	17	18	27	18	24	24	23	24
30	44	41	42	19	18	19	18	17	18	23	18	22
31	41	40	41	---	---	---	20	18	19	18	16	17
MONTH	---	---	---	42	14	21	27	16	21	28	11	19

SANDY RIVER BASIN

57

14138900 NORTH FORK BULL RUN RIVER NEAR MULTNOMAH FALLS, OR--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	20	18	19	21	20	21	19	17	18	20	19	20
2	21	19	20	22	21	21	18	17	18	21	20	20
3	22	21	21	22	22	22	19	18	19	21	20	21
4	22	22	22	23	22	22	19	17	18	21	21	21
5	23	22	23	23	14	20	17	17	17	23	21	22
6	24	23	24	14	13	14	18	17	18	22	21	22
7	25	24	25	17	14	16	18	17	18	23	22	22
8	26	25	26	18	16	17	18	18	18	24	23	23
9	27	26	26	18	16	17	20	18	19	24	23	24
10	27	27	27	16	16	16	20	19	19	24	23	23
11	28	27	28	16	15	15	19	19	19	24	23	24
12	28	28	28	16	14	15	19	18	19	25	24	25
13	29	28	28	15	14	15	19	18	18	26	25	25
14	29	29	29	17	16	16	18	17	18	27	26	26
15	30	29	30	17	16	16	18	18	18	27	26	27
16	30	19	27	16	16	16	18	18	18	27	26	27
17	19	16	17	17	16	17	19	18	19	27	24	27
18	18	16	17	17	16	17	19	19	19	25	24	25
19	19	18	18	19	17	18	19	18	18	26	24	25
20	19	18	18	20	19	19	18	17	17	27	26	26
21	19	18	19	19	16	17	18	17	18	28	27	27
22	19	17	18	18	17	18	18	17	18	28	27	27
23	19	18	18	19	18	19	19	18	19	27	24	26
24	20	19	19	19	17	19	20	19	19	24	20	21
25	21	20	21	17	15	16	20	17	19	21	20	20
26	22	21	22	17	15	16	17	16	16	26	21	21
27	23	22	22	17	16	17	18	16	17	21	17	18
28	23	18	22	17	16	16	19	18	18	20	18	19
29	---	---	---	17	17	17	19	19	19	20	19	20
30	---	---	---	18	17	18	19	19	19	22	20	21
31	---	---	---	18	17	18	---	---	---	23	21	22
MONTH	30	16	23	23	13	17	20	16	18	28	17	23
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	24	23	23	34	33	34	39	38	39	38	36	38
2	25	24	24	36	34	35	38	30	32	36	34	35
3	26	24	25	36	35	36	35	32	33	38	36	37
4	28	25	26	36	36	36	36	35	35	39	37	38
5	28	26	27	37	36	37	37	36	37	39	38	38
6	28	26	27	37	37	37	39	37	38	39	38	39
7	29	26	28	37	37	37	38	37	38	40	38	39
8	29	27	28	37	37	37	38	37	37	40	39	39
9	29	27	28	37	37	37	37	36	37	40	39	39
10	30	27	28	37	37	37	38	37	37	40	39	39
11	30	28	28	39	38	39	38	37	37	40	39	39
12	31	28	29	39	39	39	38	37	37	40	39	39
13	---	---	---	39	39	39	38	37	38	40	39	40
14	---	---	---	40	39	39	38	37	38	40	39	40
15	29	27	28	40	39	39	38	37	38	40	40	40
16	31	29	30	40	31	37	38	37	38	40	40	40
17	32	31	31	35	31	32	39	38	38	40	39	40
18	32	31	32	37	35	36	39	38	39	40	40	40
19	32	27	30	37	36	37	39	38	39	40	40	40
20	27	24	26	37	36	37	39	38	38	41	40	40
21	29	27	28	37	37	37	39	33	36	42	41	41
22	30	29	30	38	37	38	33	30	31	42	41	41
23	31	30	31	39	38	38	33	32	32	42	41	41
24	33	31	32	38	38	38	34	33	33	42	41	42
25	33	33	33	39	38	39	35	34	34	42	41	42
26	33	33	33	39	38	39	36	35	35	43	41	42
27	34	33	33	38	38	38	36	36	36	41	41	41
28	34	33	34	39	38	39	37	36	36	42	41	42
29	34	33	34	39	39	39	37	36	37	42	42	42
30	33	32	33	39	38	39	37	36	37	42	35	38
31	---	---	---	39	39	39	38	37	38	---	---	---
MONTH	---	---	---	40	31	37	39	30	36	43	34	40

SANDY RIVER BASIN

14138900 NORTH FORK BULL RUN RIVER NEAR MULTNOMAH FALLS, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	11.5	10.0	10.5	8.5	8.0	8.0	5.5	5.0	5.0	4.5	3.5	4.0
2	11.0	10.0	10.5	9.5	8.5	9.0	5.5	5.0	5.5	4.5	4.5	4.5
3	10.5	9.5	10.0	9.5	9.0	9.0	5.5	5.0	5.0	5.0	4.5	4.5
4	---	---	---	9.0	9.0	9.0	5.0	4.5	5.0	4.5	4.0	4.5
5	---	---	---	9.5	9.0	9.0	5.5	5.0	5.0	4.0	3.5	4.0
6	---	---	---	9.0	8.0	8.5	6.0	5.5	6.0	3.5	3.0	3.5
7	---	---	---	8.0	7.5	7.5	6.5	5.5	6.0	3.5	3.0	3.5
8	10.5	9.0	9.5	7.5	7.0	7.5	6.5	5.5	6.0	4.0	3.0	3.5
9	11.0	9.5	10.0	7.0	7.0	7.0	7.0	6.5	6.5	4.5	3.5	4.0
10	11.0	10.0	10.5	7.5	7.0	7.5	6.5	6.0	6.0	4.0	3.5	3.5
11	10.5	9.5	10.0	7.5	7.0	7.0	7.0	6.0	6.5	4.0	3.0	3.5
12	9.5	9.0	9.5	7.5	7.0	7.0	7.5	7.0	7.0	4.5	4.0	4.0
13	9.5	9.0	9.5	7.0	6.5	6.5	7.5	5.5	6.5	4.0	3.0	3.5
14	9.5	9.5	9.5	6.5	6.0	6.5	5.5	4.5	5.0	3.0	2.5	3.0
15	10.0	9.5	10.0	7.0	6.0	6.5	4.5	4.0	4.0	3.5	3.0	3.5
16	10.0	10.0	10.0	7.0	6.5	7.0	4.5	3.5	4.0	4.0	3.5	4.0
17	10.5	9.5	10.0	6.5	6.0	6.5	4.0	3.5	4.0	4.0	4.0	4.0
18	9.5	9.5	9.5	6.5	6.0	6.5	4.5	3.5	4.0	4.5	4.0	4.0
19	10.5	9.5	10.0	6.0	5.5	6.0	4.5	4.5	4.5	4.5	4.0	4.0
20	10.0	9.0	9.5	6.5	6.0	6.5	4.5	4.0	4.5	4.5	4.0	4.5
21	9.5	9.0	9.5	7.0	6.5	7.0	4.0	3.5	4.0	4.5	4.0	4.5
22	9.5	8.5	9.0	7.5	6.5	7.0	4.5	4.0	4.0	4.0	3.0	3.5
23	9.0	6.5	8.5	6.5	5.0	5.5	4.0	3.5	4.0	3.0	2.5	2.5
24	9.0	8.0	8.5	5.0	4.0	4.5	4.0	4.0	4.0	3.5	2.5	3.0
25	9.0	8.0	8.5	5.0	4.0	4.5	4.0	3.5	4.0	3.5	3.5	3.5
26	9.0	7.5	8.0	5.5	5.0	5.0	4.0	3.5	3.5	4.0	3.5	3.5
27	7.5	7.0	7.0	5.5	5.0	5.0	3.5	3.0	3.5	4.5	4.0	4.0
28	7.5	6.5	7.0	5.5	5.0	5.0	3.5	2.5	3.0	4.5	3.5	4.0
29	7.5	7.0	7.0	6.0	5.0	5.5	3.5	3.0	3.0	5.0	4.0	4.5
30	8.5	7.5	8.0	5.5	4.5	5.0	4.0	3.5	4.0	5.0	4.5	5.0
31	8.5	8.0	8.0	---	---	---	4.5	4.0	4.0	5.0	3.0	3.5
MONTH	---	---	---	9.5	4.0	6.5	7.5	2.5	4.5	5.0	2.5	4.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	2.5	1.0	2.0	4.5	2.5	4.0	4.5	4.0	4.5	9.0	8.0	8.5
2	1.0	.5	.5	3.0	2.5	3.0	4.0	3.0	3.5	9.0	7.0	8.0
3	.5	.5	.5	3.5	2.5	3.0	4.5	3.5	4.0	9.0	7.5	8.5
4	.5	.5	.5	3.5	2.5	3.0	4.5	4.0	4.5	11.0	9.0	9.5
5	1.5	.5	1.0	3.5	3.0	3.5	6.0	4.5	5.0	11.0	9.5	10.5
6	2.0	1.5	1.5	4.0	3.5	3.5	7.0	4.5	5.5	11.0	10.0	10.5
7	2.0	1.5	1.5	4.5	3.5	4.0	7.0	5.5	6.0	12.0	10.5	11.0
8	2.0	1.5	2.0	5.0	4.0	4.5	6.5	4.0	5.5	11.5	9.5	10.5
9	2.5	2.0	2.5	5.0	4.5	4.5	6.5	5.0	5.5	10.0	9.0	9.5
10	3.0	2.5	3.0	5.0	4.5	4.5	7.0	5.0	6.0	9.0	8.0	8.5
11	3.5	3.0	3.0	5.0	4.5	4.5	7.5	5.0	6.5	8.5	7.5	7.5
12	3.5	3.0	3.0	5.0	4.5	4.5	7.5	5.5	6.5	8.0	7.5	7.5
13	3.5	3.0	3.0	4.5	3.5	4.0	8.0	5.5	7.0	9.5	7.0	8.0
14	3.5	3.0	3.0	4.5	3.5	4.0	8.0	6.5	7.0	10.0	7.5	8.5
15	3.5	2.5	3.0	5.0	4.0	4.5	7.0	6.5	6.5	10.5	8.0	9.0
16	3.0	2.0	3.0	4.5	4.0	4.5	7.0	5.5	6.0	9.5	8.5	9.0
17	3.0	2.0	2.5	5.0	4.0	4.5	7.5	6.0	6.5	9.5	8.0	9.0
18	3.5	3.0	3.0	5.0	4.5	5.0	8.5	6.5	7.5	8.0	7.5	7.5
19	3.5	3.5	3.5	5.0	4.5	4.5	8.5	7.5	8.0	8.5	7.0	7.5
20	4.0	3.5	3.5	5.5	4.0	4.5	8.0	6.5	7.5	9.5	6.5	8.0
21	4.5	3.5	4.0	5.0	4.5	5.0	6.5	6.0	6.5	9.0	7.5	8.0
22	4.0	4.0	4.0	5.0	4.0	4.5	6.5	5.5	6.0	9.0	8.0	8.5
23	4.0	3.5	4.0	5.5	4.0	4.5	7.5	5.5	6.5	8.5	7.5	8.0
24	4.0	3.0	3.5	5.0	5.0	5.0	7.5	6.0	7.0	7.5	6.5	7.0
25	4.5	3.5	4.0	5.0	4.0	4.5	7.0	6.0	6.5	7.5	6.5	7.0
26	4.5	3.5	4.0	5.0	4.0	4.5	6.0	5.5	6.0	8.0	7.0	7.5
27	3.5	3.5	3.5	4.5	4.5	4.5	7.5	5.5	6.5	8.0	7.0	7.5
28	5.0	3.5	4.0	5.0	4.0	4.5	7.5	6.0	7.0	8.0	7.0	7.5
29	---	---	---	4.5	3.5	4.0	8.5	6.5	7.5	7.5	7.5	7.5
30	---	---	---	5.0	4.0	4.5	9.0	7.5	8.5	8.5	7.5	8.0
31	---	---	---	5.0	4.0	4.5	---	---	---	10.0	7.5	9.0
MONTH	5.0	.5	2.5	5.5	2.5	4.5	9.0	3.0	6.0	12.0	6.5	8.5

SANDY RIVER BASIN

59

14138900 NORTH FORK BULL RUN RIVER NEAR MULTNOMAH FALLS, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	12.0	9.0	10.0	9.5	8.5	9.0	9.5	9.0	9.5	9.5	9.0	9.5
2	11.5	10.0	10.5	10.5	8.5	9.5	11.0	9.0	10.5	10.5	9.5	10.0
3	12.0	10.0	11.0	10.5	9.0	9.5	10.5	10.0	10.5	10.0	8.5	9.5
4	12.5	10.5	11.5	11.0	9.0	9.5	11.5	10.0	10.5	10.5	9.0	9.5
5	13.0	10.0	11.5	11.0	8.5	9.5	12.0	10.0	11.0	10.0	9.0	9.5
6	11.0	10.0	10.5	11.5	9.0	10.0	12.5	10.5	11.5	10.0	8.5	9.5
7	12.0	9.0	10.5	11.5	9.5	10.0	12.5	11.0	12.0	10.0	8.5	9.5
8	10.5	9.5	10.0	10.0	9.5	9.5	12.0	11.0	11.5	10.5	9.0	10.0
9	10.0	9.0	9.5	9.5	9.0	9.0	12.0	10.5	11.0	10.5	9.5	10.0
10	11.5	9.0	10.0	9.5	9.0	9.0	11.5	10.0	10.5	10.0	8.5	9.5
11	12.0	9.5	10.5	11.0	8.5	9.5	11.0	9.5	10.0	10.0	8.5	9.0
12	11.0	10.0	10.5	12.0	9.5	10.5	10.0	9.5	10.0	10.0	8.5	9.0
13	---	---	---	11.5	10.0	10.5	11.5	9.5	10.5	10.0	8.5	9.5
14	---	---	---	10.5	10.0	10.0	10.5	9.5	10.0	10.0	9.0	9.5
15	10.0	9.0	9.5	10.0	9.5	10.0	10.0	9.5	9.5	10.0	9.0	9.5
16	9.5	8.5	9.0	11.5	9.5	10.0	9.5	9.0	9.5	9.5	8.5	9.0
17	9.5	8.0	8.5	12.0	11.0	11.5	11.0	9.5	10.0	9.0	8.5	9.0
18	9.5	8.5	9.0	12.0	10.5	11.5	11.5	9.5	10.5	9.0	8.0	8.5
19	9.0	8.0	8.5	12.5	11.0	11.5	11.0	10.0	10.5	9.0	7.5	8.0
20	9.5	8.5	8.5	11.0	10.0	10.5	10.5	10.0	10.0	9.0	7.5	8.5
21	10.5	7.5	9.0	10.5	9.5	10.0	11.0	10.0	10.5	9.5	8.0	9.0
22	10.5	8.5	9.5	11.5	9.0	10.5	11.5	11.0	11.5	10.0	8.5	9.5
23	11.5	9.0	10.5	12.0	10.0	10.5	10.5	10.5	10.5	10.0	9.0	9.5
24	12.0	9.5	10.5	12.0	10.0	10.5	10.5	9.5	10.0	10.5	9.0	10.0
25	12.0	10.0	11.0	11.5	9.5	10.5	11.0	9.5	10.0	10.0	9.5	9.5
26	11.0	9.5	10.0	11.0	10.0	10.0	11.5	9.5	10.5	9.0	9.0	9.0
27	10.0	9.0	9.5	10.5	9.5	10.0	11.5	10.0	10.5	9.5	8.0	9.0
28	10.0	9.0	9.5	11.0	9.0	10.0	11.0	9.5	10.5	10.0	9.0	9.5
29	9.5	9.0	9.5	10.0	9.5	9.5	10.5	9.5	10.0	10.0	9.5	9.5
30	10.0	9.0	9.5	10.5	9.5	10.0	10.5	9.5	10.0	10.5	9.5	10.0
31	---	---	---	10.0	9.5	9.5	10.0	9.5	9.5	---	---	---
MONTH	---	---	---	12.5	8.5	10.0	12.5	9.0	10.5	10.5	7.5	9.5

SANDY RIVER BASIN

14139000 BULL RUN RESERVOIR NUMBER ONE NEAR BULL RUN, OR

LOCATION.--Lat 45°28'50", long 122°04'50", in NW 1/4 SW 1/4 sec.16, T.1 S., R.6 E., Multnomah County, Hydrologic Unit 17080001, in Mount Hood National Forest, in control house of Bear Creek Dam on Bull Run River, 8.2 mi northeast of Bull Run, and at mile 11.2.

DRAINAGE AREA.--74.6 mi².

PERIOD OF RECORD.--October 1928 to current year. Prior to October 1937, published as Bull Run Reservoir. October 1937 to September 1967, published as Lake Ben Morrow. Prior to October 1975, monthend contents only.

REVISED RECORDS.--WSP 814: 1935(M). WSP 1935: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Portland Water Bureau). Prior to Oct. 9, 1930, Oct. 1, 1962, to Dec. 31, 1975, nonrecording gage and Oct. 9, 1930, to Sept. 30, 1962, water-stage recorder at present site and datum.

REMARKS.--Elevations for Mar. 2-17 provided by Portland Water Bureau. Lake is formed by concrete dam completed in March 1929 for water supply of city of Portland. Storage began about Apr. 29, 1929; first filling occurred May 15, 1929. Capacity, 26,930 acre-ft at crest of spillway, elevation, 1,036.0 ft; capacity increased in October 1954 to 30,140 acre-ft at elevation 1,044.0 ft by installation of three gates 40 ft wide and 8 ft high. No dead storage. Water is used for power generation by Portland General Electric Co. and municipal supply for city of Portland.

COOPERATION.--Capacity table furnished by Portland Water Bureau.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 31,600 acre-ft Mar. 31, 1931, elevation, 1,047.40 ft; minimum contents observed, 169 acre-ft Jan. 10, 1960, elevation, 887.5 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 30,700 acre-ft June 9, elevation, 1,045.31 ft; minimum contents, 11,920 acre-ft Oct. 19, elevation, 988.14 ft.

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

870	0	970	8,050
890	213	990	12,370
910	1,130	1,010	17,950
930	2,680	1,030	24,680
950	4,900	1,048	31,860

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	992.17	990.72	1034.43	1034.73	1035.98	1034.57	1034.87	1034.77	1044.41	1044.63	1031.08	1022.23
2	990.55	992.96	1034.49	1035.09	1035.70	1034.70	1034.84	1034.12	1044.54	1043.86	1030.79	1021.51
3	991.07	992.06	1034.60	1035.66	1037.48	1034.70	1034.54	1034.98	1044.32	1044.51	1031.66	1022.43
4	991.57	995.47	1034.80	1035.69	1037.45	1034.80	1035.38	1034.31	1044.78	1043.82	1032.34	1021.67
5	992.09	1001.30	1034.51	1035.66	1037.96	1035.30	1034.52	1034.78	1044.85	1044.42	1030.51	1022.43
6	992.59	1014.25	1036.25	1034.40	1034.84	1036.80	1035.47	1034.05	1044.71	1043.77	1031.11	1021.04
7	993.07	1019.30	1035.75	1034.43	1034.61	1036.50	1035.21	1034.96	1044.97	1043.20	1029.66	1021.75
8	993.53	1023.61	1035.73	1035.68	1034.58	1035.50	1035.10	1034.51	1045.23	1041.27	1028.75	1019.92
9	993.99	1025.00	1035.20	1042.18	1034.76	1034.90	1034.46	1034.73	1044.83	1041.80	1027.83	1020.56
10	994.43	1031.71	1034.66	1036.96	1034.69	1034.70	1035.51	1034.49	1045.18	1040.81	1028.35	1018.22
11	994.83	1035.72	1034.35	1036.03	1034.42	1037.00	1034.57	1036.59	1044.93	1040.08	1026.89	1018.80
12	995.27	1035.81	1035.09	1035.81	1035.58	1036.00	1034.65	1035.31	1045.21	1039.45	1026.23	1016.85
13	992.13	1035.78	1034.68	1035.43	1034.33	1035.80	1034.75	1036.92	1045.17	1038.91	1024.97	1015.63
14	990.61	1035.46	1034.40	1034.74	1035.42	1035.80	1034.52	1035.77	1044.74	1038.23	1024.22	1016.23
15	991.68	1035.75	1034.32	1034.97	1034.47	1035.20	1034.17	1036.30	1044.89	1037.08	1023.25	1014.11
16	992.34	1035.54	1034.95	1035.54	1034.97	1035.20	1034.14	1037.49	1045.21	1038.04	1022.50	1014.74
17	993.02	1035.80	1034.50	1036.20	1035.31	1034.50	1034.61	1038.35	1045.24	1037.96	1021.99	1012.91
18	989.62	1035.21	1034.76	1035.95	1035.57	1034.84	1034.62	1039.58	1044.86	1038.70	1022.47	1013.50
19	989.03	1034.13	1034.47	1035.71	1035.15	1034.31	1034.97	1040.23	1045.06	1037.49	1020.55	1012.67
20	989.98	1035.57	1034.70	1035.93	1034.67	1034.18	1035.02	1041.78	1045.06	1038.09	1021.04	1011.05
21	990.78	1037.96	1034.42	1035.43	1034.27	1035.34	1034.31	1042.22	1045.13	1036.61	1020.08	1011.63
22	991.70	1039.43	1034.58	1034.49	1034.70	1035.02	1034.32	1043.56	1045.00	1036.34	1022.30	1011.01
23	992.41	1036.39	1034.82	1034.23	1034.24	1034.16	1034.67	1043.55	1044.80	1035.58	1022.51	1009.41
24	993.05	1035.68	1034.52	1034.74	1034.21	1034.34	1034.64	1044.60	1045.00	1035.03	1023.59	1007.71
25	993.70	1035.53	1034.72	1034.93	1034.65	1035.18	1034.72	1043.58	1044.21	1033.81	1022.95	1006.83
26	994.24	1035.18	1034.66	1035.57	1034.48	1034.91	1035.66	1043.56	1044.00	1033.32	1023.80	1006.85
27	992.56	1037.25	1034.69	1034.31	1034.56	1035.14	1035.78	1044.52	1043.93	1033.84	1022.68	1005.73
28	990.52	1036.46	1034.57	1035.06	1034.75	1035.07	1034.85	1043.80	1043.84	1032.49	1023.37	1005.88
29	991.07	1035.99	1035.59	1034.97	---	1034.94	1035.44	1043.66	1043.50	1031.70	1022.00	1004.03
30	991.67	1035.23	1035.47	1034.95	---	1034.57	1034.29	1043.47	1043.92	1032.20	1022.68	1005.62
31	990.06	---	1034.84	1035.81	---	1034.52	---	1043.84	---	1030.52	1021.46	---
MAX	995.27	1039.43	1036.25	1042.18	1037.96	1037.00	1035.78	1044.60	1045.24	1044.63	1032.34	1022.43
MIN	989.03	990.72	1034.32	1034.23	1034.21	1034.16	1034.14	1034.05	1043.50	1030.52	1020.08	1004.03
(†)	12380	26640	26490	26860	26460	26370	26280	30070	30110	24870	21680	16630
(‡)	-390	+14260	-150	+370	-400	-90	-90	+3790	+40	-5240	-3190	-5050

CAL YR 1988 MAX 1045.25 MIN 989.03 AC-FT† +250

WTR YR 1989 MAX 1045.24 MIN 989.03 AC-FT† +3860

† Contents, in acre-feet, at 2400, on last day of month.

‡ Change in contents, in acre-feet.

SANDY RIVER BASIN

61

14139700 CEDAR CREEK NEAR BRIGHTWOOD, OR

LOCATION.--Lat 45°27'30", long 122°01'50", in NE 1/4 sec.26, T.1 S., R.6 E., Clackamas County, Hydrologic Unit 17080001, in Mount Hood National Forest, on right bank 5.8 mi north of Brightwood and at mile 2.5.

DRAINAGE AREA.--7.93 mi².

PERIOD OF RECORD.--July to November 1964, June 1965 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,960 ft, from topographic map.

REMARKS.--Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--24 years, 66.5 ft³/s, 113.88 in/yr, 48,180 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,990 ft³/s Dec. 22, 1964, gage height, 7.20 ft, from rating curve extended above 320 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 4.7 ft³/s Oct. 28, 29, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	2030	569	3.75	Jan. 9	1930	*1,620	*4.92

Minimum discharge, 6.7 ft³/s Oct. 10-14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.0	13	83	75	117	46	107	61	48	23	15	18
2	8.4	52	76	103	93	44	114	51	42	21	25	29
3	8.2	47	71	175	e76	38	94	46	37	21	21	22
4	7.9	123	66	157	e62	36	119	43	34	20	18	19
5	7.8	94	68	112	e50	107	144	42	32	19	16	17
6	7.7	208	178	81	e48	325	127	39	31	19	16	16
7	7.5	85	205	67	e47	192	131	37	30	18	15	15
8	7.3	85	110	115	e45	123	106	34	28	18	15	14
9	7.1	83	96	840	e43	122	89	35	27	18	14	13
10	6.8	155	74	407	e40	135	82	35	26	19	14	13
11	6.7	104	62	163	e38	157	77	38	25	18	13	13
12	6.8	216	53	107	e37	173	78	32	24	17	13	12
13	6.7	131	76	91	e35	179	83	30	23	16	13	12
14	8.3	83	56	72	e34	119	86	29	27	16	13	12
15	12	94	46	88	e31	114	80	27	30	16	13	11
16	9.8	145	41	191	e45	127	66	26	25	23	12	11
17	9.3	152	36	224	86	111	57	31	23	32	12	11
18	8.7	103	35	221	72	126	55	42	23	22	12	11
19	17	89	78	175	47	104	72	44	25	20	12	11
20	12	158	66	127	59	87	95	35	42	19	12	10
21	10	286	64	121	54	165	78	32	29	18	22	9.9
22	16	388	62	98	86	131	67	31	26	18	58	9.5
23	11	292	51	77	93	97	56	39	25	17	37	9.2
24	9.5	146	43	64	70	98	49	105	23	16	29	9.2
25	8.8	104	37	54	73	157	81	95	22	16	25	9.2
26	8.3	100	34	49	63	137	207	73	22	16	23	9.4
27	8.0	206	32	52	55	134	132	166	22	16	21	9.3
28	7.6	306	29	47	49	154	93	125	21	16	19	8.9
29	7.5	163	78	45	---	132	75	92	22	15	18	8.6
30	7.4	100	160	60	---	108	65	73	25	15	17	31
31	7.5	---	101	208	---	126	---	58	---	15	17	---
TOTAL	276.6	4311	2267	4466	1648	3904	2765	1646	839	573	580	404.2
MEAN	8.92	144	73.1	144	58.9	126	92.2	53.1	28.0	18.5	18.7	13.5
MAX	17	388	205	840	117	325	207	166	48	32	58	31
MIN	6.7	13	29	45	31	36	49	26	21	15	12	8.6
AC-FT	549	8550	4500	8860	3270	7740	5480	3260	1660	1140	1150	802
CFSM	1.13	18.1	9.22	18.2	7.42	15.9	11.6	6.70	3.53	2.33	2.36	1.70
IN.	1.30	20.22	10.63	20.95	7.73	18.31	12.97	7.72	3.94	2.69	2.72	1.90

CAL YR 1988 TOTAL 23290.5 MEAN 63.6 MAX 455 MIN 6.7 AC-FT 46200 CFSM 8.02 IN. 109.26
WTR YR 1989 TOTAL 23679.8 MEAN 64.9 MAX 840 MIN 6.7 AC-FT 46970 CFSM 8.18 IN. 111.08

e Estimated

SANDY RIVER BASIN

14139800 SOUTH FORK BULL RUN RIVER NEAR BULL RUN, OR

LOCATION.--Lat 45°26'38", long 122°06'20", in NE 1/4 NE 1/4 sec.31, T.1 S., R.6 E., Clackamas County, Hydrologic Unit 17080001, in Mount Hood National Forest, on right bank 6.2 mi northeast of Bull Run, and at mile 0.6.

DRAINAGE AREA.--15.4 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 990 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--15 years, 107 ft³/s, 94.35 in/yr, 77,520 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,480 ft³/s Jan. 9, 1989, gage height, 8.85 ft, from rating curve extended above 1,200 ft³/s; minimum discharge, 6.7 ft³/s Oct. 12, 13, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 1,600 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 9	2300	*3,480	*8.85	No other peak greater than base discharge.			
Minimum daily discharge, 12 ft ³ /s Sept. 24-29.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	15	163	120	190	87	178	103	80	30	20	23
2	15	56	135	142	136	82	183	88	70	28	32	37
3	15	69	122	220	128	74	159	78	62	26	27	29
4	15	152	109	200	e110	69	185	73	56	25	24	25
5	14	131	109	153	e90	153	229	69	52	24	22	23
6	14	304	221	116	75	577	207	65	49	23	20	22
7	14	172	301	87	67	379	204	61	45	22	18	22
8	14	140	209	379	63	248	176	56	42	22	17	22
9	13	123	179	1390	59	213	147	54	40	22	17	20
10	13	207	140	1190	56	237	134	56	38	22	16	19
11	13	166	112	316	54	e270	124	55	35	22	16	18
12	13	234	96	211	52	e290	123	48	34	21	15	e17
13	13	204	125	185	50	e305	129	44	32	20	15	e17
14	13	150	97	151	49	228	134	41	35	20	15	e17
15	16	155	e75	156	46	221	130	38	44	20	15	e16
16	17	214	e55	297	88	242	110	36	38	27	15	e16
17	15	231	e45	352	296	225	93	38	35	45	15	e15
18	15	199	e40	357	287	232	88	54	33	29	15	e15
19	21	163	e126	288	236	199	108	56	34	26	16	e14
20	21	223	e115	214	216	168	142	51	59	25	16	e14
21	17	259	e120	197	188	261	131	46	44	24	25	e13
22	22	278	e128	170	229	237	113	44	38	23	74	13
23	18	223	103	138	222	182	95	50	36	22	53	13
24	16	191	87	116	177	166	83	121	33	21	43	12
25	16	193	73	99	141	250	116	140	32	21	37	12
26	15	197	63	86	119	248	323	115	30	21	33	12
27	15	213	55	87	103	223	227	213	29	20	29	12
28	14	263	48	81	91	249	166	197	29	20	27	12
29	14	246	90	77	---	225	132	149	29	20	25	12
30	14	192	203	88	---	190	114	119	33	20	23	43
31	14	---	162	276	---	206	---	95	---	20	22	---
TOTAL	475	5563	3706	7939	3618	6936	4483	2453	1246	731	757	555
MEAN	15.3	185	120	256	129	224	149	79.1	41.5	23.6	24.4	18.5
MAX	22	304	301	1390	296	577	323	213	80	45	74	43
MIN	13	15	40	77	46	69	83	36	29	20	15	12
AC-FT	942	11030	7350	15750	7180	13760	8890	4870	2470	1450	1500	1100
CFSM	.99	12.0	7.76	16.6	8.39	14.5	9.70	5.14	2.70	1.53	1.59	1.20
IN.	1.15	13.44	8.95	19.18	8.74	16.75	10.83	5.93	3.01	1.77	1.83	1.34

CAL YR 1988 TOTAL 38726 MEAN 106 MAX 965 MIN 13 AC-FT 76810 CFSM 6.87 IN. 93.55
WTR YR 1989 TOTAL 38462 MEAN 105 MAX 1390 MIN 12 AC-FT 76290 CFSM 6.84 IN. 92.91

e Estimated

SANDY RIVER BASIN

14139800 SOUTH FORK BULL RUN RIVER NEAR BULL RUN, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1978 to current year.

pH: November 1980 to September 1981.

WATER TEMPERATURE: October 1978 to current year.

SUSPENDED SEDIMENT DISCHARGE: October 1978 to September 1986.

INSTRUMENTATION.--Water-quality monitor, prior to October 1980 conductivity/temperature recorder.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 56 microsiemens Oct. 31, 1988; minimum, 9 microsiemens Jan. 4, 1983.

WATER TEMPERATURE: Maximum, 17.0°C July 18-20, 1979, Aug. 9-12, 1981, July 19, 20, 1985, July 14, 1987; minimum, 0.0°C on many days during winter periods.

SEDIMENT CONCENTRATION: Maximum daily, 212 mg/L Nov. 7, 1985; minimum, 0 mg/L on many days.

SEDIMENT DISCHARGE: Maximum daily, 794 tons Nov. 7, 1985; minimum, 0 tons on many days.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum recorded, 56 microsiemens Oct. 31; minimum recorded, 15 microsiemens Nov. 21-23, 27, 28.

WATER TEMPERATURE: Maximum, 15.0°C Aug. 7, 8; minimum, 0.5°C Feb. 2-8.

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	39	38	38	40	37	38	20	19	19	23	22	22
2	39	38	38	52	31	35	20	20	20	23	22	23
3	39	38	38	31	30	31	20	20	20	23	17	20
4	39	38	39	30	26	27	20	20	20	18	17	17
5	40	38	39	26	23	26	20	20	20	19	18	18
6	40	39	39	22	20	21	20	18	20	20	18	19
7	40	39	39	22	21	21	18	16	17	19	16	18
8	40	39	40	22	22	22	18	17	18	17	16	16
9	40	39	40	22	22	22	19	18	19	---	---	---
10	40	40	40	21	20	20	19	18	19	---	---	---
11	40	39	40	21	20	21	20	19	19	---	---	---
12	41	39	40	21	18	19	21	20	20	---	---	---
13	41	39	40	19	18	19	---	---	---	---	---	---
14	41	40	40	20	19	20	---	---	---	---	---	---
15	41	40	40	20	20	20	21	20	20	---	---	---
16	41	39	40	20	19	19	21	21	21	---	---	---
17	40	39	40	19	18	19	21	21	21	---	---	---
18	40	39	40	20	19	19	21	21	21	---	---	---
19	40	39	39	20	19	20	22	21	22	---	---	---
20	40	38	39	20	18	19	22	21	22	---	---	---
21	39	38	39	18	15	17	22	22	22	---	---	---
22	38	37	37	16	15	16	22	22	22	---	---	---
23	52	37	38	17	15	16	22	19	22	---	---	---
24	54	37	39	18	17	18	19	19	19	---	---	---
25	55	38	39	20	18	19	19	19	19	---	---	---
26	54	37	39	19	18	19	19	19	19	---	---	---
27	38	37	37	20	15	18	20	19	19	---	---	---
28	38	37	37	17	15	16	20	20	20	---	---	---
29	38	37	38	18	17	18	21	20	21	---	---	---
30	38	38	38	19	18	19	22	21	21	---	---	---
31	56	38	40	---	---	---	22	22	22	---	---	---
MONTH	56	37	39	52	15	21	---	---	---	---	---	---

SANDY RIVER BASIN

14139800 SOUTH FORK BULL RUN RIVER NEAR BULL RUN, OR--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	---	---	---	23	23	23
2	---	---	---	---	---	---	---	---	---	24	23	24
3	---	---	---	---	---	---	---	---	---	24	23	23
4	---	---	---	---	---	---	---	---	---	25	24	24
5	---	---	---	---	---	---	---	---	---	25	24	25
6	---	---	---	---	---	---	---	---	---	26	25	25
7	---	---	---	---	---	---	---	---	---	26	26	26
8	---	---	---	---	---	---	---	---	---	27	26	26
9	---	---	---	---	---	---	---	---	---	27	26	27
10	---	---	---	---	---	---	---	---	---	26	26	26
11	---	---	---	---	---	---	---	---	---	27	25	26
12	---	---	---	---	---	---	---	---	---	26	26	26
13	---	---	---	---	---	---	---	---	---	27	26	27
14	---	---	---	---	---	---	---	---	---	28	27	28
15	---	---	---	---	---	---	---	---	---	29	28	28
16	---	---	---	---	---	---	---	---	---	29	28	29
17	---	---	---	---	---	---	---	---	---	29	27	28
18	---	---	---	---	---	---	---	---	---	28	26	26
19	---	---	---	---	---	---	---	---	---	26	24	25
20	---	---	---	---	---	---	---	---	---	26	24	25
21	---	---	---	---	---	---	---	---	---	26	25	26
22	---	---	---	---	---	---	21	20	21	26	26	26
23	---	---	---	---	---	---	22	21	22	26	24	25
24	---	---	---	---	---	---	22	21	22	24	20	21
25	---	---	---	---	---	---	22	18	21	20	19	20
26	---	---	---	---	---	---	18	17	18	20	19	20
27	---	---	---	---	---	---	20	18	19	20	18	19
28	---	---	---	---	---	---	21	20	21	21	19	20
29	---	---	---	---	---	---	23	21	22	22	20	21
30	---	---	---	---	---	---	23	22	23	23	21	22
31	---	---	---	---	---	---	---	---	---	24	23	24
MONTH	---	---	---	---	---	---	---	---	---	29	18	25
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	24	23	24	32	32	32	37	36	37	47	33	34
2	25	24	24	33	32	33	37	34	36	45	31	34
3	25	24	25	34	33	34	35	34	34	46	32	34
4	26	25	26	34	34	34	37	35	36	46	33	34
5	26	25	26	35	34	34	37	36	37	46	33	34
6	26	25	26	35	35	35	38	37	37	43	33	35
7	27	26	26	35	35	35	39	38	38	45	34	36
8	27	27	27	35	35	35	39	38	38	38	34	35
9	28	27	27	36	35	35	38	37	38	44	34	36
10	29	28	28	36	35	36	38	37	38	35	35	35
11	30	29	29	36	36	36	38	38	38	35	35	35
12	30	29	29	37	36	37	39	38	38	36	35	35
13	30	30	30	37	36	37	39	37	38	36	35	36
14	30	29	30	37	35	36	38	38	38	36	36	36
15	29	28	29	36	35	35	38	38	38	37	36	37
16	30	29	30	36	34	35	39	38	38	37	36	37
17	31	30	30	34	30	32	40	38	39	37	36	37
18	31	31	31	34	32	33	40	39	39	37	37	37
19	31	30	31	35	34	34	40	39	40	37	36	37
20	30	26	28	35	34	35	40	39	39	37	36	36
21	29	27	28	35	34	35	40	37	39	37	36	37
22	30	29	30	36	35	36	37	30	32	37	37	37
23	31	30	30	36	35	36	30	30	30	37	36	37
24	31	31	31	37	35	36	31	30	31	37	36	36
25	32	31	32	38	36	37	32	31	32	37	36	37
26	32	31	31	38	36	37	33	32	32	37	36	37
27	32	31	31	36	35	36	33	32	33	37	37	37
28	32	32	32	36	36	36	33	32	33	37	37	37
29	33	32	32	38	36	37	34	33	33	38	37	37
30	33	31	32	38	36	37	34	33	33	38	32	35
31	---	---	---	38	36	37	34	33	34	---	---	---
MONTH	33	23	29	38	30	35	40	30	36	47	31	36

SANDY RIVER BASIN

65

14139800 SOUTH FORK BULL RUN RIVER NEAR BULL RUN, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	11.0	10.5	10.5	8.5	8.0	8.0	5.5	5.0	5.5	3.5	2.5	3.0
2	11.0	10.5	11.0	9.0	8.0	8.5	6.0	5.5	5.5	2.5	2.0	2.5
3	11.5	11.0	11.0	9.0	9.0	9.0	5.5	5.0	5.5	3.5	2.5	3.0
4	11.0	10.5	10.5	9.5	9.0	9.0	5.5	5.0	5.0	4.0	3.5	4.0
5	11.5	11.0	11.0	9.5	9.0	9.5	6.0	5.0	5.0	4.5	4.0	4.5
6	11.0	10.5	11.0	9.0	8.0	8.5	6.5	6.0	6.0	4.5	4.0	4.5
7	11.0	10.5	11.0	8.0	8.0	8.0	6.5	6.0	6.0	5.0	4.5	4.5
8	11.0	10.5	11.0	8.0	8.0	8.0	6.5	5.5	6.0	5.0	4.5	5.0
9	11.0	10.5	10.5	8.0	7.5	7.5	6.5	6.5	6.5	5.0	3.0	4.0
10	11.0	10.5	11.0	8.0	7.5	8.0	6.5	6.0	6.0	4.5	3.5	4.0
11	11.5	11.0	11.0	8.0	7.5	7.5	6.5	6.0	6.0	4.5	4.0	4.0
12	11.5	11.0	11.0	8.0	7.0	7.5	7.0	6.5	7.0	4.5	4.5	4.5
13	11.5	11.0	11.0	7.5	7.0	7.0	---	---	---	4.5	3.0	3.5
14	11.0	11.0	11.0	7.0	6.5	7.0	---	---	---	3.5	3.0	3.5
15	11.5	11.0	11.0	7.5	7.0	7.0	4.0	4.0	4.0	4.0	3.5	3.5
16	11.5	11.0	11.5	7.5	7.0	7.5	4.0	3.5	3.5	4.5	3.5	4.0
17	11.5	11.0	11.5	7.0	6.5	7.0	4.0	3.5	3.5	4.5	4.5	4.5
18	11.0	10.5	11.0	7.0	6.5	7.0	4.0	3.5	3.5	5.0	4.5	4.5
19	11.0	10.5	11.0	7.0	6.0	6.5	3.5	3.5	3.5	4.5	4.0	4.5
20	10.5	10.0	10.5	7.0	7.0	7.0	3.5	3.5	3.5	5.0	4.5	4.5
21	10.0	9.5	10.0	7.5	6.5	7.0	3.5	3.0	3.0	5.0	4.5	4.5
22	10.0	9.0	9.5	7.5	6.5	7.5	3.0	3.0	3.0	4.5	3.5	4.0
23	9.0	8.5	9.0	6.5	6.0	6.5	4.0	3.0	3.5	3.5	3.0	3.0
24	8.5	8.5	8.5	6.0	4.5	5.5	4.5	4.0	4.5	3.5	3.0	3.0
25	8.5	8.5	8.5	5.5	5.0	5.0	4.5	4.0	4.0	4.0	3.5	3.5
26	8.5	7.5	8.5	6.0	5.5	5.5	4.0	4.0	4.0	3.5	3.0	3.5
27	7.5	7.0	7.5	6.0	5.0	5.5	4.5	4.0	4.0	4.0	3.5	4.0
28	7.5	7.0	7.0	6.0	5.0	6.0	4.0	4.0	4.0	4.0	3.5	4.0
29	7.5	7.0	7.0	6.0	5.5	6.0	4.0	4.0	4.0	4.5	4.0	4.5
30	8.5	7.5	8.0	5.5	5.5	5.5	3.5	3.5	3.5	5.0	4.5	4.5
31	8.0	8.0	8.0	---	---	---	3.5	3.5	3.5	5.0	3.0	4.0
MONTH	11.5	7.0	10.0	9.5	4.5	7.0	---	---	---	5.0	2.0	4.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	3.0	1.5	2.5	4.5	4.0	4.0	5.0	4.5	4.5	8.5	7.5	8.0
2	1.5	.5	.5	4.0	2.5	2.5	5.0	4.0	4.5	9.0	7.0	8.0
3	.5	.5	.5	3.0	2.0	2.5	5.0	4.0	4.5	9.0	7.0	8.0
4	.5	.5	.5	3.0	2.5	3.0	5.0	4.5	5.0	10.5	8.5	9.5
5	.5	.5	.5	3.5	3.0	3.0	6.0	5.0	5.5	11.0	9.0	10.0
6	.5	.5	.5	4.5	3.0	3.5	7.0	5.0	6.0	10.5	9.5	10.0
7	1.0	.5	.5	5.0	4.0	4.0	7.0	5.5	6.0	11.5	10.0	10.5
8	1.0	.5	1.0	5.5	4.0	4.5	6.5	4.5	5.5	11.0	9.5	10.5
9	1.5	1.0	1.0	5.5	4.5	5.0	7.0	5.0	6.0	10.5	9.0	9.5
10	2.5	1.5	2.0	5.5	4.5	5.0	7.0	5.5	6.0	9.0	8.0	8.5
11	3.0	2.5	2.5	5.5	5.0	5.0	7.5	5.5	6.5	8.5	7.5	8.0
12	3.0	3.0	3.0	5.5	4.5	5.0	7.5	5.5	6.5	8.5	7.5	8.0
13	3.0	3.0	3.0	---	---	---	7.5	5.5	6.5	9.0	7.0	8.0
14	3.5	3.0	3.0	---	---	---	8.0	6.0	7.0	9.0	8.0	8.5
15	3.0	2.5	3.0	5.5	4.5	5.0	7.0	6.0	6.5	10.5	8.0	9.5
16	3.0	2.0	2.5	5.0	4.0	4.5	7.0	5.5	6.5	10.0	9.0	9.5
17	3.0	1.0	2.0	5.0	4.0	4.5	7.5	5.5	6.5	9.5	8.5	9.0
18	4.0	3.0	3.5	5.5	5.0	5.0	8.0	6.5	7.5	8.5	7.5	7.5
19	4.0	4.0	4.0	5.5	4.5	5.0	8.0	7.0	7.5	8.5	7.0	7.5
20	4.5	4.0	4.0	5.5	4.0	5.0	8.0	6.5	7.0	9.0	7.0	8.0
21	5.0	4.0	4.0	5.5	5.0	5.0	6.5	6.0	6.5	8.5	8.0	8.0
22	4.5	4.5	4.5	5.0	4.5	5.0	6.5	5.5	6.0	9.0	8.0	8.5
23	5.0	4.0	4.5	5.5	4.0	5.0	7.0	5.5	6.5	8.5	7.5	8.0
24	4.5	4.0	4.0	5.5	5.0	5.0	7.0	6.0	6.5	7.5	6.5	7.0
25	4.5	4.0	4.5	5.0	4.5	5.0	7.0	6.0	6.5	8.0	6.5	7.0
26	4.5	3.5	4.0	5.0	4.5	5.0	6.0	5.5	6.0	7.5	7.0	7.0
27	4.0	4.0	4.0	5.0	5.0	5.0	7.5	5.5	6.5	7.5	6.5	7.0
28	4.5	4.0	4.0	5.5	4.5	5.0	8.0	5.5	6.5	8.0	6.5	7.0
29	---	---	---	5.0	4.5	4.5	9.0	6.5	7.5	7.5	7.0	7.0
30	---	---	---	5.0	4.0	4.5	9.0	7.0	8.0	8.5	7.0	7.5
31	---	---	---	5.5	4.5	5.0	---	---	---	10.5	7.5	8.5
MONTH	5.0	.5	2.5	---	---	---	9.0	4.0	6.5	11.5	6.5	8.5

SANDY RIVER BASIN

14139800 SOUTH FORK BULL RUN RIVER NEAR BULL RUN, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	11.5	8.5	10.0	11.0	10.0	10.5	11.5	11.0	11.5	12.0	11.5	11.5
2	11.5	9.5	10.5	12.0	10.0	11.0	11.5	11.0	11.0	11.5	11.0	11.0
3	12.0	10.0	11.0	12.0	11.0	11.5	12.0	11.0	11.5	11.0	10.0	10.5
4	13.0	10.5	11.5	13.0	11.0	12.0	12.5	11.5	12.0	11.5	10.5	11.0
5	13.0	11.0	12.0	13.0	11.0	12.0	14.0	12.0	13.0	11.5	11.0	11.0
6	12.5	11.0	11.5	13.5	11.5	12.5	14.5	13.0	13.5	11.5	10.5	11.0
7	12.0	10.0	11.0	14.0	12.0	12.5	15.0	13.5	14.5	11.5	10.5	11.0
8	11.5	10.5	11.0	12.5	12.0	12.5	15.0	14.0	14.5	12.0	10.5	11.0
9	11.0	10.0	10.5	12.0	11.0	11.5	14.5	13.5	14.0	12.0	11.0	11.5
10	12.0	9.5	11.0	11.5	11.0	11.0	14.0	13.0	13.5	11.5	10.5	11.0
11	13.0	11.0	12.0	13.0	10.0	11.5	13.5	12.0	13.0	11.5	10.5	11.0
12	12.5	11.5	12.0	14.0	11.5	13.0	13.0	12.0	12.5	11.0	10.5	11.0
13	12.5	11.5	12.0	14.0	13.0	13.5	13.5	12.5	13.0	11.0	10.0	10.5
14	12.0	11.0	11.5	13.5	12.5	13.0	13.5	12.5	13.0	11.5	10.5	11.0
15	11.0	10.5	10.5	12.5	12.0	12.5	13.5	12.5	13.0	11.5	10.5	11.0
16	11.0	10.0	10.5	12.0	11.5	11.5	13.0	12.0	12.5	11.0	10.5	10.5
17	11.0	10.0	10.5	12.5	11.0	12.0	13.5	12.0	13.0	11.0	10.5	10.5
18	11.0	10.5	10.5	13.0	12.0	12.5	14.0	12.5	13.0	10.5	10.0	10.5
19	10.5	10.0	10.5	14.0	12.5	13.0	14.0	13.0	13.5	10.0	9.5	9.5
20	10.0	9.5	9.5	13.0	12.0	12.5	13.5	13.0	13.5	10.0	9.0	9.5
21	11.5	9.0	10.0	12.5	11.5	12.0	13.0	13.0	13.0	10.0	9.0	9.5
22	12.5	10.5	11.5	13.5	11.0	12.5	13.0	12.5	12.5	10.5	9.5	10.0
23	13.5	11.5	12.5	14.0	12.0	13.0	12.5	12.0	12.0	11.0	10.5	10.5
24	14.5	12.0	13.0	14.0	12.5	13.0	12.0	11.5	11.5	11.5	10.5	11.0
25	14.5	12.5	13.5	14.0	12.0	13.0	12.0	11.0	11.5	11.5	11.0	11.0
26	14.0	12.0	13.0	13.5	12.5	13.0	12.5	11.5	12.0	11.5	11.0	11.0
27	12.0	11.0	11.5	12.5	12.0	12.0	13.0	12.0	12.5	11.0	10.0	10.5
28	12.0	11.0	11.5	13.5	11.0	12.0	13.0	12.0	12.5	11.0	10.5	10.5
29	11.0	10.5	11.0	12.5	12.0	12.0	12.5	12.0	12.5	11.5	11.0	11.0
30	11.0	10.5	10.5	12.5	11.5	12.0	12.5	12.0	12.0	11.5	11.0	11.5
31	---	---	---	12.5	11.5	12.0	12.0	11.5	12.0	---	---	---
MONTH	14.5	8.5	11.5	14.0	10.0	12.0	15.0	11.0	12.5	12.0	9.0	10.5

SANDY RIVER BASIN

67

14139900 BULL RUN RESERVOIR NUMBER TWO NEAR BULL RUN, OR

LOCATION.--Lat 45°26'55", long 122°08'45", on line between secs.25 and 26, T.1 S., R.5 E., Clackamas County, Hydrologic Unit 17080001, in Mount Hood National Forest, on headworks dam on Bull Run River, 4.4 mi northeast of Bull Run, and at mile 6.5.

DRAINAGE AREA.--102 mi².

PERIOD OF RECORD.--December 1961 to current year. Prior to October 1975, monthend contents only.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Portland Water Bureau). Prior to Dec. 31, 1975, nonrecording gage at same site and datum.

REMARKS.--Elevations for July 6-20 and Sept. 2-7 provided by the Portland Water Bureau. Reservoir is formed by earth and rockfill dam with concrete spillway built by Portland Water Bureau. Storage began about Dec. 20, 1961; first filling occurred Dec. 24, 1961. Capacity, 20,990 acre-ft at crest of spillway, elevation, 860.0 ft. Dead storage negligible. Water is used as municipal supply for city of Portland and for power generation by Portland General Electric Co.

COOPERATION.--Capacity table furnished by Portland Water Bureau.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 23,660 acre-ft Dec. 22, 1964, elevation, 866.00 ft; no contents at times during low-flow periods.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 22,600 acre-ft Jan. 9, elevation, 863.64 ft; minimum contents, 13,780 acre-ft Oct. 27, elevation, 841.40 ft.

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

752	0	830	10,000
770	234	850	16,800
790	1,860	870	25,500
810	5,070		

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	852.95	842.03	859.60	859.35	860.36	858.91	859.03	858.90	860.01	859.02	859.05	858.96
2	853.39	842.56	859.69	859.63	859.97	858.93	858.89	859.35	859.94	859.83	859.76	859.20
3	852.57	845.95	859.50	860.68	859.34	859.37	858.70	858.91	859.77	859.16	859.15	859.20
4	851.86	849.67	859.42	860.63	859.51	858.42	859.12	858.87	859.50	859.56	858.50	859.80
5	851.10	849.97	859.75	859.84	859.46	859.03	859.85	859.08	859.44	858.67	859.74	859.00
6	850.30	851.12	860.94	859.52	859.81	861.21	859.49	859.39	859.47	858.60	858.88	858.90
7	849.49	851.13	860.53	859.37	859.36	860.44	859.24	858.80	859.04	858.50	859.46	858.80
8	848.64	851.21	859.44	859.82	859.72	859.01	858.82	859.39	858.66	858.70	859.56	859.50
9	847.80	853.30	858.98	863.55	859.57	858.71	859.12	859.19	859.23	858.80	859.78	858.52
10	846.89	853.85	859.02	861.36	859.50	858.70	858.60	859.47	859.08	859.50	858.90	859.75
11	846.04	855.59	859.25	860.52	859.55	860.15	859.37	858.36	859.41	859.70	859.49	858.78
12	845.14	860.81	859.06	859.89	858.83	860.77	859.35	859.79	859.07	859.70	859.42	859.52
13	846.86	859.39	859.30	859.09	859.71	860.34	859.39	858.57	859.18	859.30	859.89	859.83
14	847.48	858.73	859.40	858.94	858.93	859.03	859.15	859.62	860.01	859.00	859.93	858.72
15	846.77	858.84	859.37	859.11	859.66	858.70	859.22	859.34	859.92	859.30	860.03	859.69
16	845.96	859.70	859.21	860.95	858.74	858.82	859.34	858.58	859.66	859.60	860.02	858.90
17	845.11	860.04	858.96	861.09	859.84	859.09	858.76	858.56	859.78	859.60	859.89	859.79
18	846.97	859.39	859.27	861.00	859.54	859.04	859.20	858.72	859.89	859.40	858.89	859.07
19	847.39	858.86	859.30	860.52	858.90	859.03	858.98	859.39	859.82	859.40	859.66	859.17
20	846.60	859.90	859.07	859.72	858.57	859.43	858.63	858.93	859.78	858.80	858.79	859.81
21	845.74	861.52	859.48	859.17	858.78	859.27	858.83	859.24	859.94	859.69	859.53	858.84
22	845.03	862.15	859.35	859.02	858.60	859.08	858.77	858.73	859.89	859.46	859.18	858.93
23	844.31	861.10	859.42	859.31	859.19	859.33	859.02	859.80	859.97	859.52	859.64	859.45
24	843.58	860.48	859.52	858.98	859.37	859.35	858.96	859.32	859.37	859.41	859.05	859.62
25	842.67	860.18	859.27	858.82	859.03	858.85	859.39	859.32	859.76	859.71	859.64	859.52
26	841.88	859.78	859.38	858.82	859.38	858.98	860.41	859.11	859.60	859.53	858.94	859.13
27	842.73	861.28	859.34	859.31	859.11	859.11	859.28	859.16	859.54	858.77	859.65	859.41
28	843.69	861.16	859.37	858.96	859.23	859.25	858.95	859.46	859.35	859.39	858.92	858.92
29	842.85	860.33	858.94	859.33	---	858.94	858.70	859.47	859.79	859.58	859.64	859.57
30	842.07	859.77	859.90	859.33	---	858.63	859.37	859.08	859.55	858.80	858.96	859.27
31	842.72	---	859.31	860.83	---	858.67	---	859.52	---	859.65	859.66	---
MAX	853.39	862.15	860.94	863.55	860.36	861.21	860.41	859.80	860.01	859.83	860.03	859.83
MIN	841.88	842.03	858.94	858.82	858.57	858.42	858.60	858.36	858.66	858.50	858.50	858.52
(†)	14220	20900	20700	21370	20660	20410	20720	20790	20800	20850	20850	20680
(‡)	-4150	+6680	-200	+670	-710	-250	+310	+70	+10	+50	0	-170
CAL YR 1988	MAX 862.47	MIN 841.88	AC-FT†	+250								
WTR YR 1989	MAX 863.55	MIN 841.88	AC-FT†	+2310								

† Contents, in acre-feet, at 2400, on last day of month.

‡ Change in contents, in acre-feet.

SANDY RIVER BASIN

14140001 BULL RUN RIVER NEAR BULL RUN, OR

LOCATION.--Lat 45°26'15", long 122°10'40", in NE 1/4 SW 1/4 sec.34, T.1 S., R.5 E., Clackamas County, Hydrologic Unit 17080001, in Mount Hood National Forest, on left bank 1.8 mi downstream from Bull Run Reservoir Number Two, 2.7 mi northeast of Bull Run, and at mile 4.7.

DRAINAGE AREA.--107 mi².

PERIOD OF RECORD.--September 1907 to current year. Records for January 1895 to August 1907, published in WSP 370, have been found to be unreliable and should not be used.

REVISED RECORDS.--WSP 1288: 1910-11, 1913, 1920-23, 1926, 1929. WSP 1318: 1919(M). WSP 1568: 1952. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 567.90 ft above National Geodetic Vertical Datum of 1929 (levels by Portland Water Bureau). Prior to July 27, 1909, nonrecording gage at site 1.5 mi upstream at different datum. July 27, 1909, to Sept. 30, 1959, water-stage recorder at site 2.5 mi upstream at different datums.

REMARKS.--No estimated daily discharges. Records good except those below 10 ft³/s, which are fair. Flow regulated since 1915 by Bull Run Lake, capacity, 12,270 acre-ft, since 1929 by Bull Run Reservoir Number One (station 14139000), since 1958 by North Fork Reservoir, capacity, 1,030 acre-ft, and since 1961 by Bull Run Reservoir Number Two (station 14139900). All records given herein include flow diverted from Bull Run Reservoir Number Two for city of Portland, and that used by Portland General Electric Co. for power generation, which returns to Bull Run River downstream from station. Total diversion, 176,700 acre-ft of which 45,470 acre-ft were used for power generation and returned to Bull Run River.

COOPERATION.--Records of daily diversion furnished by Portland Water Bureau.

AVERAGE DISCHARGE.--82 years, 775 ft³/s, 98.36 in/yr, 561,500 acre-ft/yr, adjusted for storage in Bull Run Reservoir Number One since 1929 and Bull Run Reservoir Number Two since 1961.

EXTREMES FOR PERIOD OF RECORD.--River only, maximum discharge, 24,800 ft³/s Dec. 22, 1964, gage height, 17.21 ft, from rating curve extended above 8,800 ft³/s on basis of computation of peak flow over dam; minimum discharge, 1.1 ft³/s Oct. 4, 1974.

Combined flow, maximum discharge, 25,100 ft³/s Dec. 22, 1964; minimum daily, 11 ft³/s Nov. 16, 1987.

EXTREMES FOR CURRENT YEAR.--River only, maximum discharge, 12,300 ft³/s Jan. 9, gage height, 13.31 ft; minimum discharge, 1.7 ft³/s several days in October.

Combined flow, maximum discharge, 12,460 ft³/s Jan. 9; minimum daily, 147 ft³/s Oct. 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	215	158	1390	1040	1320	677	1110	954	329	170	175	211
2	203	165	954	1060	1010	541	1360	753	479	171	172	197
3	171	168	890	1900	1020	347	1290	655	545	179	178	183
4	165	170	736	2130	831	636	1100	778	395	224	206	193
5	179	162	809	1790	616	795	1790	536	394	243	244	224
6	177	153	1460	1540	348	2610	1530	715	395	282	215	220
7	164	155	2670	935	581	2620	1780	631	362	294	267	232
8	178	163	1750	1050	332	1900	1500	474	346	242	271	246
9	176	162	1510	5870	357	1600	1190	575	264	213	253	257
10	180	159	1110	6740	378	1580	983	515	241	228	230	243
11	147	156	828	2730	374	1030	982	364	258	269	248	253
12	175	1080	659	1780	241	2010	1010	349	270	309	283	268
13	165	1960	1040	1640	343	2200	1080	356	229	281	223	266
14	172	1290	784	1250	238	1740	1240	351	197	263	234	267
15	155	1020	611	1060	283	1460	1150	297	254	226	248	241
16	156	1610	448	1790	669	1450	880	283	239	212	243	205
17	176	1660	596	2740	1520	1380	847	207	200	174	220	199
18	175	1650	340	2760	1640	1270	660	163	241	219	250	196
19	170	1500	855	2250	1570	1310	949	185	218	235	259	214
20	169	1350	738	1640	1500	944	1280	190	497	247	216	228
21	169	2560	762	1600	1190	1620	1160	191	283	225	217	241
22	157	4470	835	1410	1270	1630	941	189	302	246	190	178
23	152	4380	714	908	1280	1260	669	190	273	266	173	182
24	160	2340	736	803	990	1020	690	801	314	269	190	316
25	178	1800	597	675	846	1620	892	1230	310	295	195	249
26	166	1680	480	482	688	1680	1880	862	266	271	205	193
27	167	1840	437	726	679	1530	1880	1310	232	197	204	180
28	167	3850	401	508	516	1790	1500	1360	247	238	205	186
29	167	2450	692	471	---	1670	1000	1040	204	225	222	208
30	165	1780	1650	690	---	1440	959	919	178	210	197	172
31	158	---	1580	1510	---	1410	---	506	---	203	192	---
TOTAL	5274	42041	29062	53478	22630	44770	35282	17929	8962	7326	6825	6648
MEAN	170	1401	937	1725	808	1444	1176	578	299	236	220	222
MAX	215	4470	2670	6740	1640	2620	1880	1360	545	309	283	316
MIN	147	153	340	471	238	347	660	163	178	170	172	172
AC-FT	10460	83390	57640	106100	44890	88800	69980	35560	17780	14530	13540	13190
MEAN†	96.3	1753	932	1742	788	1439	1180	641	300	152	168	134
CFSM†	0.90	16.4	8.71	16.3	7.36	13.4	11.0	5.99	2.80	1.42	1.57	1.25
IN.†	1.04	18.28	10.04	18.77	7.67	15.50	12.30	6.91	3.13	1.64	1.81	1.40
AC-FT†	5920	104300	57290	107100	43780	88460	70200	39420	17830	9340	10350	7970

CAL YR 1988 TOTAL 278697 MEAN 761 MAX 5850 MIN 134 AC-FT 552800 MEAN† 762 CFSM† 7.12 IN.† 96.98 AC-FT† 553300
WTR YR 1989 TOTAL 280227 MEAN 768 MAX 6740 MIN 147 AC-FT 555800 MEAN† 776 CFSM† 7.25 IN.† 98.51 AC-FT† 562000

† Adjusted for change in contents in Bull Run Reservoir Number One and Bull Run Reservoir Number Two.

SANDY RIVER BASIN

69

14141500 LITTLE SANDY RIVER NEAR BULL RUN, OR

LOCATION.--Lat 45°24'55", long 122°10'20", in NE 1/4 NE 1/4 sec.10, T.2 S., R.5 E., Clackamas County, Hydrologic Unit 17080001, in Mount Hood National Forest, on left bank 0.25 mi upstream from Portland General Electric Co. dam and tunnel from Sandy River, 3.0 mi east of Bull Run, and at mile 1.95.

DRAINAGE AREA.--22.3 mi².

PERIOD OF RECORD.--May to July 1911, October 1911 to March 1912, June 1912 to April 1913, July 1919 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 1154: 1949. WSP 1248: Drainage area. WSP 1288: 1912, 1920-21(M), 1922-23, 1931, 1945. WSP 1318: 1920. WDR OR-82-2: 1972(P), 1974-76(P), 1978-81(P).

GAGE.--Water-stage recorder. Elevation of gage is 720 ft, from topographic map. May 23, 1911, to Apr. 29, 1913, nonrecording gage at site 0.85 mi downstream at different datum, 0.5 mi downstream from Sandy River diversion tunnel. July 1, 1919, to Sept. 30, 1931, water-stage recorder at site 0.1 mi downstream at different datum. Oct 1, 1931, to Nov. 3, 1967, at site 0.1 mi downstream at datum 712 ft above National Geodetic Vertical Datum of 1929. Nov. 4, 1967, to Aug. 8, 1971, water-stage recorder at site 0.1 mi downstream at datum 697.44 ft above National Geodetic Vertical Datum of 1929 (Portland General Electric Co. bench mark).

REMARKS.--Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--70 years (water years 1920-89), 145 ft³/s, 88.30 in/yr, 105,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,320 ft³/s Nov. 20, 1921, gage height, 9.18 ft, site and datum then in use, from rating curve extended above 2,200 ft³/s; minimum discharge, 8 ft³/s Aug. 20, Sept. 16, 17, 1940.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,400 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 9	2200	*2,530	*5.92	No other peak greater than base discharge.			
Minimum discharge, 12 ft ³ /s Aug. 21, Sept. 14-16.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	22	194	172	229	114	227	162	96	34	26	17
2	18	51	166	209	166	111	243	134	84	33	36	22
3	18	84	148	342	145	98	200	118	75	32	32	19
4	18	184	136	310	134	90	234	115	66	31	30	18
5	18	136	136	250	e120	213	316	114	60	31	28	18
6	18	362	380	193	e109	768	285	110	55	31	24	17
7	18	149	579	158	e96	447	301	99	51	31	22	17
8	18	142	253	214	84	295	247	88	48	31	21	16
9	18	133	228	1390	79	255	198	87	46	31	21	15
10	17	206	178	998	76	281	187	93	43	31	20	14
11	17	164	145	458	73	289	184	87	41	31	19	14
12	20	297	131	319	71	315	190	73	40	30	18	13
13	18	205	192	274	67	353	201	64	38	30	18	13
14	19	142	136	223	64	250	211	60	45	30	18	13
15	24	159	111	222	61	235	194	56	57	30	18	12
16	25	242	96	369	106	248	155	54	43	32	18	13
17	24	273	86	404	326	225	136	59	38	42	17	14
18	24	222	80	437	360	239	137	82	35	32	17	14
19	34	182	144	365	285	213	195	86	37	31	16	14
20	34	270	128	267	260	189	247	70	69	31	16	15
21	26	498	128	246	230	345	193	60	48	31	24	16
22	36	713	137	220	266	293	152	55	40	31	88	15
23	29	573	129	184	251	215	134	65	36	31	57	14
24	24	315	123	158	201	204	117	129	34	30	33	13
25	22	295	109	138	165	309	200	175	33	30	24	13
26	21	262	96	126	142	294	577	137	33	30	22	15
27	20	434	88	133	129	256	327	284	32	31	19	16
28	19	676	79	120	117	279	228	235	32	30	17	16
29	19	348	149	112	---	251	184	178	33	30	16	15
30	19	243	291	129	---	221	164	142	36	29	16	53
31	19	---	212	339	---	267	---	114	---	25	17	---
TOTAL	673	7982	5188	9479	4412	8162	6564	3385	1424	963	768	494
MEAN	21.7	266	167	306	158	263	219	109	47.5	31.1	24.8	16.5
MAX	36	713	579	1390	360	768	577	284	96	42	88	53
MIN	17	22	79	112	61	90	117	54	32	25	16	12
AC-FT	1330	15830	10290	18800	8750	16190	13020	6710	2820	1910	1520	980
CFSM	.97	11.9	7.50	13.7	7.07	11.8	9.81	4.90	2.13	1.39	1.11	.74
IN.	1.12	13.32	8.65	15.81	7.36	13.62	10.95	5.65	2.38	1.61	1.28	.82

CAL YR 1988 TOTAL 51811 MEAN 142 MAX 1180 MIN 13 AC-FT 102800 CFSM 6.35 IN. 86.43
WTR YR 1989 TOTAL 49494 MEAN 136 MAX 1390 MIN 12 AC-FT 98170 CFSM 6.08 IN. 82.56

e Estimated

SANDY RIVER BASIN

14142500 SANDY RIVER BELOW BULL RUN RIVER, NEAR BULL RUN, OR

LOCATION.--Lat 45°26'57", long 122°14'38", in SW 1/4 sec.30, T.1 S., R.5 E., Clackamas County, Hydrologic Unit 17080001, on left bank 0.1 mi downstream from Bull Run River, 0.2 mi downstream from Dodge Park, 400 ft below city of Portland water conduit crossing Sandy River, and at mile 18.4.

DRAINAGE AREA.--436 mi².

PERIOD OF RECORD.--April 1910 to September 1914, October 1929 to September 1966, May 1984 to current year. Monthly discharge only for some periods, published in WSP 1318.

GAGE.--Water-stage recorder. Elevation of gage is 240 ft, from topographic map. April 1910 to September 1914, staff gage at present site at different datum. October 1929 to September 1966, water-stage recorder at site 0.8 mi downstream at different datum.

REMARKS.--Records good. Flow regulated since 1915 by Bull Run Lake, since 1929 by Bull Run Reservoir Number One (station 14139000), and since 1961 by Bull Run Reservoir Number Two (station 14139900). Some fluctuation caused by Bull Run powerplant of Portland General Electric Company. Portland Water Bureau diverted 176,700 acre-ft from Bull Run River during the 1989 water year, of which 45,470 acre-ft were used for power generation by Portland General Electric Company and returned to Bull Run River.

AVERAGE DISCHARGE.--46 years (water years 1911-14, 1930-66, 1985-89) 2,312 ft³/s, 1,675,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 84,400 ft³/s Dec. 22, 1964, gage height, 22.3 ft, site and datum then in use; minimum discharge, 45 ft³/s Sept. 26, 1962, minimum daily, 63 ft³/s Oct. 12, Nov. 9, 1952.

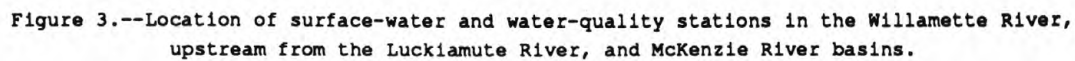
EXTREMES FOR CURRENT YEAR.--Maximum discharge, unknown Jan. 10, gage height, unknown; minimum discharge, 208 ft³/s Sept. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	326	e276	3230	2660	4070	1850	3650	3220	1640	688	463	399
2	323	e430	2900	2880	3100	1810	3670	2730	1700	650	556	442
3	321	e740	2630	4410	2380	1390	3920	2570	1770	722	550	424
4	308	1230	2360	4660	2000	1590	3440	2590	1670	664	502	400
5	312	766	2480	4040	1660	2200	3330	2460	1550	677	487	355
6	307	2010	4690	3420	1690	8190	4290	2710	1460	614	492	360
7	312	1090	5740	2400	1410	6680	5140	2680	1370	669	496	345
8	312	872	3990	e2600	1480	4710	4730	2300	1280	614	485	346
9	305	914	3720	e8100	1220	4020	3810	2300	1160	604	499	331
10	295	1340	2970	e16200	1200	4270	3480	2360	1040	647	469	331
11	307	1520	2550	7650	1210	3840	3270	2050	1020	634	431	330
12	299	2860	2220	5090	1190	4910	3410	1820	1000	591	439	316
13	300	3280	3080	4570	1030	5540	3710	1640	1000	e680	434	347
14	296	2210	2430	3680	1110	4440	4140	1560	1000	e670	439	316
15	396	2000	2060	3400	981	3880	4110	1420	1000	e655	e440	322
16	414	2940	1770	4920	e1400	3970	3420	1280	985	e645	e430	323
17	345	3330	1810	6110	e2600	3720	3110	e1290	875	e720	e440	311
18	318	3010	1490	6310	e2700	3620	2640	e1300	856	e625	e445	308
19	384	2610	2220	5720	e2550	3580	e3300	e1310	891	e615	e440	280
20	339	3260	2090	4580	e2350	3020	e4000	e1250	1360	e605	e460	302
21	355	6580	2110	4300	e2100	4340	e3500	e1200	973	491	e570	293
22	334	11500	2240	4010	3320	4450	e2800	e1100	864	505	920	277
23	345	9450	2040	3200	3490	3680	e2600	1200	816	495	760	291
24	297	5410	2040	2590	2870	3130	e2300	2040	843	472	580	300
25	295	4540	1750	2100	2470	4060	e3100	2850	804	473	492	289
26	326	4010	1560	2020	2120	4330	e4300	2270	780	492	467	331
27	274	6060	1460	1950	2010	3910	4070	3250	729	515	420	311
28	275	8820	1360	1890	1740	4160	4060	3390	697	487	406	291
29	275	5390	2180	1630	---	4370	3240	2760	690	461	405	302
30	275	4100	4260	1790	---	3920	3030	2450	756	491	389	531
31	275	---	3590	3330	---	3880	---	1940	---	473	365	---
TOTAL	9845	102548	81020	132210	57451	121460	107570	65290	32579	18344	15171	10104
MEAN	318	3418	2614	4265	2052	3918	3586	2106	1086	592	489	337
MAX	414	11500	5740	16200	4070	8190	5140	3390	1770	722	920	531
MIN	274	276	1360	1630	981	1390	2300	1100	690	461	365	277
AC-FT	19530	203400	160700	262200	114000	240900	213400	129500	64620	36390	30090	20040

CAL YR 1988 TOTAL 767517 MEAN 2097 MAX 13900 MIN 274 AC-FT 1522000
WTR YR 1989 TOTAL 753592 MEAN 2065 MAX 16200 MIN 274 AC-FT 1495000

e Estimated



MIDDLE FORK WILLAMETTE RIVER BASIN

14144800 MIDDLE FORK WILLAMETTE RIVER NEAR OAKRIDGE, OR

LOCATION.--Lat 43°35'50", long 122°27'20", in NW 1/4 NE 1/4 sec.9, T.23 S., R.3 E., Lane County, Hydrologic Unit 17090001, in Willamette National Forest, on right bank 0.2 mi upstream from Windfall Creek, 8.3 mi upstream from Hills Creek Dam, 10.2 mi south of Oakridge, and at mile 240.8.

DRAINAGE AREA.--258 mi².

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,556.83 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to June 21, 1967, at site 0.5 mi upstream at different datums. June 22, 1967, to June 23, 1971, water-stage recorder at same site at datum 5.00 ft higher.

REMARKS.--Water-discharge records good except for estimated daily discharges, which are poor. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--31 years, 811 ft³/s, 42.69 in/yr, 587,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,800 ft³/s Dec. 22, 1964, gage height, 16.96 ft, from floodmark, site and datum then in use, from rating curve extended above 5,100 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 187 ft³/s Sept. 15, 16, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	2200	4,110	8.67	Mar. 6	1000	4,250	8.68
Jan. 10	0130	*8,480	10.87	Mar. 10	0330	3,570	8.21
Jan. 10	0130	(a)	*11.31	Mar. 21	1230	3,640	8.26

Minimum discharge, 200 ft³/s Oct. 29 to Nov. 1.

(a) From crest-stage gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	222	206	798	571	1050	747	1610	e1020	968	469	320	341
2	221	300	765	574	908	762	1670	e1010	1050	454	333	330
3	220	519	717	701	792	700	1490	e1000	1090	441	321	320
4	227	411	670	801	e700	683	1370	e1160	1100	434	312	313
5	237	326	638	853	e650	1630	1380	1350	1080	425	307	306
6	225	536	735	740	e610	3630	1540	1550	1050	415	305	301
7	219	372	742	651	e580	2570	1770	1590	984	408	303	297
8	216	337	678	630	e570	1870	1910	1550	912	402	316	293
9	215	309	661	2150	553	2310	1910	1620	866	399	353	289
10	213	508	702	4470	542	3110	1830	1560	818	394	321	285
11	216	502	694	1720	531	2750	e1710	1290	785	385	312	282
12	216	542	665	1250	522	2440	e1670	1110	785	379	306	278
13	216	538	661	1060	505	2180	e1710	1010	778	374	302	275
14	215	463	628	913	490	1770	e1790	956	758	372	299	273
15	213	472	579	844	476	e1760	e1790	922	794	369	297	271
16	214	567	534	866	526	e1810	e1700	930	749	373	295	271
17	210	739	501	922	716	e1720	e1580	958	683	410	295	289
18	211	549	472	930	910	e1620	e1560	950	645	379	293	311
19	209	461	473	890	1140	e1690	e1640	860	626	364	291	287
20	209	592	502	946	1010	e1560	e1630	820	612	356	289	279
21	208	973	551	1030	961	2970	e1530	823	581	350	290	273
22	208	2730	598	1020	1320	2620	e1330	827	562	343	426	269
23	209	2300	569	879	1460	2020	e1180	881	557	339	545	265
24	209	1270	531	789	1180	1740	e1090	904	555	334	412	263
25	208	1070	490	723	1000	1940	e1140	951	546	329	361	265
26	206	937	450	691	888	1750	e1110	900	537	326	338	287
27	206	865	430	715	816	1600	1030	994	519	323	324	283
28	203	1410	418	702	765	1960	984	1080	500	318	316	269
29	203	1070	422	691	---	1860	959	1010	495	317	318	268
30	201	869	645	853	---	1630	e980	934	486	318	451	323
31	202	---	661	1070	---	1750	---	922	---	319	367	---
TOTAL	6607	22743	18580	31645	22171	59152	44593	33442	22471	11618	10318	8656
MEAN	213	758	599	1021	792	1908	1486	1079	749	375	333	289
MAX	237	2730	798	4470	1460	3630	1910	1620	1100	469	545	341
MIN	201	206	418	571	476	683	959	820	486	317	289	263
AC-FT	13100	45110	36850	62770	43980	117300	88450	66330	44570	23040	20470	17170
CFSM	.83	2.94	2.32	3.96	3.07	7.40	5.76	4.18	2.90	1.45	1.29	1.12
IN.	.95	3.28	2.68	4.56	3.20	8.53	6.43	4.82	3.24	1.68	1.49	1.25

CAL YR 1988 TOTAL 241254 MEAN 659 MAX 5110 MIN 201 AC-FT 478500 CFSM 2.55 IN. 34.79
WTR YR 1989 TOTAL 291996 MEAN 800 MAX 4470 MIN 201 AC-FT 579200 CFSM 3.10 IN. 42.10

e Estimated

MIDDLE FORK WILLAMETTE RIVER BASIN

73

14145100 HILLS CREEK LAKE NEAR OAKRIDGE, OR

LOCATION.--Lat 43°42'30", long 122°25'25", in NW 1/4 sec.35, T.21 S., R.3 E., Lane County, Hydrologic Unit 17090001, in Willamette National Forest, near right end of Hills Creek Dam on Middle Fork Willamette River, 600 ft downstream from Hills Creek, 3.5 mi southeast of Oakridge, and at mile 232.5.

DRAINAGE AREA.--389 mi².

PERIOD OF RECORD.--August 1961 to current year. Prior to October 1971, published as Hills Creek Reservoir near Oakridge.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Reservoir is formed by earthfill dam with concrete spillway completed in 1961 by the Corps of Engineers; storage began August 1961. Total capacity is 355,600 acre-ft at elevation 1,543.0 ft, top of spillway gates, and usable capacity is 248,900 acre-ft between elevations 1,414.0 ft, minimum power pool, and 1,543.0 ft. Reservoir used for flood control and power generation. Figures given herein represent total contents.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 354,200 acre-ft June 25, 1971, elevation, 1,542.52 ft; minimum contents, 104,800 acre-ft Jan. 2, 1969, elevation, 1,412.52 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 351,400 acre-ft May 30, elevation, 1,541.51 ft; minimum contents, 155,300 acre-ft Jan. 6, elevation, 1,447.98 ft.

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

1,410	101,500	1,460	174,900	1,520	297,200
1,420	114,600	1,480	211,000	1,540	347,300
1,440	143,000	1,500	251,900	1,544	358,500

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1511.74	1474.20	1465.94	1449.67	1459.18	1471.01	1515.87	1528.90	1541.12	1540.87	1540.50	1538.03
2	1510.62	1472.94	1465.15	1448.89	1458.75	1471.80	1516.31	1529.35	1541.17	1540.90	1540.46	1537.30
3	1509.48	1472.02	1464.22	1448.38	1457.92	1472.44	1516.71	1530.01	1541.23	1540.91	1540.41	1536.57
4	1508.33	1470.90	1463.44	1448.17	1457.02	1473.07	1517.08	1530.90	1541.25	1540.91	1540.35	1535.84
5	1507.17	1469.65	1462.66	1448.05	1456.50	1475.77	1517.42	1531.92	1541.22	1541.14	1540.29	1535.10
6	1505.85	1468.82	1461.89	1448.06	1455.76	1481.60	1517.95	1533.02	1541.19	1541.14	1540.21	1534.35
7	1504.64	1467.62	1461.30	1448.12	1454.57	1485.27	1518.77	1534.16	1541.13	1541.14	1540.14	1533.60
8	1503.43	1466.31	1460.60	1448.18	1453.51	1487.73	1519.73	1534.97	1541.05	1541.14	1540.09	1532.75
9	1502.19	1464.99	1459.84	1451.71	1452.42	1491.00	1520.66	1536.06	1541.07	1541.13	1540.05	1531.83
10	1500.93	1464.07	1459.14	1460.11	1451.43	1494.90	1521.48	1537.14	1541.12	1541.12	1539.99	1530.89
11	1500.36	1463.23	1458.41	1461.63	1451.83	1497.21	1522.10	1537.61	1541.17	1541.10	1539.92	1529.95
12	1500.13	1462.50	1457.59	1462.16	1452.27	1499.37	1522.72	1537.77	1541.22	1541.09	1539.83	1529.00
13	1499.89	1461.79	1456.81	1462.38	1452.63	1501.14	1523.41	1537.90	1541.23	1541.07	1539.75	1528.06
14	1499.33	1461.03	1455.94	1462.21	1452.95	1502.19	1524.28	1537.98	1541.24	1541.06	1539.66	1527.09
15	1498.06	1460.40	1454.80	1461.65	1453.23	1503.19	1525.11	1538.64	1541.26	1541.03	1539.58	1526.10
16	1496.77	1460.02	1453.47	1461.16	1453.68	1504.33	1525.76	1538.86	1541.20	1541.03	1539.49	1525.18
17	1495.46	1460.14	1452.08	1460.73	1454.53	1505.00	1526.33	1539.42	1541.13	1541.05	1539.40	1525.10
18	1494.13	1459.57	1450.62	1460.37	1455.81	1506.20	1526.98	1539.88	1541.10	1541.04	1539.32	1525.00
19	1492.77	1458.67	1449.17	1459.98	1457.56	1507.55	1527.77	1540.06	1540.86	1541.02	1539.23	1524.89
20	1491.40	1458.03	1448.66	1459.67	1458.96	1508.38	1528.46	1540.13	1540.91	1541.00	1539.15	1524.79
21	1490.02	1458.33	1448.86	1459.57	1460.23	1511.04	1528.93	1540.20	1540.89	1540.99	1539.05	1524.69
22	1488.64	1463.36	1449.08	1459.27	1462.36	1512.45	1529.10	1540.74	1540.86	1540.96	1539.17	1524.59
23	1487.24	1466.54	1449.10	1458.74	1464.67	1512.61	1529.10	1540.90	1540.85	1540.93	1539.44	1524.46
24	1485.85	1467.05	1449.00	1458.05	1466.32	1512.77	1529.02	1541.03	1540.86	1540.91	1539.50	1523.72
25	1484.28	1467.06	1448.74	1457.50	1467.58	1513.35	1529.16	1541.10	1540.86	1540.87	1539.50	1522.75
26	1482.86	1466.79	1448.53	1457.18	1468.61	1513.66	1529.19	1541.10	1540.87	1540.82	1539.47	1521.77
27	1481.43	1466.33	1448.49	1457.31	1469.48	1513.75	1529.13	1541.10	1540.86	1540.79	1539.42	1520.76
28	1479.99	1467.19	1448.50	1457.42	1470.26	1514.70	1528.97	1541.18	1540.87	1540.73	1539.36	1519.73
29	1478.54	1467.18	1448.52	1457.50	---	1515.25	1528.78	1541.20	1540.87	1540.67	1539.29	1518.71
30	1477.08	1466.67	1449.15	1457.92	---	1515.22	1528.63	1541.14	1540.85	1540.61	1539.09	1517.74
31	1475.64	---	1449.69	1458.71	---	1515.49	---	1541.08	---	1540.54	1538.65	---
MAX	1511.74	1474.20	1465.94	1462.38	1470.26	1515.49	1529.19	1541.20	1541.26	1541.14	1540.50	1538.03
MIN	1475.64	1458.03	1448.49	1448.05	1451.43	1471.01	1515.87	1528.90	1540.85	1540.54	1538.65	1517.74
(†)	202700	186400	158000	172800	192800	286600	318200	350200	349600	348800	343800	291900
(‡)	-77800	-16300	-28400	+	14800	+20000	+93800	+31600	+32000	-600	-800	-51900

CAL YR 1988 MAX 1541.55 MIN 1448.31 AC-FT# 0
WTR YR 1989 MAX 1541.26 MIN 1448.05 AC-FT# +11400

† Contents, in acre-feet, at 2400, on last day of month.

‡ Change in contents, in acre-feet.

MIDDLE FORK WILLAMETTE RIVER BASIN

14145500 MIDDLE FORK WILLAMETTE RIVER ABOVE SALT CREEK, NEAR OAKRIDGE, OR

LOCATION.--Lat 43°43'20", long 122°26'15", in NW 1/4 NE 1/4 sec.27, T.21 S., R.3 E., Lane County, Hydrologic Unit 17090001, in Willamette National Forest, on right bank 90 ft upstream from highway bridge, 0.4 mi upstream from Salt Creek, 1.1 mi downstream from Hills Creek Dam, 2.3 mi southeast of Oakridge, and at mile 231.4.

DRAINAGE AREA.--392 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1913 to September 1914, September 1935 to current year. Monthly discharge only September 1935, published in WSP 1318.

REVISED RECORDS.--WSP 1248: 1914.

GAGE.--Water-stage recorder. Datum of gage is 1,208.01 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Oct. 3, 1913, to Sept. 30, 1914, nonrecording gage and Sept. 1, 1935, to Aug. 18, 1960, water-stage recorder at sites 400 ft and 1,000 ft downstream, respectively, at different datum.

REMARKS.--No estimated daily discharges. Water-discharge records good. Flow regulated since 1961 by Hills Creek Lake (station 14145100). No diversions upstream from station.

AVERAGE DISCHARGE.--55 years, 1,152 ft³/s, 39.91 in/yr, 834,600 acre-ft/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,000 ft³/s Dec. 28, 1945, gage height, 12.06 ft, site and datum then in use, from rating curve extended above 13,000 ft³/s; minimum observed discharge, 0.70 ft³/s Sept. 8-11, 13, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,550 ft³/s Oct. 6, gage height, 6.41 ft; minimum discharge, 162 ft³/s Jan. 25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1590	1670	1860	939	1170	312	1990	978	1260	512	458	1270
2	1590	1670	1860	1460	1620	316	2000	781	1380	501	458	1380
3	1600	1690	1850	1490	1750	315	1730	512	1430	499	459	1380
4	1630	1680	1640	1490	1640	317	1560	377	1460	499	462	1380
5	1630	1680	1570	1490	1260	321	1560	587	1470	539	461	1370
6	1790	1670	1690	1100	1390	311	1570	764	1430	486	458	1370
7	1630	1670	1530	917	1720	306	1570	764	1360	481	457	1370
8	1640	1670	1530	919	1570	301	1570	763	1210	480	456	1490
9	1650	1660	1520	1660	1540	311	1580	761	1030	483	460	1600
10	1650	1570	1520	2010	1460	649	1590	773	926	484	462	1590
11	922	1450	1520	1820	320	1680	1570	1160	890	479	464	1590
12	511	1450	1520	1560	281	1240	1570	1270	889	471	463	1580
13	525	1450	1520	1470	316	1330	1570	1150	940	477	463	1580
14	804	1370	1510	1560	349	1510	1570	1150	955	467	464	1600
15	1650	1260	1660	1730	345	1680	1560	717	991	471	458	1630
16	1650	1260	1760	1710	339	1580	1570	479	1010	454	459	1550
17	1670	1270	1760	1790	339	1610	1550	463	937	473	455	493
18	1690	1400	1750	1750	343	1630	1540	627	799	482	453	468
19	1700	1490	1740	1690	340	1640	1540	849	737	474	457	469
20	1710	1490	1110	1700	324	1630	1540	929	688	439	453	456
21	1700	1720	670	1690	326	1640	1550	928	733	434	467	452
22	1700	1900	816	1800	328	2440	1560	924	720	439	479	447
23	1700	1910	900	1710	330	2840	1560	930	645	442	480	450
24	1690	1910	897	1710	326	2380	1560	1100	622	442	476	1240
25	1670	1920	897	1440	311	2220	1570	1350	624	441	476	1570
26	1690	1910	785	1190	310	2210	1570	1300	629	441	477	1650
27	1690	1910	599	874	312	2180	1560	1420	604	438	475	1640
28	1690	1900	547	872	310	2200	1560	1520	560	458	473	1650
29	1680	1880	549	877	---	2490	1560	1510	616	458	561	1660
30	1680	1870	551	881	---	2640	1560	1520	600	460	860	1660
31	1670	---	662	904	---	2330	---	1380	---	460	1070	---
TOTAL	47792	49350	40293	44203	20969	44559	47910	29736	28145	14564	15474	38035
MEAN	1542	1645	1300	1426	749	1437	1597	959	938	470	499	1268
MAX	1790	1920	1860	2010	1750	2840	2000	1520	1470	539	1070	1660
MIN	511	1260	547	872	281	301	1540	377	560	434	453	447
AC-FT	94800	97890	79920	87680	41590	88380	95030	58980	55830	28890	30690	75440
MEAN†	276	1371	838	1667	1109	2963	2128	1480	928	457	418	396
CFSM†	0.70	3.50	2.14	4.25	2.83	7.56	5.43	3.78	2.37	1.17	1.07	1.01
IN.†	0.81	3.10	2.46	4.90	2.95	8.72	6.06	4.35	2.64	1.34	1.23	1.13
AC-FT†	17000	81590	51520	102500	61590	182200	126600	90980	55230	28090	25690	23540

CAL YR 1988 TOTAL 355571 MEAN 972 MAX 3440 MIN 270 AC-FT 705300 MEAN† 972 CFSM† 2.48 IN.† 33.74 AC-FT† 705300
WTR YR 1989 TOTAL 421030 MEAN 1154 MAX 2840 MIN 281 AC-FT 835100 MEAN† 1169 CFSM† 2.98 IN.† 40.50 AC-FT† 846500

† Adjusted for change in contents in Dorena Lake.

MIDDLE FORK WILLAMETTE RIVER BASIN

75

14145500 MIDDLE FORK WILLAMETTE RIVER ABOVE SALT CREEK, NEAR OAKRIDGE, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1960 to current year.

INSTRUMENTATION.--Temperature recorder since October 1960.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 25.0°C Sept. 4, 1960; minimum, 1.5°C Jan. 4, 1961.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 17.5°C Oct. 6; minimum recorded, 3.0°C Feb. 8, 9, but may have been lower during period of missing record.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	14.5	14.0	14.5	14.5	14.5	14.5	8.5	8.0	8.5	5.5	5.5	5.5
2	14.5	14.0	14.5	14.5	14.5	14.5	8.0	8.0	8.0	5.5	5.5	5.5
3	15.0	14.5	14.5	14.5	14.0	14.5	8.0	8.0	8.0	6.0	5.5	5.5
4	15.0	14.5	14.5	14.5	14.0	14.0	8.0	7.5	8.0	6.0	5.5	5.5
5	15.0	14.5	15.0	---	---	---	8.0	7.5	7.5	5.5	5.5	5.5
6	17.5	14.5	15.0	---	---	---	7.5	7.5	7.5	5.5	5.5	5.5
7	15.5	15.0	15.0	14.0	13.5	13.5	8.0	7.5	7.5	5.5	5.0	5.5
8	15.5	15.0	15.0	13.5	13.0	13.5	8.0	7.5	7.5	5.5	5.0	5.5
9	15.5	15.0	15.5	13.5	13.0	13.0	7.5	7.5	7.5	5.5	5.5	5.5
10	15.5	14.5	15.0	13.0	12.5	13.0	7.5	7.5	7.5	5.5	5.5	5.5
11	15.5	11.0	13.0	13.0	12.5	13.0	7.5	7.5	7.5	5.5	5.5	5.5
12	12.5	11.5	12.0	13.0	12.0	12.5	7.5	7.5	7.5	5.5	5.0	5.5
13	12.5	11.5	12.0	12.5	12.0	12.0	7.5	7.0	7.0	5.5	5.0	5.0
14	15.5	12.0	13.0	12.0	11.5	12.0	7.0	6.5	7.0	5.5	5.0	5.0
15	15.5	15.5	15.5	12.0	11.5	12.0	6.5	6.5	6.5	5.0	5.0	5.0
16	16.0	15.5	15.5	11.5	11.5	11.5	6.5	6.0	6.5	5.5	5.0	5.0
17	16.0	15.5	15.5	11.5	11.0	11.0	6.5	6.0	6.5	5.5	5.0	5.0
18	16.0	15.5	15.5	11.0	10.5	11.0	6.5	6.0	6.5	5.5	5.0	5.0
19	16.0	15.5	15.5	10.5	10.5	10.5	6.5	6.0	6.0	5.5	5.5	5.5
20	16.0	15.5	15.5	10.5	10.5	10.5	6.0	6.0	6.0	5.5	5.0	5.5
21	16.0	15.5	15.5	10.5	10.5	10.5	6.0	6.0	6.0	5.5	5.0	5.0
22	16.0	15.0	15.5	10.5	10.0	10.0	6.0	6.0	6.0	5.0	5.0	5.0
23	16.0	15.0	15.5	10.0	9.5	10.0	6.0	6.0	6.0	5.0	5.0	5.0
24	15.5	15.0	15.5	9.5	9.5	9.5	6.0	6.0	6.0	5.0	5.0	5.0
25	15.5	15.0	15.5	9.5	9.0	9.0	6.0	5.5	6.0	5.5	5.0	5.0
26	15.5	15.0	15.0	9.0	9.0	9.0	6.0	5.5	5.5	5.5	5.0	5.0
27	15.5	15.0	15.0	9.0	8.5	9.0	6.0	5.5	5.5	5.5	5.0	5.0
28	15.0	15.0	15.0	9.0	8.5	8.5	6.0	5.5	5.5	5.5	5.0	5.0
29	15.0	14.5	15.0	9.0	8.5	8.5	5.5	5.5	5.5	5.5	5.0	5.0
30	15.0	14.5	15.0	8.5	8.5	8.5	6.0	5.5	5.5	5.5	5.0	5.0
31	15.0	14.5	14.5	---	---	---	5.5	5.5	5.5	5.0	5.0	5.0
MONTH	17.5	11.0	15.0	---	---	---	8.5	5.5	6.5	6.0	5.0	5.0

MIDDLE FORK WILLAMETTE RIVER BASIN

14145500 MIDDLE FORK WILLAMETTE RIVER ABOVE SALT CREEK, NEAR OAKRIDGE, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	5.0	4.5	4.5	---	---	---	---	---	---
2	---	---	---	5.0	4.0	4.5	---	---	---	---	---	---
3	---	---	---	5.0	4.0	4.5	---	---	---	---	---	---
4	---	---	---	4.5	4.0	4.5	---	---	---	---	---	---
5	4.5	4.0	4.5	5.5	4.5	5.0	---	---	---	---	---	---
6	4.5	4.0	4.0	6.0	5.0	5.5	---	---	---	7.0	6.0	6.5
7	4.0	3.5	4.0	5.5	4.5	5.0	---	---	---	7.5	6.0	6.5
8	4.0	3.0	3.5	6.0	5.0	5.5	---	---	---	7.5	6.0	6.5
9	4.0	3.0	3.5	6.0	5.0	5.5	---	---	---	7.0	6.0	6.5
10	3.5	3.5	3.5	6.0	5.5	5.5	---	---	---	7.0	6.0	6.5
11	4.0	3.5	3.5	6.0	5.5	6.0	---	---	---	7.5	6.0	7.0
12	4.0	3.5	3.5	6.0	5.5	6.0	---	---	---	7.5	6.5	7.0
13	4.0	3.5	3.5	6.0	5.5	6.0	---	---	---	8.0	6.5	7.0
14	4.0	3.5	3.5	6.5	6.0	6.0	---	---	---	7.5	6.5	7.0
15	4.0	3.5	3.5	6.5	6.0	6.0	---	---	---	8.0	6.0	7.0
16	4.0	3.5	4.0	6.5	5.5	6.0	---	---	---	8.0	5.5	6.5
17	4.0	4.0	4.0	6.5	6.0	6.0	---	---	---	8.0	5.5	6.5
18	4.5	4.0	4.0	6.5	5.5	6.0	---	---	---	7.5	5.5	6.5
19	4.5	4.0	4.5	6.0	5.5	6.0	---	---	---	7.5	6.0	7.0
20	5.0	4.0	4.5	6.5	6.0	6.5	---	---	---	8.0	6.5	7.0
21	5.0	4.5	4.5	6.0	5.5	6.0	---	---	---	7.5	6.5	7.0
22	4.5	4.5	4.5	6.5	5.5	6.0	---	---	---	7.5	6.5	7.0
23	5.0	4.5	4.5	7.0	6.5	6.5	---	---	---	7.5	6.5	7.0
24	5.0	4.0	4.5	7.0	6.5	7.0	---	---	---	7.5	6.5	7.0
25	5.0	4.0	4.5	7.5	6.5	7.0	---	---	---	8.0	7.5	7.5
26	5.5	4.0	4.5	7.0	6.5	6.5	---	---	---	8.0	7.0	7.5
27	5.5	4.5	4.5	---	---	---	---	---	---	8.5	7.0	7.5
28	5.5	4.0	4.5	---	---	---	---	---	---	8.0	7.5	7.5
29	---	---	---	---	---	---	---	---	---	8.0	7.5	8.0
30	---	---	---	---	---	---	---	---	---	8.5	7.5	8.0
31	---	---	---	---	---	---	---	---	---	8.5	7.0	8.0
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	8.5	7.5	8.0	8.5	7.5	8.0	9.0	8.0	8.5	11.0	10.0	10.5
2	8.5	7.0	8.0	9.0	7.5	8.0	9.0	8.0	8.5	11.0	10.5	10.5
3	9.0	7.5	8.0	8.5	7.5	8.0	9.5	8.5	8.5	11.0	10.5	11.0
4	8.5	8.0	8.0	8.5	7.5	8.0	9.5	8.5	9.0	11.5	10.5	11.0
5	9.0	7.5	8.5	8.5	8.0	8.0	9.5	8.5	9.0	11.5	10.5	11.0
6	9.0	7.5	8.5	8.5	7.5	8.5	9.5	8.5	9.0	11.5	10.5	11.0
7	8.5	7.5	8.0	8.5	8.0	8.5	9.5	8.5	9.0	11.5	11.0	11.0
8	9.0	7.5	8.0	9.0	8.0	8.5	9.5	8.0	9.0	11.5	11.0	11.5
9	8.5	7.5	8.0	8.5	7.5	8.0	9.5	8.0	9.0	12.0	11.5	11.5
10	8.5	7.0	8.0	9.0	8.0	8.5	9.5	8.0	9.0	12.0	11.5	12.0
11	8.5	7.0	8.0	9.0	8.0	8.5	9.5	8.5	9.0	12.0	11.5	12.0
12	8.5	7.5	8.0	9.0	8.0	8.5	9.5	8.5	9.0	12.5	12.0	12.0
13	9.0	7.5	8.0	9.5	8.0	8.5	9.5	8.5	9.0	12.5	12.0	12.0
14	8.5	7.5	8.0	9.0	7.5	8.0	9.5	8.5	9.0	12.5	12.0	12.5
15	8.5	7.5	8.0	9.5	8.0	8.5	9.5	8.5	9.0	13.0	12.5	12.5
16	8.5	7.5	8.0	8.5	8.0	8.0	9.5	8.5	9.0	12.5	11.5	12.5
17	9.0	7.5	8.0	9.5	8.0	8.5	9.5	8.5	9.0	11.5	10.0	10.5
18	8.5	7.5	8.0	9.0	8.0	8.5	9.5	8.0	9.0	11.0	10.0	10.5
19	9.0	7.0	8.0	9.5	8.0	8.5	10.0	8.5	9.0	10.5	9.5	10.0
20	9.0	7.5	8.0	9.0	8.5	8.5	10.0	8.5	9.0	10.5	9.5	10.0
21	8.5	7.5	8.0	9.5	8.0	8.5	9.5	8.5	9.0	11.0	9.5	10.5
22	9.0	7.5	8.0	9.5	8.0	8.5	9.5	8.5	9.0	11.0	10.0	10.5
23	9.0	7.5	8.0	9.0	8.0	8.5	10.0	9.0	9.0	11.0	10.0	10.5
24	8.5	7.5	8.0	9.0	8.0	8.5	9.5	9.0	9.0	13.5	11.0	12.5
25	8.5	7.5	8.0	9.5	8.0	8.5	10.0	8.5	9.0	13.5	13.0	13.5
26	8.5	7.5	8.0	9.5	8.0	8.5	10.0	9.0	9.5	13.5	13.5	13.5
27	8.5	7.5	8.0	9.5	8.0	8.5	10.0	9.0	9.5	14.0	13.5	13.5
28	8.5	7.5	8.0	9.5	8.0	8.5	10.0	9.0	9.5	14.0	13.5	13.5
29	8.5	7.5	8.0	9.0	8.0	8.5	10.0	9.0	9.5	14.0	13.5	13.5
30	8.5	7.5	8.0	9.5	8.5	8.5	10.5	9.0	10.0	14.0	13.5	14.0
31	---	---	---	9.5	8.0	8.5	10.5	10.0	10.0	---	---	---
MONTH	9.0	7.0	8.0	9.5	7.5	8.5	10.5	8.0	9.0	14.0	9.5	11.5

WILLAMETTE RIVER BASIN

77

14146500 SALMON CREEK NEAR OAKRIDGE, OR

LOCATION.--Lat 43°45'45", long 122°22'18", in NE 1/4 sec.7, T.21 S., R.4 E., Lane County, Hydrologic Unit 17090001, in Willamette National Forest, on right bank 190 ft upstream from Salmon Creek Falls, 0.1 mi upstream from Needle Creek, 4.6 mi east of Oakridge, and at mile 5.84.

DRAINAGE AREA.--117 mi², at measuring cable 0.25 mi downstream from gage.

PERIOD OF RECORD.--October to November 1909 (gage heights and one discharge measurement only), February 1913 to October 1919, October 1933 to September 1985, October 1986 to current year. Monthly discharge only for some periods, published in WSP 1318. Published as Kelsey River near Hazeldell and Salmon Creek near Hazeldell, 1909.

REVISED RECORDS.--WSP 794: 1934(M). WSP 814: Drainage area. WSP 1124: 1935, 1942(M), 1943, 1946(M). WSP 1248: 1915, 1918. WDR OR-71-1: 1968, 1969(M,P).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,462.36 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1914, nonrecording gage at several sites within 4 mi of present site at various datums. Oct. 1, 1914, to Oct. 14, 1919, water-stage recorder at site 1.8 mi downstream at different datum. Nov. 5, 1933, to Oct. 27, 1964, water-stage recorder at site 0.8 mi downstream at datum 40.53 ft lower. Oct. 28, 1964, to Aug. 27, 1965, nonrecording gage at site 0.6 mi downstream at different datum.

REMARKS.--Records good except for estimated daily discharges, which are poor. No regulation or diversion upstream from station. All records given herein are for measuring cable site.

AVERAGE DISCHARGE.--61 years (water years 1914-19, 1934-85, 1987-89), 425 ft³/s, 49.33 in/yr, 307,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,600 ft³/s Dec. 22, 1964, gage height, 9.15 ft, from floodmark, site and datum then in use, from rating curve extended above 2,100 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 63 ft³/s Jan. 8, 1937.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,700 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 10	0130	*3,560	*5.27	No other peak greater than base discharge.			
Minimum discharge, 105 ft ³ /s Oct. 27-31, Nov. 1.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	120	109	471	253	e635	386	890	522	538	e245	165	179
2	118	135	440	290	e545	380	906	515	572	e235	186	172
3	118	219	406	352	e475	e345	845	517	580	e230	172	165
4	117	238	377	387	e430	334	843	603	568	e225	164	162
5	121	184	355	416	e395	560	878	704	556	e220	161	159
6	118	304	393	371	e365	1230	956	819	538	e215	159	156
7	116	211	410	330	e335	1170	1070	834	498	e210	155	153
8	114	188	383	325	e320	936	1130	793	461	e210	157	151
9	114	172	365	1030	e305	979	1120	804	434	e205	172	148
10	112	192	367	2000	e285	1220	1070	785	409	e205	162	145
11	112	212	359	1070	e275	1210	985	655	390	e200	156	143
12	112	256	340	e770	267	1150	973	553	386	e195	151	143
13	112	259	334	625	257	1080	1020	494	382	e195	151	140
14	112	229	317	525	249	937	1070	466	375	e195	150	138
15	112	214	292	473	e240	952	1050	445	397	e190	148	138
16	112	238	271	466	274	960	978	439	374	e195	148	138
17	112	297	255	481	337	851	927	443	341	e215	148	140
18	110	255	241	491	415	881	934	448	e335	e200	146	148
19	109	231	243	479	523	902	987	416	e325	185	145	140
20	109	288	243	499	495	804	953	395	e320	179	143	138
21	108	444	250	538	470	1460	840	391	e300	178	143	135
22	107	1110	261	524	598	1460	712	395	e290	175	211	133
23	107	1150	258	e445	689	1160	622	445	e290	170	327	133
24	107	724	247	e420	597	1000	576	457	e290	170	244	131
25	107	568	232	e385	e515	999	616	513	e285	167	209	130
26	107	525	216	e370	e460	897	584	486	e280	165	190	135
27	107	504	207	367	e425	801	541	599	e270	164	179	135
28	105	925	202	360	399	1060	507	676	e260	162	171	132
29	105	683	207	358	---	1080	493	625	e255	162	170	131
30	105	533	271	418	---	973	513	564	e250	162	217	149
31	105	---	278	619	---	978	---	531	---	165	188	---
TOTAL	3450	11597	9491	16437	11575	29135	25589	17332	11549	5989	5388	4340
MEAN	111	387	306	530	413	940	853	559	385	193	174	145
MAX	121	1150	471	2000	689	1460	1130	834	580	245	327	179
MIN	105	109	202	253	240	334	493	391	250	162	143	130
AC-FT	6840	23000	18830	32600	22960	57790	50760	34380	22910	11880	10690	8610
CFSM	.95	3.30	2.62	4.53	3.53	8.03	7.29	4.78	3.29	1.65	1.49	1.24
IN.	1.10	3.69	3.02	5.23	3.68	9.26	8.14	5.51	3.67	1.90	1.71	1.38

CAL YR 1988 TOTAL 129175 MEAN 353 MAX 1620 MIN 105 AC-FT 256200 CFSM 3.02 IN. 41.07
WTR YR 1989 TOTAL 151872 MEAN 416 MAX 2000 MIN 105 AC-FT 301200 CFSM 3.56 IN. 48.29

e Estimated

WILLAMETTE RIVER BASIN

14147500 NORTH FORK OF MIDDLE FORK WILLAMETTE RIVER NEAR OAKRIDGE, OR

LOCATION.--Lat 43°45'25", long 122°30'15", in SW 1/4 sec.7, T.21 S., R.3 E., Lane County, Hydrologic Unit 17090001, on left bank 2.5 mi northwest of Oakridge, and at mile 1.0.

DRAINAGE AREA.--246 mi², at measuring section 0.5 mi downstream.

PERIOD OF RECORD.--October 1909 to March 1916, September 1935 to September 1985, October 1986 to current year. Monthly discharge only for some periods, published in WSP 1318. Prior to October 1912, published as "near Hazeldell."

REVISED RECORDS.--WSP 1248: 1914-16.

GAGE.--Water-stage recorder. Datum of gage is 1,029.6 ft above National Geodetic Vertical Datum of 1929 (river profile survey). Oct. 1, 1909, to Mar. 31, 1916, water-stage recorder or nonrecording gage at several sites within 0.8 mi of present site at various datums. Sept. 10, 1935, to Oct. 3, 1938, nonrecording gage at present site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Slight regulation by Waldo Lake; occasional fluctuations during low-water periods caused by log-ponds upstream from station. No diversions upstream from station. All records given herein are for measuring site.

AVERAGE DISCHARGE.--59 years (water years 1910-15, 1936-85, 1987-89), 790 ft³/s, 43.61 in/yr, 572,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,400 ft³/s Dec. 22, 1964, gage height, 19.14 ft, from floodmark, from rating curve extended above 7,100 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 22 ft³/s Aug. 20, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	2300	4,340	6.76	Jan. 10	0200	*7,670	*9.12

Minimum daily discharge, 105 ft³/s Oct. 28, 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e120	e110	1110	567	e1180	e730	1860	947	844	323	201	233
2	e120	e300	1010	649	e990	e750	2060	923	859	314	229	218
3	e120	e480	928	795	e890	e700	1840	908	866	302	217	208
4	e120	552	861	838	e800	e670	1760	1030	841	294	198	202
5	e120	372	806	845	e730	e3080	1840	1150	816	285	190	195
6	e119	620	883	765	e660	e4000	2030	1270	788	279	184	190
7	e119	434	952	691	e600	e3450	2250	1270	740	273	181	184
8	e118	372	881	678	e570	e3000	2330	1220	689	266	183	183
9	e117	322	823	2000	e540	e3250	2250	1240	654	262	190	180
10	e116	397	821	4980	e520	e3950	2120	1240	614	264	185	174
11	e115	485	787	2440	e495	e3500	1930	1090	582	255	181	171
12	e115	610	737	1710	e490	e3000	1900	928	561	249	175	168
13	e115	638	720	1410	e480	e2500	1940	824	545	244	171	165
14	e115	522	681	1190	e475	e2250	2020	764	545	242	169	163
15	e115	467	619	1090	e460	e2190	1970	722	572	241	166	160
16	e112	520	569	e1100	e730	e2250	1780	705	543	246	164	159
17	e110	705	525	e1150	e930	e2500	1660	704	500	301	163	161
18	e110	582	489	e1100	e1180	e2750	1650	723	469	262	161	179
19	e110	495	488	e1000	e1350	e3000	1760	680	445	246	159	167
20	e110	633	490	e1050	e1170	e3250	1710	637	463	237	157	162
21	e110	1090	530	e1120	e1210	e3500	1520	618	434	232	156	158
22	e110	3400	579	e1080	e1540	e3250	1320	608	409	225	221	157
23	e110	3170	578	e1000	e1800	e2750	1150	679	392	220	452	154
24	e109	1830	558	e900	e1520	e2300	1070	750	377	214	339	153
25	e108	1410	512	e800	e1270	e2500	1180	845	364	209	267	152
26	e107	1300	464	e730	e1150	e2100	1130	798	354	206	238	159
27	e106	1210	433	e740	e910	e1950	1040	941	344	205	219	164
28	e105	2320	414	e710	e800	e2300	963	1140	335	198	208	157
29	e105	1660	429	e880	---	2260	919	1040	337	194	204	154
30	e106	1280	629	e1050	---	1970	942	933	338	195	298	168
31	e107	---	651	e1230	---	2020	---	865	---	198	258	---
TOTAL	3499	28286	20957	36288	25440	77670	49894	28192	16620	7681	6484	5198
MEAN	113	943	676	1171	909	2505	1663	909	554	248	209	173
MAX	120	3400	1110	4980	1800	4000	2330	1270	866	323	452	233
MIN	105	110	414	567	460	670	919	608	335	194	156	152
AC-FT	6940	56110	41570	71980	50460	154100	98960	55920	32970	15240	12860	10310
CFSM	.46	3.83	2.75	4.76	3.69	10.2	6.76	3.70	2.25	1.01	.85	.70
IN.	.53	4.28	3.17	5.49	3.85	11.75	7.54	4.26	2.51	1.16	.98	.79

CAL YR 1988 TOTAL 254352 MEAN 695 MAX 4550 MIN 105 AC-FT 504500 CFSM 2.83 IN. 38.46
WTR YR 1989 TOTAL 306209 MEAN 839 MAX 4980 MIN 105 AC-FT 607400 CFSM 3.41 IN. 46.30

e Estimated

MIDDLE FORK WILLAMETTE RIVER BASIN

79

14148000 MIDDLE FORK WILLAMETTE RIVER BELOW NORTH FORK, NEAR OAKRIDGE, OR

LOCATION.--Lat 43°48'05", long 122°33'35", in SW 1/4 sec.27, T.20 S., R.2 E., Lane County, Hydrologic Unit 17090001, on left bank 0.5 mi downstream from Whitehead Creek, 4.2 mi downstream from North Fork of Middle Fork Willamette River, 7.0 mi northwest of Oakridge, and at mile 220.2.

DRAINAGE AREA.--924 mi².

PERIOD OF RECORD.--March 1911 to September 1912, July 1923 to current year. Monthly discharge only for some periods, published in WSP 1318. Published as "near Hazeldell" 1911-12 and as "at Eula" 1923-50.

REVISED RECORDS.--WSP 694: 1925-28. WSP 814: Drainage area at Eula. WSP 1248: 1924, 1925(M), 1926-28, 1929(M), 1930, 1933, 1946(M). WSP 1398: 1927(M). WSP 1638: 1936(M).

GAGE.--Water-stage recorder. Datum of gage is 934.76 ft above National Geodetic Vertical Datum of 1929. Mar. 22, 1911, to Sept. 30, 1912, nonrecording gage at site 4.0 mi upstream, just downstream from North Fork at different datum. July 1, 1923, to Aug. 11, 1935, nonrecording gage and Aug. 12, 1935, to Sept. 30, 1950, water-stage recorder at site 4.0 mi downstream at different datum.

REMARKS.--Records good. Flow regulated since 1961 by Hills Creek Lake (station 14145100); slight regulation at times by logponds upstream from station. No diversion upstream from station.

AVERAGE DISCHARGE.--67 years, 2,778 ft³/s, 2,013,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 81,800 ft³/s Dec. 28, 1945, gage height, 18.8 ft, from floodmark, site and datum then in use, from rating curve extended above 39,000 ft³/s; minimum discharge, 322 ft³/s Aug. 30, 1961, caused by closing outlet gates at Hills Creek Dam.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1861 and prior to beginning of record, 17.0 ft in February 1890 at site used 1923-50, from information by local resident, discharge, about 55,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21,600 ft³/s Jan. 10, gage height, 7.67 ft; minimum discharge, 752 ft³/s Sept. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1970	2020	3980	2200	3590	1980	5710	3080	3210	1290	949	1790
2	1960	2100	3780	2810	3750	2010	5940	2760	3390	1250	1000	1910
3	1960	2530	3600	3200	3600	1860	5390	2510	3480	1220	976	1890
4	2000	2770	3320	3330	3310	1800	5000	2510	3470	1190	944	1870
5	2000	2440	3050	3370	2830	2860	5060	2950	3440	1220	925	1850
6	2140	2970	3320	2860	2820	6010	5300	3510	3340	1150	909	1840
7	2000	2580	3250	2440	3100	5250	5690	3590	3150	1130	902	1830
8	1990	2430	3130	2400	2870	4180	5890	3500	2890	1110	905	1910
9	2010	2350	3030	6710	2800	4290	5820	3580	2620	1110	943	2030
10	2000	2380	3020	14400	2670	5480	e5650	3650	2430	1100	925	2020
11	1420	2420	2970	7170	1550	6410	e5270	3570	2300	1080	912	2010
12	881	2630	2890	5220	1390	5760	e5210	3400	2270	1050	897	2000
13	893	2700	2870	4470	1370	5690	e5300	3020	2290	1050	888	1990
14	1040	2420	2810	4070	1370	5320	e5570	2900	2300	1030	886	2000
15	2000	2210	2820	4030	1320	5610	e5480	2460	2410	1040	872	2020
16	2010	2310	2860	4040	1490	5670	e5180	2130	2370	1040	868	2020
17	2010	2890	2780	4140	2000	5200	e4960	2120	2180	1160	862	968
18	2020	2650	2720	4130	2340	5300	e4920	2290	1940	1090	856	929
19	2040	2540	2720	3970	2770	5490	e5120	2390	1830	1050	855	887
20	2040	2800	2240	4020	2570	5090	e5030	2400	1790	1000	846	858
21	2040	3660	1800	4110	2440	7640	e4680	2370	1760	981	856	836
22	2040	7830	2090	4230	2920	8260	e4280	2360	1700	971	1060	823
23	2040	8040	2230	3870	3340	7480	e3980	2530	1590	963	1610	818
24	2040	5400	2170	3680	2910	6290	e3840	2790	1540	955	1330	1480
25	2010	4640	2070	3210	2570	6160	e4030	3250	1520	942	1130	1910
26	2020	4510	1870	2940	2340	5840	3980	3100	1500	937	1050	2030
27	2020	4250	1590	2550	2170	5460	3770	3550	1450	926	1010	2040
28	2020	6280	1480	2490	2040	6620	3610	4120	1380	938	975	2020
29	2020	5070	1500	2440	---	7160	3500	3860	1410	932	1030	2030
30	2010	4330	1940	2670	---	6660	3540	3610	1420	937	1530	2070
31	2010	---	2120	3240	---	6460	---	3370	---	944	1690	---
TOTAL	58654	104150	82020	124410	70240	165290	146700	93230	68370	32786	31391	50679
MEAN	1892	3472	2646	4013	2509	5332	4890	3007	2279	1058	1013	1689
MAX	2140	8040	3980	14400	3750	8260	5940	4120	3480	1290	1690	2070
MIN	881	2020	1480	2200	1320	1800	3500	2120	1380	926	846	818
AC-FT	116300	206600	162700	246800	139300	327900	291000	184900	135600	65030	62260	100500

CAL YR 1988 TOTAL 891401 MEAN 2436 MAX 9700 MIN 781 AC-FT 1768000
WTR YR 1989 TOTAL 1027920 MEAN 2816 MAX 14400 MIN 818 AC-FT 2039000

e Estimated

MIDDLE FORK WILLAMETTE RIVER BASIN

14149000 LOOKOUT POINT LAKE NEAR LOWELL, OR

LOCATION.--Lat 43°54'50", long 122°45'00", in SE 1/4 sec.13, T.19 S., R.1 W., Lane County, Hydrologic Unit 17090001, in elevator house at right end of spillway section of dam on Middle Fork Willamette River, 1.5 mi east of Lowell, and at mile 206.9.

DRAINAGE AREA.--991 mi².

PERIOD OF RECORD.--November 1953 to current year. Prior to October 1971, published as Lookout Point Reservoir near Lowell.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Nov. 7, 1953, to Dec. 4, 1954, approximate elevations obtained from reference marks and Dec. 5, 1954, to Feb. 4, 1955, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earthfill dam with concrete gate and spillway section, completed in 1954 by Corps of Engineers. Planned storage began in November 1953. Total capacity is 455,800 acre-ft at elevation 929 ft, and usable capacity is 349,200 acre-ft between elevations 819 ft and 929 ft, top of spillway gates. Reservoir used for flood control, improvement of navigation, power generation, pollution abatement, and other purposes. Figures given herein represent total contents.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 464,900 acre-ft Dec. 26, 1964, elevation, 931.09 ft; minimum contents observed since first filling, 91,450 acre-ft Dec. 1, 1954, elevation, 811.00 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 450,700 acre-ft June 5, elevation, 927.80 ft; minimum contents, 107,000 acre-ft Feb. 6, elevation, 819.22 ft.

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

820	108,600	860	205,500	900	338,900
830	129,500	870	235,500	910	377,400
840	152,500	880	267,800	920	417,800
850	177,700	890	302,300	930	460,200

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	886.80	865.64	830.20	828.06	830.33	840.73	900.21	920.50	926.56	926.28	917.46	898.58
2	886.62	864.60	827.36	829.32	827.15	841.55	900.39	921.29	926.84	926.17	917.12	897.80
3	886.45	863.91	826.83	829.41	823.84	842.26	900.68	921.98	927.09	926.09	916.77	897.05
4	886.33	863.28	825.90	829.20	820.35	842.86	901.16	922.67	927.29	925.93	916.41	896.26
5	886.17	862.49	825.22	829.07	820.41	844.35	901.67	923.59	927.26	925.77	915.98	895.48
6	886.13	862.02	825.16	828.34	819.75	848.09	902.24	924.27	926.97	925.58	915.53	894.33
7	885.97	861.19	825.01	827.23	820.25	850.62	903.02	925.00	926.56	925.35	915.08	893.17
8	885.72	860.35	824.68	826.16	820.96	853.06	903.89	925.35	926.06	925.11	914.65	892.06
9	885.42	859.60	824.50	829.94	821.14	855.53	904.71	925.38	925.42	924.87	914.22	891.02
10	885.12	858.72	824.51	843.13	820.97	858.79	905.42	925.49	924.89	924.64	913.70	890.07
11	884.53	857.74	824.49	843.83	821.43	862.58	905.89	925.34	924.42	924.40	913.19	889.71
12	883.63	857.06	824.45	841.69	821.61	865.94	906.38	925.07	924.58	924.12	912.62	889.41
13	882.73	856.37	824.36	839.70	821.78	869.31	906.88	925.11	925.04	923.87	912.04	889.09
14	881.86	855.20	824.24	836.53	822.16	872.34	907.48	925.07	925.60	923.60	911.45	888.76
15	881.56	853.82	824.07	833.41	822.41	875.30	908.10	925.09	925.92	923.27	910.79	888.47
16	881.23	852.63	823.96	830.37	822.91	878.16	908.49	925.16	925.99	923.01	910.13	888.14
17	880.95	852.04	823.96	829.13	824.06	880.25	908.79	925.50	925.97	922.75	909.41	887.31
18	880.01	851.05	823.87	829.36	825.53	881.92	909.14	925.92	925.82	922.45	908.64	886.43
19	879.09	848.98	823.84	829.46	827.35	883.69	909.99	925.93	925.95	922.13	907.75	885.51
20	878.13	847.16	823.79	829.52	828.89	885.12	910.84	925.91	926.10	921.78	906.89	884.56
21	877.28	845.61	823.79	829.79	830.26	888.05	911.26	925.91	926.23	921.40	906.01	883.66
22	876.32	846.31	824.12	830.16	832.12	890.71	911.48	925.94	926.33	921.07	905.41	882.68
23	875.35	846.68	824.60	830.19	834.17	892.75	911.92	926.21	926.39	920.70	905.30	881.83
24	874.31	844.64	824.29	829.92	835.63	894.04	912.69	926.50	926.41	920.34	905.27	881.25
25	873.31	843.70	824.02	829.28	837.02	895.22	914.13	926.79	926.42	919.99	904.85	880.90
26	872.25	842.14	823.81	829.28	838.13	896.22	915.46	926.81	926.42	919.61	904.05	880.72
27	871.21	839.25	823.56	829.55	839.08	897.01	916.39	926.96	926.40	919.24	903.14	880.50
28	870.26	838.28	824.06	829.76	839.91	898.88	917.16	927.17	926.38	918.87	902.06	880.30
29	869.10	836.00	824.54	830.04	---	900.06	918.30	927.13	926.41	918.50	901.01	880.05
30	867.84	833.23	825.56	830.47	---	900.17	919.54	926.95	926.37	918.16	900.25	879.90
31	866.71	---	826.85	830.99	---	900.20	---	926.65	---	917.81	899.37	---
MAX	886.80	865.64	830.20	843.83	839.91	900.20	919.54	927.17	927.29	926.28	917.46	898.58
MIN	866.71	833.23	823.56	826.16	819.75	840.73	900.21	920.50	924.42	917.81	899.37	879.90
(†)	225400	136700	122700	131600	152200	339600	415900	445800	444600	408800	336500	267500
(‡)	-66300	-88700	-14000	+8900	+20600	+187400	+76300	+29900	-1200	-35800	-72300	-69000

CAL YR 1988 MAX 927.67 MIN 823.56 AC-FT† +2700
WTR YR 1989 MAX 927.29 MIN 819.75 AC-FT† -24200

† Contents, in acre-feet, at 2400, on last day of month.
‡ Change in contents, in acre-feet.

LOCATION.--Lat 43°56'45", long 122°50'10", in SE 1/4 NW 1/4 sec.5, T.19 S., R.1 W., Lane County, Hydrologic Unit 17090001, on right bank 0.6 mi upstream from Lost Creek, 2.0 mi northwest of Dexter, 2.6 mi downstream from Dexter Dam, and at mile 201.2.

WATER-DISCHARGE RECORDS

REVISÉD RECORDS.--WSP 1638: 1948(P).

REMARKS.--No estimated daily discharges. Water-discharge records good. Flow regulated since 1953 by Lookout Point Lake (station 14149000), since 1955 by Dexter Lake (re-regulating), and since 1961 by Hills Creek Lake (station 14145100).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 62,600 ft³/s Jan. 18, 1953, gage height, 12.46 ft, site and datum then in use, from rating curve extended above 33,000 ft³/s; minimum daily discharge, 100 ft³/s Nov. 25, 1960.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 13.9 ft Dec. 28, 1945, former site and datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,030 ft³/s Nov. 22, gage height, 8.51 ft; minimum discharge, 920 ft³/s June 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2270	3850	7860	1110	3530	1120	6360	1110	3660	1460	1710	3380
2	2280	3840	7280	1520	7710	1130	6400	1110	2810	1460	1690	3380
3	2290	3850	4520	3200	7320	1130	5260	1110	3060	1400	1670	3350
4	2300	3850	4440	3770	6930	1130	4350	1100	3090	1520	1660	3370
5	2300	3830	3840	3860	4300	1240	4360	1090	3550	1530	1820	3300
6	2300	3850	3520	3820	3050	2030	4390	2030	4140	1580	1820	4140
7	2300	3870	3570	3810	2140	2350	4370	2060	4050	1590	1800	3990
8	2480	3870	3430	3790	2140	1390	4350	2740	4050	1590	1810	4000
9	2540	3490	3370	3850	2730	1130	4350	3530	4030	1580	1810	4060
10	2540	3860	3060	1510	2640	1110	4350	3530	3590	1590	1910	3700
11	2500	3840	3030	7010	1450	1100	4360	4010	3370	1590	1910	2670
12	2490	3830	2980	8500	1260	1140	4350	4010	1940	1590	2030	2530
13	2490	3840	2970	7250	1210	1150	4350	3040	1310	1590	2000	2540
14	2510	4050	3010	8490	1150	1150	4350	2940	1250	1580	2080	2540
15	2550	4260	3000	8080	1100	1340	4360	2320	1740	1690	2130	2530
16	2550	4280	2950	7870	1100	1610	4350	1910	2140	1700	2170	2540
17	2660	4270	2820	6170	1100	2090	4360	1460	2180	1680	2220	2540
18	3700	4230	2830	4250	1100	3010	4340	1430	2180	1660	2360	2560
19	3700	5330	2770	4160	1100	3030	3420	2330	1520	1720	2570	2520
20	3690	5460	2470	4130	1100	2980	3360	2330	1460	1710	2560	2510
21	3600	6390	1950	4140	1090	2990	4080	2260	1460	1710	2580	2500
22	3710	8970	1970	4150	1100	3780	3800	2280	1460	1670	2590	2500
23	3720	8980	1940	4150	1270	4340	3210	2040	1460	1680	1960	2500
24	3740	8940	2780	4140	1420	4340	2370	2370	1460	1680	1410	2510
25	3740	6620	2610	4120	1110	4330	1470	2830	1460	1690	1970	2500
26	3740	7060	2150	3180	1120	4330	1400	3120	1460	1680	2530	2510
27	3760	8400	1830	2300	1120	4350	2060	3740	1450	1680	2800	2420
28	3720	8600	1150	2170	1130	4360	2020	4130	1460	1680	3060	2420
29	3850	8510	1110	2180	---	5630	1140	4310	1460	1670	3060	2430
30	3830	8110	1110	2180	---	7200	1110	4260	1460	1680	3060	2430
31	3820	---	1110	2730	---	6890	---	4060	---	1700	3340	---
TOTAL	93670	162130	93430	131590	63520	84900	112800	80590	69710	50330	68090	86870
MEAN	3022	5404	3014	4245	2269	2739	3760	2600	2324	1624	2196	2896
MAX	3850	8980	7860	8500	7710	7200	6400	4310	4140	1720	3340	4140
MIN	2270	3490	1110	1110	1090	1100	1110	1090	1250	1400	1410	2420
AC-FT	185800	321600	185300	261000	126000	168400	223700	159900	138300	99830	135100	172300
CAL YR 1988	TOTAL 964630		MEAN	2636	MAX 8980	MIN 1030	AC-FT 1913000					
WTR YR 1989	TOTAL 1097630		MEAN	3007	MAX 8980	MIN 1090	AC-FT 2177000					

MIDDLE FORK WILLAMETTE RIVER BASIN

14150000 MIDDLE FORK WILLAMETTE RIVER NEAR DEXTER, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: August 1955 to current year.

INSTRUMENTATION.--Temperature recorder since August 1955.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 19.0°C Sept. 6-9, 1987; minimum recorded, 2.5°C Feb. 6-8, 1989, but may have been lower during period of missing record Feb. 9 to Mar. 30, 1989.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 17.0°C Oct. 6, 8, 9; minimum recorded, 2.5°C Feb. 6-8, but may have been lower during period of missing record Feb. 9 to Mar. 30.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	16.5	15.5	16.0	15.5	15.0	15.0	9.0	9.0	9.0	6.0	5.5	6.0
2	16.5	15.5	15.5	15.0	15.0	15.0	9.0	8.5	9.0	6.0	6.0	6.0
3	16.5	15.5	15.5	15.0	15.0	15.0	8.5	8.5	8.5	6.5	6.0	6.0
4	16.0	15.5	15.5	15.0	15.0	15.0	8.5	8.5	8.5	6.5	6.0	6.5
5	16.5	15.5	16.0	15.0	15.0	15.0	8.5	8.5	8.5	6.0	6.0	6.0
6	17.0	15.5	16.0	15.0	14.5	15.0	8.5	8.5	8.5	6.0	5.5	6.0
7	16.5	15.5	16.0	14.5	14.5	14.5	8.5	8.5	8.5	6.0	5.5	5.5
8	17.0	15.5	16.0	14.5	14.0	14.5	8.5	8.0	8.5	6.0	5.5	5.5
9	17.0	15.5	16.0	14.0	14.0	14.0	8.5	8.0	8.5	6.0	5.5	6.0
10	16.5	15.5	16.0	14.0	13.5	13.5	8.5	8.5	8.5	6.5	5.5	5.5
11	16.0	15.5	16.0	13.5	13.5	13.5	8.5	8.5	8.5	5.5	5.0	5.5
12	16.5	15.5	16.0	13.5	13.5	13.5	8.5	8.0	8.5	5.5	5.0	5.5
13	16.0	15.5	16.0	13.5	13.0	13.0	8.5	8.0	8.0	5.5	5.0	5.0
14	16.5	15.5	16.0	13.0	13.0	13.0	8.5	8.0	8.0	5.0	5.0	5.0
15	16.5	15.5	16.0	13.0	13.0	13.0	8.0	7.5	7.5	5.0	5.0	5.0
16	16.5	15.5	16.0	13.0	12.5	13.0	7.5	7.0	7.5	5.0	5.0	5.0
17	16.5	15.5	16.0	12.5	12.5	12.5	7.5	7.0	7.0	6.0	5.0	5.5
18	16.5	16.0	16.0	12.5	12.0	12.5	7.5	7.0	7.0	6.0	5.5	6.0
19	16.5	15.5	16.0	12.0	12.0	12.0	7.0	7.0	7.0	6.0	5.5	5.5
20	16.5	15.5	16.0	12.0	12.0	12.0	7.0	6.5	6.5	6.0	5.5	5.5
21	16.0	15.5	16.0	12.0	11.5	12.0	7.0	6.5	6.5	5.5	5.5	5.5
22	16.0	15.5	16.0	12.0	11.5	12.0	6.5	6.0	6.5	5.5	5.5	5.5
23	16.0	15.5	15.5	11.5	11.0	11.5	6.5	6.0	6.0	5.5	5.5	5.5
24	15.5	15.5	15.5	11.0	10.5	11.0	6.5	6.0	6.5	5.5	5.5	5.5
25	16.0	15.5	15.5	10.5	10.5	10.5	6.5	6.0	6.0	5.5	5.0	5.5
26	15.5	15.5	15.5	10.5	10.0	10.5	6.0	5.5	6.0	5.5	5.0	5.5
27	15.5	15.0	15.5	10.0	10.0	10.0	5.5	5.5	5.5	5.5	5.0	5.0
28	15.5	15.0	15.0	10.0	9.5	10.0	5.5	5.5	5.5	5.5	5.0	5.0
29	15.5	15.0	15.0	9.5	9.5	9.5	5.5	5.5	5.5	6.0	5.0	5.0
30	15.5	15.0	15.5	9.5	9.0	9.0	6.5	5.5	6.0	6.0	5.0	5.0
31	15.5	15.0	15.5	---	---	---	6.0	5.5	5.5	5.5	5.0	5.5
MONTH	17.0	15.0	16.0	15.5	9.0	12.5	9.0	5.5	7.5	6.5	5.0	5.5

MIDDLE FORK WILLAMETTE RIVER BASIN

83

14150000 MIDDLE FORK WILLAMETTE RIVER NEAR DEXTER, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	5.5	4.5	5.0	---	---	---	7.5	7.0	7.0	11.0	9.5	10.0
2	4.5	4.0	4.5	---	---	---	7.0	7.0	7.0	11.0	9.0	10.0
3	4.5	4.0	4.0	---	---	---	8.0	7.0	7.5	10.5	9.0	10.0
4	4.0	3.0	3.5	---	---	---	8.0	7.5	7.5	12.0	9.5	10.5
5	4.0	3.0	3.5	---	---	---	8.5	7.5	8.0	12.0	10.0	10.5
6	3.5	2.5	3.0	---	---	---	8.5	7.5	8.0	11.5	10.0	10.5
7	3.5	2.5	3.0	---	---	---	9.0	8.0	8.0	11.5	10.0	10.5
8	3.5	2.5	3.0	---	---	---	8.5	8.0	8.5	11.5	10.5	11.0
9	---	---	---	---	---	---	8.5	8.0	8.5	10.5	10.0	10.5
10	---	---	---	---	---	---	9.0	8.0	8.5	11.0	10.0	10.5
11	---	---	---	---	---	---	9.0	8.0	8.5	10.5	9.5	10.0
12	---	---	---	---	---	---	9.0	8.5	8.5	10.0	9.5	9.5
13	---	---	---	---	---	---	9.0	8.5	8.5	10.5	9.5	10.0
14	---	---	---	---	---	---	9.0	8.5	8.5	11.0	9.5	10.0
15	---	---	---	---	---	---	9.0	8.5	8.5	12.0	9.5	10.5
16	---	---	---	---	---	---	9.0	8.5	8.5	11.5	9.5	10.5
17	---	---	---	---	---	---	9.0	8.5	9.0	10.5	9.5	10.0
18	---	---	---	---	---	---	9.5	8.5	9.0	11.0	9.5	10.0
19	---	---	---	---	---	---	10.0	9.0	9.0	11.5	9.5	10.5
20	---	---	---	---	---	---	9.0	9.0	9.0	11.5	10.0	10.5
21	---	---	---	---	---	---	9.0	9.0	9.0	10.5	10.0	10.0
22	---	---	---	---	---	---	9.0	8.5	9.0	11.0	9.5	10.0
23	---	---	---	---	---	---	9.0	8.5	8.5	11.0	9.5	10.0
24	---	---	---	---	---	---	9.0	8.0	8.5	11.0	9.5	10.0
25	---	---	---	---	---	---	8.5	8.0	8.5	11.5	9.5	10.0
26	---	---	---	---	---	---	9.5	8.0	8.5	10.5	9.5	10.0
27	---	---	---	---	---	---	10.0	8.0	9.0	10.5	10.0	10.0
28	---	---	---	---	---	---	10.5	8.0	9.0	10.0	9.5	10.0
29	---	---	---	---	---	---	11.0	8.5	9.5	10.0	9.5	10.0
30	---	---	---	---	---	---	9.5	9.5	9.5	10.5	9.5	10.0
31	---	---	---	7.5	6.5	7.0	---	---	---	10.5	10.0	10.0
MONTH	---	---	---	---	---	---	11.0	7.0	8.5	12.0	9.0	10.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	11.0	10.0	10.5	12.0	11.5	12.0	13.5	12.5	13.0	15.0	14.5	14.5
2	11.5	10.5	10.5	13.5	11.5	12.5	14.0	12.5	13.0	15.0	14.0	14.5
3	12.0	10.5	11.0	13.5	12.0	12.5	14.0	12.5	13.0	15.0	14.5	14.5
4	12.0	11.0	11.5	14.0	11.5	12.5	14.5	12.5	13.5	15.0	14.5	14.5
5	11.5	11.0	11.0	14.0	11.5	12.5	14.5	12.5	13.5	15.5	14.5	14.5
6	11.5	11.0	11.0	14.5	11.5	13.0	14.5	12.5	13.5	15.0	14.5	14.5
7	11.5	11.0	11.0	14.5	12.0	13.0	15.0	13.0	13.5	15.5	14.5	15.0
8	11.0	11.0	11.0	14.5	12.0	13.0	15.0	13.0	13.5	15.5	14.5	14.5
9	11.0	10.5	11.0	13.0	12.0	12.5	14.0	13.0	13.5	15.0	14.5	14.5
10	11.5	10.5	11.0	14.0	12.0	13.0	15.0	13.0	13.5	15.0	14.5	14.5
11	11.5	10.5	11.0	14.5	12.0	13.0	15.0	13.0	13.5	16.0	14.5	15.0
12	11.0	10.5	11.0	14.5	12.0	13.0	15.0	13.0	14.0	16.0	14.5	15.0
13	11.5	10.5	11.0	13.5	12.5	13.0	15.0	13.0	14.0	16.5	15.0	15.5
14	11.0	10.5	11.0	13.0	12.5	12.5	15.0	13.5	14.0	16.5	15.0	15.5
15	11.5	10.5	11.0	14.0	12.5	13.0	15.0	13.5	14.0	16.5	15.0	15.5
16	12.5	10.5	11.0	12.5	12.5	12.5	15.0	13.5	14.0	16.0	15.0	15.5
17	12.5	11.0	11.5	13.5	12.5	13.0	15.0	13.5	14.0	15.5	15.0	15.5
18	12.5	11.0	11.5	13.0	12.0	12.5	15.0	13.5	14.0	---	---	---
19	12.0	11.0	11.5	14.0	12.5	13.0	15.0	14.0	14.5	---	---	---
20	13.0	11.0	11.5	13.0	12.5	12.5	15.0	14.0	14.5	---	---	---
21	13.0	11.0	11.5	14.0	12.0	13.0	14.5	14.0	14.5	---	---	---
22	13.5	11.0	12.0	14.5	12.0	13.0	14.5	14.0	14.0	---	---	---
23	13.5	11.0	12.0	14.0	12.0	13.0	14.5	13.5	14.0	---	---	---
24	13.5	11.0	12.0	14.5	12.0	13.0	---	---	---	---	---	---
25	13.5	11.5	12.0	14.5	12.0	13.0	---	---	---	---	---	---
26	13.0	11.5	12.0	13.0	12.5	12.5	15.0	13.5	14.5	---	---	---
27	12.5	11.5	12.0	14.5	12.5	13.0	15.5	14.0	14.5	---	---	---
28	12.0	11.5	12.0	14.5	12.5	13.0	15.0	14.0	14.5	---	---	---
29	12.0	11.5	12.0	13.0	12.5	13.0	15.0	14.0	14.5	---	---	---
30	13.5	11.5	12.0	14.0	12.5	13.0	14.5	14.5	14.5	---	---	---
31	---	---	---	14.0	12.5	13.0	15.0	14.0	14.5	---	---	---
MONTH	13.5	10.0	11.5	14.5	11.5	13.0	---	---	---	---	---	---

MIDDLE FORK WILLAMETTE RIVER BASIN

14150300 FALL CREEK NEAR LOWELL, OR

LOCATION.--Lat 43°58'15", long 122°38'15", in SW 1/4 sec.25, T.18 S., R.1 E., Lane County, Hydrologic Unit 17090001, on right bank 0.1 mi downstream from North Fork, 8.0 mi northeast of Lowell, and at mile 14.4.

DRAINAGE AREA.--118 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 844.42 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for estimated daily discharges, which are poor. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--26 years, 411 ft³/s, 47.30 in/yr, 297,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,100 ft³/s Jan. 21, 1972, which may have been caused by release from breakup of temporary logjam 12 mi upstream, gage height, 11.84 ft; minimum discharge, 16 ft³/s Oct. 3, 4, 1965, Oct. 21, 28, 29, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	2300	3,520	6.41	Jan. 10	0130	*10,500	*11.22
Minimum discharge, 26 ft ³ /s Oct. 30 to Nov. 1.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	32	599	568	604	351	1300	237	287	67	58	97
2	31	94	477	681	466	367	1340	214	243	63	76	82
3	31	294	386	1020	375	313	1260	202	221	58	68	74
4	31	430	320	1080	326	303	e1140	216	209	55	55	68
5	37	217	273	918	e280	1130	e1150	198	177	52	50	64
6	33	612	280	618	e220	2630	e1200	188	159	50	47	61
7	30	262	274	486	e200	1640	e1280	174	146	49	45	57
8	29	256	241	514	e195	1170	e1300	161	134	46	46	55
9	28	216	217	3490	e190	979	e1230	193	125	46	50	52
10	27	369	204	5550	e195	1060	e1070	262	118	49	48	50
11	27	454	186	2000	e200	898	e940	239	110	46	45	48
12	27	706	170	1280	209	689	e880	202	103	43	42	46
13	28	543	169	1010	203	1140	e870	180	100	42	40	44
14	28	327	154	771	192	1090	e910	163	116	43	40	43
15	29	285	140	735	180	1590	e790	150	135	47	39	42
16	29	488	130	1110	455	1700	e680	139	115	69	39	42
17	28	1180	121	1180	1080	1290	e600	136	98	117	39	45
18	27	689	114	1150	1110	1290	e560	155	89	74	39	57
19	27	438	150	1050	1210	1480	e590	150	85	65	38	48
20	27	580	197	1060	897	1150	e380	130	104	60	41	46
21	27	1170	351	1030	736	1980	282	121	88	59	47	44
22	29	3070	585	897	993	1590	267	117	80	55	207	42
23	29	2350	532	671	1110	1120	258	149	75	53	719	40
24	28	1250	460	546	785	850	273	306	70	51	281	39
25	28	1290	372	456	610	908	631	435	66	49	158	40
26	28	1370	290	416	499	811	573	341	64	49	113	44
27	27	1280	248	425	427	718	419	629	63	51	91	51
28	27	2480	219	390	378	1510	337	943	62	48	79	46
29	27	1330	297	371	---	1640	287	614	69	46	72	44
30	26	828	853	483	---	1340	259	447	90	49	174	53
31	26	---	838	665	---	1360	---	350	---	52	126	---
TOTAL	890	24890	9847	32621	14325	36087	23056	8141	3601	1703	3012	1564
MEAN	28.7	830	318	1052	512	1164	769	263	120	54.9	97.2	52.1
MAX	37	3070	853	5550	1210	2630	1340	943	287	117	719	97
MIN	26	32	114	371	180	303	258	117	62	42	38	39
AC-FT	1770	49370	19530	64700	28410	71580	45730	16150	7140	3380	5970	3100
CFSM	.24	7.03	2.69	8.92	4.34	9.87	6.51	2.23	1.02	.47	.82	.44
IN.	.28	7.85	3.10	10.28	4.52	11.38	7.27	2.57	1.14	.54	.95	.49

CAL YR 1988 TOTAL 143762 MEAN 393 MAX 4720 MIN 26 AC-FT 285200 CFSM 3.33 IN. 45.32
WTR YR 1989 TOTAL 159737 MEAN 438 MAX 5550 MIN 26 AC-FT 316800 CFSM 3.71 IN. 50.36

e Estimated

MIDDLE FORK WILLAMETTE RIVER BASIN

14150900 FALL CREEK LAKE NEAR LOWELL, OR

LOCATION.--Lat 43°56'40", long 122°45'20", in SW 1/4 sec.1, T.19 S., R.1 W., Lane County, Hydrologic Unit 17090001, in regulating tower near the center of Fall Creek Dam on Fall Creek, 2.2 mi northeast of Lowell, and at mile 7.2.

DRAINAGE AREA.--184 mi².

PERIOD OF RECORD.--January 1966 to current year. Prior to October 1971, published as Fall Creek Reservoir near Lowell.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Reservoir is formed by earthfill dam with concrete gate and spillway section, completed in 1965 by Corps of Engineers; storage began January 1966. Total capacity is 125,100 acre-ft at elevation 834 ft and usable capacity is 115,500 acre-ft between elevation 728 ft and 834 ft. Reservoir used for flood control, conservation, and recreation. Figures given herein represent total contents.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 123,200 acre-ft May 30, 31, 1972; maximum elevation, 832.98 ft May 31, 1972; minimum contents, no contents Nov. 7 to Dec. 6, 1969, Nov. 14-16, 1970, Nov. 18-25, 1972.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 120,700 acre-ft Aug. 23, 24, elevation, 831.60 ft; minimum contents, 988 acre-ft Nov. 25, elevation, 691.54 ft.

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

670.4	0	725	8,340	785	53,120
679	59	735	13,270	795	64,590
685	366	745	19,480	805	77,880
695	1,400	755	26,130	815	97,750
705	2,850	765	33,770	825	109,200
715	5,200	775	42,580	833	123,200

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	804.02	755.19	720.80	728.29	738.67	783.81	809.71	825.25	830.13	830.19	830.64	830.54
2	802.90	754.11	715.25	729.35	740.22	784.64	809.95	825.46	830.29	830.24	830.67	830.21
3	801.74	753.40	713.22	728.77	741.47	785.43	810.25	825.68	830.49	830.29	830.68	829.88
4	800.58	752.80	713.17	728.32	742.54	786.30	810.92	825.91	830.49	830.34	830.67	829.53
5	799.40	751.40	712.99	727.90	743.35	789.04	811.61	826.14	830.34	830.38	830.65	828.88
6	798.18	751.20	712.96	728.02	744.33	794.20	812.26	826.42	830.25	830.40	830.63	828.03
7	796.98	749.51	712.99	728.03	745.40	796.33	812.90	826.68	830.23	830.44	830.61	826.99
8	795.77	747.51	713.15	728.85	746.41	797.22	813.54	826.89	830.25	830.47	830.58	825.69
9	794.52	745.34	714.00	738.34	747.42	797.28	814.19	827.24	830.28	830.49	830.55	824.36
10	793.27	743.67	714.76	755.15	748.36	796.83	814.76	827.68	830.28	830.53	830.53	823.01
11	791.93	742.40	715.29	753.74	749.22	796.12	815.33	828.08	830.29	830.56	830.50	821.84
12	790.52	742.00	714.15	748.69	750.08	796.03	815.90	828.32	830.27	830.58	830.47	820.77
13	789.12	741.11	715.62	743.81	750.93	797.32	816.40	828.48	830.26	830.59	830.47	819.68
14	787.58	738.18	717.22	739.39	751.73	798.46	816.87	828.58	830.28	830.59	830.48	818.60
15	785.90	732.42	718.37	734.17	752.47	800.21	817.29	828.68	830.32	830.60	830.49	817.50
16	784.16	728.60	719.23	732.96	754.32	801.82	817.66	828.77	830.34	830.69	830.48	816.39
17	782.40	728.87	720.02	733.43	758.26	802.45	818.08	828.86	830.33	830.75	830.48	815.40
18	780.62	725.34	720.79	733.01	762.09	803.18	818.50	828.97	830.28	830.79	830.48	814.26
19	778.76	719.94	721.74	732.87	765.96	803.88	818.99	829.06	830.23	830.79	830.48	813.16
20	776.90	714.28	723.02	732.93	768.82	804.38	819.36	829.09	830.22	830.78	830.49	812.06
21	774.99	708.72	725.29	733.07	771.07	806.12	819.79	829.15	830.17	830.78	830.49	810.93
22	773.05	715.71	727.98	732.12	773.77	806.41	820.20	829.19	830.12	830.78	830.98	809.79
23	770.95	712.98	728.91	731.80	776.64	805.98	820.60	829.31	830.06	830.76	831.60	808.63
24	768.80	695.29	729.02	731.36	778.63	806.07	821.13	829.66	830.01	830.74	831.44	807.45
25	766.63	696.58	728.70	731.40	780.16	806.43	822.32	830.15	829.94	830.72	831.24	806.27
26	764.34	705.91	728.16	732.74	781.36	806.61	823.27	830.33	829.90	830.70	831.21	805.11
27	762.02	711.11	727.30	732.96	782.31	806.92	823.87	830.54	829.89	830.67	831.20	803.86
28	760.25	724.03	727.11	732.91	783.11	809.01	824.33	830.59	829.90	830.64	831.14	802.67
29	759.01	727.23	727.87	732.72	---	810.05	824.67	830.38	830.03	830.61	831.14	801.43
30	757.73	725.67	730.11	733.74	---	809.94	825.00	830.33	830.10	830.60	831.10	800.24
31	756.45	---	729.11	736.37	---	809.82	---	830.10	---	830.63	830.84	---
MAX	804.02	755.19	730.11	755.15	783.11	810.05	825.00	830.59	830.49	830.79	831.60	830.54
MIN	756.45	695.29	712.96	727.90	738.67	783.81	809.71	825.25	829.89	830.19	830.47	800.24
(†)	27170	8610	10150	14060	51050	84850	109200	118000	118000	118900	119300	71330
(‡)	-50890	-18560	+1540	+3910	+36990	+33800	+24350	+8800	0	+900	+400	-47970

CAL YR 1988 MAX 830.97 MIN 695.29 AC-FT† +3340
WTR YR 1989 MAX 831.60 MIN 695.29 AC-FT† -6730

† Contents, in acre-feet, at 2400, on last day of month.
‡ Change in contents, in acre-feet.

MIDDLE FORK WILLAMETTE RIVER BASIN

14151000 FALL CREEK BELOW WINBERRY CREEK, NEAR FALL CREEK, OR

LOCATION.--Lat 43°56'40", long 122°46'25", in NW 1/4 SE 1/4 sec.2, T.19 S., R.1 W., Lane County, Hydrologic Unit 17090001, on right bank 10 ft upstream from highway bridge, 1.1 mi downstream from Fall Creek Dam, 2.3 mi southeast of town of Fall Creek, and at mile 6.1.

DRAINAGE AREA.--186 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October to December 1911 (published as Big Fall Creek near Fall Creek; gage heights and discharge measurements only), September 1935 to current year.

REVISED RECORDS.--WSP 1094: 1946(M). WSP 1248: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 637.81 ft above National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Oct. 1 to Dec. 31, 1911, nonrecording gage at site 0.25 mi downstream at different datum. Sept. 9, 1935, to Aug. 3, 1950, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good except for estimated daily discharges, which are fair. Flow regulated since 1966 by Fall Creek Lake (station 14150900). No diversion upstream from station.

AVERAGE DISCHARGE.--54 years, 581 ft³/s, 42.42 in/yr, 420,900 acre-ft/yr, adjusted for storage in Fall Creek Lake since January 1965.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,700 ft³/s Dec. 11, 1956, gage height, 18.80 ft, from rating curve extended above 9,700 ft³/s; minimum discharge, 1.5 ft³/s Oct. 7, 8, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,090 ft³/s Jan. 11, gage height, 7.62 ft; minimum discharge, 24 ft³/s Mar. 3-5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	784	497	1980	1080	244	134	1560	157	430	39	65	399
2	779	495	1690	757	247	136	1360	157	216	39	65	399
3	804	584	903	1450	190	82	1120	157	168	38	64	399
4	812	742	500	1440	142	24	788	157	361	38	63	399
5	808	803	460	1260	e100	58	692	112	372	38	63	650
6	803	800	432	870	e65	483	608	49	318	38	64	811
7	801	897	426	746	38	935	502	49	214	38	65	985
8	796	984	350	664	e38	938	364	48	170	38	65	1140
9	792	972	199	2400	38	1230	292	39	170	38	65	1170
10	787	963	202	3140	38	1490	243	27	170	38	65	1160
11	820	953	203	3460	38	1490	179	28	170	39	65	1030
12	848	970	203	3790	38	1050	157	103	170	38	45	916
13	844	1000	134	2520	38	822	168	157	170	38	29	914
14	899	1290	64	2460	36	820	161	157	170	53	30	912
15	960	1930	47	2470	30	1160	157	157	170	64	30	910
16	953	1630	47	1640	30	1400	158	157	170	65	30	907
17	944	1660	47	1250	32	1360	89	157	169	65	30	905
18	945	1810	47	1410	35	1340	49	157	168	65	30	903
19	940	1730	47	1210	36	1590	49	155	168	65	30	899
20	938	1760	49	1170	36	1310	49	155	168	65	30	897
21	933	2250	95	1250	66	1700	50	155	168	64	30	895
22	925	3370	374	1470	130	2090	49	156	167	63	55	892
23	954	3840	696	1110	124	1880	49	157	153	63	365	888
24	947	3530	795	922	130	1170	51	157	142	63	600	886
25	938	1660	728	662	130	1010	57	156	142	63	367	881
26	946	1030	629	283	130	1010	107	361	128	63	177	878
27	943	1010	624	570	131	801	157	827	92	63	134	878
28	713	1020	403	596	133	832	156	1470	58	63	134	867
29	506	1190	308	596	---	1610	157	1250	38	63	92	863
30	502	1780	706	420	---	1970	157	802	40	63	286	858
31	498	---	1440	237	---	1880	---	795	---	65	399	---
TOTAL	25862	43150	14828	43303	2463	33805	9735	8621	5410	1635	3632	25491
MEAN	834	1438	478	1397	88.0	1090	324	278	180	52.7	117	850
MAX	960	3840	1980	3790	247	2090	1560	1470	430	65	600	1170
MIN	498	495	47	237	30	24	49	27	38	38	29	399
AC-FT	51300	85590	29410	85890	4890	67050	19310	17100	10730	3240	7200	50560
MEAN†	6.67	1126	503	1460	754	1639	734	421	180	67.3	124	43.5
CFSM†	0.04	6.05	2.70	7.85	4.05	8.81	3.95	2.26	0.97	0.36	0.67	0.23
IN.†	0.04	6.76	3.12	9.05	4.22	10.16	4.40	2.61	1.08	0.42	0.77	0.26
AC-FT†	410	67030	30950	89800	41880	100800	43660	25900	10730	4140	7600	2590

CAL YR 1988 TOTAL 197576 MEAN 540 MAX 3840 MIN 26 AC-FT 391900 MEAN† 544 CFSM† 2.92 IN.† 39.85 AC-FT† 395200
WTR YR 1989 TOTAL 217935 MEAN 597 MAX 3840 MIN 24 AC-FT 432300 MEAN† 588 CFSM† 3.16 IN.† 42.91 AC-FT† 425600

e Estimated

† Adjusted for change in contents in Fall Creek Lake.

MIDDLE FORK WILLAMETTE RIVER BASIN

14151000 FALL CREEK BELOW WINBERRY CREEK, NEAR FALL CREEK, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: August 1950 to current year.

INSTRUMENTATION.--Temperature recorder since August 1950.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 26.0°C July 28, 1958; minimum recorded, 0.5°C on several days in 1962 and 1965.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 19.5°C Aug. 18; minimum recorded, 4.5°C Dec. 17, 18, 28-31, but may have been lower during period of no record.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	11.0	10.5	10.5	16.0	16.0	16.0	7.5	7.0	7.0	5.5	5.0	5.5
2	11.0	10.5	10.5	16.0	15.5	16.0	7.0	6.5	7.0	5.5	5.5	5.5
3	11.0	10.5	11.0	15.5	15.0	15.5	6.5	6.5	6.5	6.0	5.5	5.5
4	11.0	11.0	11.0	15.0	14.0	14.5	6.5	6.5	6.5	6.0	5.5	6.0
5	11.0	11.0	11.0	14.0	14.0	14.0	6.5	6.5	6.5	6.5	5.5	6.0
6	11.5	11.0	11.0	14.0	13.5	14.0	7.0	6.5	6.5	6.0	6.0	6.0
7	11.5	11.0	11.5	13.5	13.0	13.5	7.5	6.5	7.0	6.0	6.0	6.0
8	12.0	11.5	11.5	13.0	13.0	13.0	8.0	7.0	7.5	6.0	5.5	6.0
9	12.0	11.5	12.0	13.5	13.0	13.0	8.0	7.0	7.5	5.5	5.5	5.5
10	12.5	12.0	12.0	13.0	12.5	13.0	7.5	7.0	7.5	6.5	5.5	6.5
11	12.5	12.0	12.5	12.5	12.0	12.5	8.0	7.5	7.5	---	---	---
12	13.0	12.5	13.0	12.0	12.0	12.0	8.0	7.5	8.0	---	---	---
13	13.5	13.0	13.5	12.0	11.0	11.5	8.0	7.0	7.5	---	---	---
14	14.0	13.5	14.0	11.5	10.5	11.0	7.5	6.5	7.0	---	---	---
15	15.0	14.0	14.5	11.5	11.0	11.5	7.0	6.0	6.5	---	---	---
16	15.5	15.0	15.0	11.5	11.0	11.5	6.5	5.5	6.0	---	---	---
17	16.0	15.5	15.5	11.0	10.0	10.5	6.0	4.5	5.0	---	---	---
18	16.5	16.0	16.0	10.0	9.5	9.5	6.0	4.5	5.0	---	---	---
19	16.5	16.5	16.5	10.0	9.0	9.5	5.5	5.0	5.5	---	---	---
20	17.0	16.5	17.0	9.0	8.5	8.5	5.5	5.0	5.0	---	---	---
21	17.0	17.0	17.0	9.0	8.0	8.5	5.5	5.0	5.0	---	---	---
22	17.5	17.0	17.0	9.5	8.5	9.0	5.0	5.0	5.0	---	---	---
23	17.5	17.0	17.5	9.5	8.5	9.0	5.0	5.0	5.0	---	---	---
24	17.5	17.5	17.5	8.5	7.5	8.0	5.0	5.0	5.0	---	---	---
25	17.5	17.0	17.5	8.0	7.5	7.5	5.0	5.0	5.0	---	---	---
26	17.0	17.0	17.0	8.0	7.5	7.5	5.0	5.0	5.0	---	---	---
27	17.0	17.0	17.0	8.0	7.5	7.5	5.0	5.0	5.0	---	---	---
28	17.0	16.5	16.5	8.0	7.5	8.0	5.0	4.5	5.0	---	---	---
29	16.5	16.0	16.5	8.0	8.0	8.0	5.0	4.5	5.0	---	---	---
30	16.5	16.0	16.0	8.0	7.5	7.5	5.0	4.5	5.0	---	---	---
31	16.0	16.0	16.0	---	---	---	5.0	4.5	5.0	---	---	---
MONTH	17.5	10.5	14.5	16.0	7.5	11.0	8.0	4.5	6.0	---	---	---

MIDDLE FORK WILLAMETTE RIVER BASIN

14151000 FALL CREEK BELOW WINBERRY CREEK, NEAR FALL CREEK, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1				---	---	---	7.0	7.0	7.0	12.0	10.5	11.0
2				---	---	---	7.5	7.0	7.0	12.5	10.5	11.5
3				---	---	---	7.5	7.0	7.0	13.0	11.0	11.5
4				---	---	---	7.5	7.0	7.5	12.5	10.5	11.5
5				---	---	---	7.5	7.0	7.5	14.0	11.0	12.0
6				---	---	---	7.5	7.5	7.5	13.5	10.5	12.0
7				---	---	---	8.0	7.5	7.5	14.5	11.0	12.0
8				---	---	---	8.0	7.5	7.5	14.0	11.0	12.0
9				---	---	---	8.5	7.5	8.0	11.5	10.5	11.0
10				---	---	---	8.5	7.5	8.0	13.0	10.0	11.5
11				---	---	---	9.0	7.5	8.0	13.5	10.0	11.5
12				---	---	---	9.0	7.5	8.0	12.0	10.0	10.5
13				---	---	---	9.0	7.5	8.0	12.0	10.5	11.5
14				---	---	---	9.0	7.5	8.0	12.5	11.0	11.5
15				---	---	---	9.0	8.0	8.0	12.5	11.0	11.5
16				---	---	---	9.0	8.0	8.5	12.0	11.0	11.5
17				---	---	---	11.0	7.5	9.0	11.5	10.5	11.5
18				---	---	---	11.0	8.0	9.0	12.0	11.0	11.5
19				---	---	---	10.5	8.0	9.0	13.0	10.5	12.0
20				---	---	---	8.5	8.0	8.5	12.5	11.0	11.5
21				---	---	---	9.0	7.5	8.0	12.5	11.0	12.0
22				---	---	---	9.0	7.5	8.0	12.5	10.5	11.5
23				---	---	---	8.5	7.5	8.0	12.5	11.0	11.5
24				---	---	---	9.5	8.0	8.5	13.0	11.0	12.0
25				---	---	---	8.5	8.0	8.0	12.5	11.0	11.5
26				---	---	---	11.5	8.0	9.5	12.0	8.5	10.0
27				---	---	---	12.5	10.0	11.0	9.0	8.0	8.5
28				---	---	---	13.0	11.0	12.0	8.0	8.0	8.0
29				---	---	---	13.0	11.0	12.0	8.5	8.0	8.5
30				---	---	---	11.5	10.5	11.0	9.0	8.5	8.5
31				7.0	7.0	7.0	---	---	---	9.0	9.0	9.0
MONTH				---	---	---	13.0	7.0	8.5	14.5	8.0	11.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	11.5	9.0	10.5	15.0	13.5	14.0	17.5	15.5	16.0	10.0	9.5	9.5
2	13.0	11.5	12.0	17.5	13.5	15.0	17.0	15.5	16.5	10.0	9.5	9.5
3	14.0	12.0	13.0	17.0	13.5	15.0	17.5	15.5	16.0	10.0	9.5	10.0
4	11.0	10.0	10.0	17.5	13.5	15.0	17.5	15.5	16.5	10.0	9.5	10.0
5	10.5	10.0	10.0	17.0	14.0	15.0	18.0	16.0	16.5	11.0	9.0	10.5
6	11.5	10.0	10.5	17.5	14.0	15.0	17.5	16.0	16.5	11.0	11.0	11.0
7	13.5	11.0	12.5	17.5	14.0	15.0	17.5	16.0	17.0	11.0	10.0	10.5
8	13.5	13.0	13.0	17.5	14.0	15.0	17.5	16.0	16.5	10.0	8.0	9.0
9	13.5	13.0	13.0	15.0	14.0	14.5	17.0	15.5	16.5	8.5	8.0	8.5
10	14.0	13.0	13.5	17.0	14.0	15.0	18.0	15.5	16.5	8.5	8.0	8.5
11	14.0	13.0	13.5	17.5	14.0	15.5	18.0	16.0	16.5	8.5	8.0	8.5
12	13.5	13.0	13.5	18.0	14.5	15.5	19.0	15.5	17.0	8.5	8.5	8.5
13	14.0	13.0	13.5	16.5	14.5	15.0	19.0	15.5	16.5	8.5	8.5	8.5
14	13.5	13.0	13.5	15.5	14.5	15.0	18.5	15.5	16.5	9.0	8.5	8.5
15	14.0	13.0	13.5	17.0	14.5	15.5	19.0	15.5	16.5	9.0	8.5	8.5
16	14.5	13.0	13.5	16.0	14.5	15.5	19.0	15.5	16.5	9.0	8.5	9.0
17	14.5	13.0	13.5	17.0	14.5	15.5	18.5	15.5	16.5	9.0	8.5	9.0
18	14.5	13.0	13.5	16.0	15.0	15.5	19.5	15.5	17.0	9.0	9.0	9.0
19	14.5	13.0	14.0	17.0	15.0	15.5	19.0	16.0	17.0	9.0	9.0	9.0
20	14.5	13.0	14.0	16.0	15.0	15.5	19.0	16.0	17.0	9.5	9.0	9.0
21	14.5	13.5	14.0	16.5	14.5	15.5	18.0	16.0	17.0	9.5	9.0	9.0
22	15.0	13.0	14.0	17.0	14.5	15.5	17.0	16.0	16.5	9.5	9.0	9.5
23	16.0	13.5	14.5	16.5	15.0	15.5	17.0	9.0	12.0	9.5	9.5	9.5
24	15.0	13.5	14.5	17.0	15.0	16.0	9.0	9.0	9.0	9.5	9.5	9.5
25	15.0	13.5	14.5	17.0	15.5	16.0	11.5	9.0	10.0	10.0	9.5	10.0
26	15.5	14.0	14.5	15.5	15.0	15.5	12.5	11.0	11.5	10.0	10.0	10.0
27	15.0	14.0	14.5	17.5	15.0	16.0	13.5	12.5	13.0	10.5	10.0	10.0
28	15.0	13.5	14.5	17.5	15.0	16.0	13.5	12.5	13.0	10.5	10.0	10.5
29	14.5	13.5	14.0	16.0	15.0	15.5	18.0	13.0	15.5	10.5	10.5	10.5
30	16.5	13.5	14.5	17.0	15.5	16.0	17.5	9.5	11.5	11.0	10.5	11.0
31	---	---	---	17.5	14.5	16.0	10.0	9.5	9.5	---	---	---
MONTH	16.5	9.0	13.5	18.0	13.5	15.5	19.5	9.0	15.0	11.0	8.0	9.5

LOCATION.--Lat 43°59'55", long 122°54'20", in SW 1/4 SW 1/4 sec.14, T.18 S., R.2 W., Lane County, Hydrologic Unit 17090001, on right bank 25 ft downstream from highway bridge at Jasper, 0.1 mi downstream from Hills Creek, and at mile 195.0.

PERIOD OF RECORD.--September 1905 to February 1912, July 1913 to March 1917, October 1952 to current year.
Monthly discharge only for some periods, published in WSP 1318.

GAGE.--Water-stage recorder. Datum of gage is 513.45 ft above National Geodetic Vertical Datum of 1929. September 1905 to February 1912 and July 1913 to March 1917, nonrecording gage at approximately same site at datum about 1.5 ft higher Oct. 22, 1952, to Sept. 30, 1953, nonrecording gage at site 25 ft upstream at same datum.

AVERAGE DISCHARGE.--46 years (water years 1906-11, 1914-16, 1953-89). 4,095 ft³/s. 2,967,000 acre-ft/yr.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,400 ft³/s Jan. 10, gage height, 9.04 ft; minimum discharge, 1,280 ft³/s June 13.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3140	4450	10700	2990	4230	1750	9190	1520	4450	1600	1890	3800
2	3130	4500	9710	3020	8260	1860	8930	1500	3400	1590	1870	3800
3	3170	4690	6120	5400	7850	1760	7570	1490	3460	1530	1840	3760
4	3200	4950	5380	6010	7310	1640	6110	1480	3660	1630	1820	3790
5	3200	4950	4760	5960	5050	2140	5870	1420	4060	1650	1970	3920
6	3190	5170	4350	5500	3620	4190	5750	2230	4570	1700	1970	4880
7	3180	5080	4370	5280	2620	4900	5520	2340	4430	1710	1960	4960
8	3350	5210	4180	5170	2580	3520	5330	2960	4340	1710	1970	5130
9	3420	4820	3900	9790	3130	3330	5180	3710	4330	1710	1960	5230
10	3430	5200	3620	12600	3130	3590	5090	3760	3930	1720	2060	4900
11	3410	5250	3560	13000	1880	3470	4970	4190	3740	1710	2050	3900
12	3430	5320	3490	14400	1660	3070	4900	4260	2340	1710	2160	3530
13	3440	5400	3420	11500	1590	3420	4870	3460	1690	1710	2120	3530
14	3500	5660	3350	12400	1530	3470	4850	3300	1560	1720	2170	3520
15	3620	6630	3300	11800	1450	4230	4830	2740	2070	1850	2230	3510
16	3620	6730	3260	10800	1690	5140	4790	2250	2470	1900	2260	3510
17	3660	7660	3120	8610	2420	5200	4740	1820	2520	1900	2310	3520
18	4650	7090	3130	6590	2330	6210	4680	1760	2510	1850	2460	3520
19	4680	7710	3100	6220	2360	6440	3830	2630	1880	1900	2650	3480
20	4680	7930	2900	6060	2160	5830	3700	2690	1760	1890	2660	3460
21	4600	9580	2650	6300	2020	6520	4350	2610	1750	1890	2670	3440
22	4690	16300	3240	6690	2250	7390	4150	2630	1740	1840	2760	3440
23	4740	16300	3580	6190	2470	7590	3640	2420	1720	1840	2600	3430
24	4750	14600	4480	5800	2510	6610	2830	2850	1700	1840	2120	3430
25	4750	10200	4210	5500	2000	6460	2130	3340	1700	1840	2440	3410
26	4760	9270	3420	4210	1910	6320	1970	3700	1690	1840	2770	3430
27	4780	10800	3020	3560	1840	6150	2580	4850	1650	1840	2990	3340
28	4570	12000	2100	3370	1780	6930	2550	6130	1620	1830	3230	3310
29	4420	11100	1900	3340	---	8750	1630	6130	1610	1830	3210	3310
30	4410	11000	2530	3190	---	10600	1530	5440	1620	1830	3370	3320
31	4400	---	3580	3610	---	10300	---	5170	---	1860	3760	---
TOTAL	121970	235550	124430	214860	83630	158780	138060	96780	79970	54970	74300	113510
MEAN	3935	7852	4014	6931	2987	5122	4602	3122	2666	1773	2397	3784
MAX	4780	16300	10700	14400	8260	10600	9190	6130				

COAST FORK WILLAMETTE RIVER BASIN

14153000 COTTAGE GROVE LAKE NEAR COTTAGE GROVE, OR

LOCATION.--Lat 43°43'00", long 123°02'55", in NE 1/4 sec.28, T.21 S., R.3 W., Lane County, Hydrologic Unit 17090002, in east abutment of dam on Coast Fork Willamette River 5.8 mi south of Cottage Grove, and at mile 29.7.

DRAINAGE AREA.--104 mi².

PERIOD OF RECORD.--October 1942 to current year. Prior to October 1971, published as Cottage Grove Reservoir near Cottage Grove.

REVISED RECORDS.--WSP 1218: 1950.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Elevations for Mar. 14-23 are readings at 0700 hours and were furnished by Corps of Engineers. Lake is formed by earthfill dam with concrete spillway completed by Corps of Engineers in 1942; storage began Oct. 31, 1942. Capacity, 32,930 acre-ft between elevation 719.0 ft, outlet conduit, and 791.0 ft, crest of spillway. Dead storage negligible. Reservoir used for flood control and improvement of navigation. Figures given herein represent total contents.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 36,750 acre-ft Dec. 24, 1964, elevation, 794.23 ft; minimum contents since first filling, no contents Sept. 26 to Oct. 19, 1966, and Nov. 14, 15, Nov. 20 to Dec. 8, 1969.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 32,130 acre-ft June 15, elevation, 790.30 ft; minimum contents, 2,980 acre-ft Dec. 12, elevation, 749.45 ft.

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

710.9	0	755	4,860	780	21,460
730	151	760	7,150	785	26,370
740	926	765	9,970	790	31,780
745	1,840	770	13,260	793	35,270
750	3,140	775	17,070		

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	774.50	752.03	750.65	750.90	753.54	767.02	776.87	786.05	790.07	789.89	788.65	786.87
2	773.98	752.00	750.34	750.55	753.76	767.58	777.33	786.28	790.10	789.87	788.65	786.80
3	773.46	752.72	750.09	750.81	753.81	767.98	777.66	786.39	790.18	789.84	788.65	786.73
4	772.94	753.22	749.94	750.08	753.63	768.38	777.92	786.52	790.21	789.80	788.65	786.65
5	772.40	753.37	750.01	749.97	753.74	769.48	778.15	786.64	790.19	789.76	788.65	786.58
6	771.86	754.11	750.24	750.76	754.14	771.19	778.33	786.75	790.16	789.71	788.65	786.49
7	771.31	754.17	750.20	750.74	754.52	771.08	778.77	786.84	790.15	789.67	788.46	786.42
8	770.75	753.63	749.90	751.06	754.87	770.93	779.29	786.92	790.18	789.62	788.23	786.35
9	770.19	752.52	749.74	755.69	755.21	770.77	779.80	787.02	790.22	789.58	788.17	786.27
10	769.61	751.91	749.65	765.45	755.53	770.64	780.24	787.13	790.24	789.54	788.11	786.19
11	768.96	751.74	749.50	761.07	755.85	770.55	780.63	787.21	790.25	789.50	788.04	786.10
12	768.16	751.93	749.48	756.35	756.21	770.68	780.98	787.29	790.25	789.45	787.96	786.01
13	767.34	752.23	749.54	755.76	756.57	771.67	781.30	787.35	790.24	789.40	787.89	785.93
14	766.51	752.25	749.72	754.79	756.94	772.05	781.59	787.41	790.28	789.36	787.81	785.85
15	765.65	752.47	749.99	753.60	757.28	773.01	781.86	787.45	790.29	789.31	787.73	785.77
16	764.78	753.99	750.23	753.08	758.04	773.12	782.11	787.49	790.22	789.31	787.64	785.58
17	763.89	755.75	750.43	752.74	760.09	773.59	782.33	787.55	790.14	789.30	787.56	784.98
18	762.99	753.13	750.62	752.07	761.86	774.22	782.54	787.62	790.10	789.28	787.49	784.00
19	762.07	751.83	750.89	750.96	762.84	774.56	782.75	787.67	790.09	789.25	787.41	782.85
20	761.03	751.99	751.43	750.61	763.28	774.43	782.94	787.71	790.10	789.22	787.33	781.69
21	759.91	753.39	753.53	751.28	763.46	775.01	783.13	787.74	790.09	789.18	787.26	780.50
22	758.75	756.55	755.83	750.31	764.21	775.69	783.32	787.80	790.06	789.13	787.29	779.54
23	757.58	756.20	756.45	750.28	765.13	775.04	783.54	787.97	790.04	789.09	787.30	778.76
24	756.30	752.33	755.93	750.34	765.60	775.16	783.76	788.29	790.02	789.02	787.29	777.89
25	754.99	750.82	754.67	750.57	765.75	775.35	784.38	788.56	789.99	788.96	787.24	776.99
26	753.84	750.67	753.79	751.31	765.97	775.45	784.87	788.78	789.97	788.89	787.17	776.30
27	753.11	750.69	753.12	751.84	766.24	775.74	785.20	789.18	789.94	788.84	787.11	775.95
28	752.80	752.10	752.25	752.21	766.60	776.81	785.45	789.73	789.91	788.78	787.04	775.22
29	752.60	750.38	751.22	752.45	---	776.85	785.67	790.06	789.93	788.71	786.98	774.37
30	752.39	750.29	752.01	752.68	---	776.67	785.87	790.15	789.91	788.65	786.97	773.53
31	752.17	---	751.65	753.06	---	776.75	---	790.14	---	788.64	786.93	---
MAX	774.50	756.55	756.45	765.45	766.60	776.85	785.87	790.15	790.29	789.89	788.65	786.87
MIN	752.17	750.29	749.48	749.97	753.54	767.02	776.87	786.05	789.91	788.64	786.93	773.53
(†)	3820	3220	3650	4130	10970	18550	27280	31940	31680	30260	28400	15890
(‡)	-13250	-600	+430	+480	+6840	+7580	+8730	+4660	-260	-1420	-1860	-12510

CAL YR 1988 MAX 792.43 MIN 749.35 AC-FT† +400
WTR YR 1989 MAX 790.29 MIN 749.48 AC-FT† -1180

† Contents, in acre-feet, at 2400, on last day of month.

‡ Change in contents, in acre-feet.

COAST FORK WILLAMETTE RIVER BASIN

91

14153500 COAST FORK WILLAMETTE RIVER BELOW COTTAGE GROVE DAM, OR

LOCATION.--Lat 43°43'15", long 123°02'55", in NE 1/4 sec.28, T.21 S., R.3 W., Lane County, Hydrologic Unit 17090002, on right bank at bridge 0.3 mi downstream from Cottage Grove Dam, 5.5 mi south of Cottage Grove, and at mile 29.4.

DRAINAGE AREA.--104 mi².

PERIOD OF RECORD.--January 1939 to current year. Prior to October 1944, published as "near Cottage Grove."

REVISED RECORDS.--WSP 1448: 1949(M).

GAGE.--Water-stage recorder. Datum of gage is 711.00 ft above National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Jan. 1 to Oct. 12, 1939, nonrecording gage and Oct. 13, 1939, to Sept. 30, 1944, water-stage recorder at several sites and datums 0.8 mi downstream.

REMARKS.--Records excellent. Flow regulated since 1942 by Cottage Grove Lake (station 14153000). Small diversions for irrigation upstream from station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--50 years, 271 ft³/s, 35.39 in/yr, 196,300 acre-ft/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,910 ft³/s Dec. 24, 1964, gage height, 11.83 ft; no flow July 5-7, 1945, and for part of Aug. 24, 1947.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,710 ft³/s Jan. 10, gage height, 8.31 ft; minimum discharge, 38 ft³/s Apr. 17-19, 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	225	53	276	590	186	113	512	40	177	49	52	52
2	224	53	306	456	189	114	437	40	90	49	52	52
3	225	54	251	385	197	115	429	40	53	49	52	52
4	227	72	205	518	209	115	375	40	79	49	52	52
5	227	93	154	481	137	167	331	40	90	49	52	52
6	227	94	125	314	83	507	296	40	90	49	51	51
7	225	105	152	374	83	764	145	40	67	49	52	50
8	225	222	171	317	83	590	67	40	46	49	52	50
9	223	302	142	731	83	548	46	40	46	48	51	50
10	222	240	127	1210	83	552	45	40	46	48	50	50
11	246	161	125	2580	84	480	44	40	52	48	50	50
12	294	162	102	1960	85	390	44	40	57	48	50	50
13	296	163	90	869	80	315	43	40	63	48	50	50
14	293	154	69	801	73	400	40	40	63	48	51	50
15	290	147	50	786	73	760	40	40	87	48	52	50
16	287	150	50	692	74	1030	40	40	101	48	53	106
17	284	628	50	615	77	852	40	40	100	46	53	322
18	281	946	50	609	153	788	38	40	65	43	53	516
19	279	509	50	600	314	873	39	40	48	42	53	584
20	301	242	51	442	328	592	39	40	48	42	53	578
21	311	386	101	371	328	551	39	40	48	43	53	572
22	307	1540	348	612	331	895	39	41	49	42	53	451
23	301	1670	620	438	336	713	39	41	49	48	53	361
24	296	1650	695	368	338	487	39	41	49	52	53	393
25	291	922	683	292	338	487	41	41	49	52	53	394
26	243	620	499	181	253	487	42	41	49	52	52	318
27	152	529	404	181	192	487	41	42	49	52	52	162
28	73	628	398	183	140	591	40	42	49	52	52	311
29	53	826	391	184	---	856	40	123	49	52	52	358
30	52	434	387	184	---	758	40	168	49	52	52	355
31	53	---	680	184	---	584	---	181	---	52	52	---
TOTAL	7233	13755	7802	18508	4930	16961	3490	1601	1957	1498	1611	6542
MEAN	233	458	252	597	176	547	116	51.6	65.2	48.3	52.0	218
MAX	311	1670	695	2580	338	1030	512	181	177	52	53	584
MIN	52	53	50	181	73	113	38	40	46	42	50	50
AC-FT	14350	27280	15480	36710	9780	33640	6920	3180	3880	2970	3200	12980
MEAN†	17.9	448	259	605	299	670	263	128	60.8	25.2	21.8	7.90
CFSM†	0.17	4.31	2.49	5.82	2.88	6.44	2.53	1.23	0.58	0.24	0.21	0.08
IN.†	0.20	4.81	2.87	6.70	3.00	7.43	2.82	1.41	0.65	0.28	0.24	0.08
AC-FT†	1100	26680	15910	37190	16620	41220	15650	7840	3620	1550	1340	470

CAL YR 1988 TOTAL 80709 MEAN 221 MAX 2430 MIN 45 AC-FT 160100 MEAN† 221 CFSM† 2.12 IN.† 28.94 AC-FT† 160500
WTR YR 1989 TOTAL 85888 MEAN 235 MAX 2580 MIN 38 AC-FT 170400 MEAN† 234 CFSM† 2.25 IN.† 30.51 AC-FT† 169200

† Adjusted for change in contents in Cottage Grove Lake.

COAST FORK WILLAMETTE RIVER BASIN

14154500 ROW RIVER ABOVE PITCHER CREEK, NEAR DORENA, OR

LOCATION.--Lat 43°44'10", long 122°52'20", in NE 1/4 sec.24, T.21 S., R.2 W., Lane County, Hydrologic Unit 17090002, on right bank 0.5 mi upstream from Pitcher Creek, 1.2 mi northwest of Dorena, and at mile 13.2.

DRAINAGE AREA.--211 mi².

PERIOD OF RECORD.--September 1935 to current year. Prior to October 1949, published as "at Star."

GAGE.--Water-stage recorder. Datum of gage is 856.16 ft above National Geodetic Vertical Datum of 1929. Sept. 16, 1935, to Oct. 17, 1938, nonrecording gage at site 450 ft upstream at datum 1.00 ft higher.

REMARKS.--Records excellent except for estimated daily discharges and those for period of backwater Oct. 1 to Nov. 3, which are fair. Slight regulation caused by upstream logponds. No diversion upstream from station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--54 years, 599 ft³/s, 38.55 in/yr, 434,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,100 ft³/s Dec. 22, 1964, gage height, 18.19 ft, from rating curve extended above 12,000 ft³/s, on basis of slope-area measurement of peak flow; minimum discharge, 10 ft³/s Sept. 24, 25, 1951, Oct. 7, 8, 1958.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 7,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	2130	8,650	9.82	Jan. 10	0130	*18,500	*13.35

Minimum discharge, 20 ft³/s Oct. 29 to Nov. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	23	889	751	1000	501	1420	398	472	76	36	74
2	30	44	750	798	740	528	1640	349	398	69	42	60
3	28	310	608	1280	579	461	1400	322	340	64	44	52
4	28	408	513	1500	474	441	1190	339	303	61	37	48
5	35	183	439	1280	422	1710	1150	352	261	57	34	43
6	36	723	466	902	393	3740	1140	351	230	55	32	40
7	32	361	447	690	362	2260	1090	319	203	53	30	37
8	29	238	367	618	339	1490	1000	284	182	51	29	35
9	27	178	333	4780	324	1450	877	295	168	50	31	33
10	25	353	344	9560	298	1800	792	391	154	52	32	30
11	24	477	315	2980	294	1500	664	384	140	50	30	29
12	23	635	280	1740	303	1270	620	323	130	47	28	27
13	24	639	271	1310	298	1520	609	278	124	44	26	26
14	24	475	246	1030	280	1400	622	246	132	45	25	25
15	24	429	210	e900	260	1990	569	221	168	48	25	24
16	22	759	185	e1100	391	2410	486	203	144	49	25	24
17	22	2000	166	e1400	1150	1770	441	195	121	70	24	25
18	22	956	152	e1500	1210	2080	438	205	107	58	24	31
19	22	567	169	e1300	1360	2270	468	190	100	52	24	32
20	22	970	219	e1400	1050	1600	436	168	105	48	23	29
21	21	2250	461	e1400	925	3430	391	158	97	48	23	27
22	22	6620	836	e1100	1620	2650	350	152	88	43	48	25
23	22	4310	719	e950	1860	1660	339	215	83	41	270	23
24	22	1830	580	e750	1240	1220	351	586	78	39	198	23
25	23	1460	467	626	938	1500	1080	685	73	36	98	22
26	22	1550	357	583	751	1340	1100	598	70	36	69	24
27	21	1320	305	709	627	1170	754	975	70	37	56	32
28	21	3080	272	632	548	2790	574	1640	68	36	48	32
29	20	1570	292	599	---	2530	476	1060	75	34	43	28
30	20	1020	1200	936	---	1730	429	757	93	35	127	30
31	20	---	1120	1150	---	1720	---	577	---	35	104	---
TOTAL	768	35738	13978	46254	20036	53931	22896	13216	4777	1519	1685	990
MEAN	24.8	1191	451	1492	716	1740	763	426	159	49.0	54.4	33.0
MAX	36	6620	1200	9560	1860	3740	1640	1640	472	76	270	74
MIN	20	23	152	583	260	441	339	152	68	34	23	22
AC-FT	1520	70890	27730	91740	39740	107000	45410	26210	9480	3010	3340	1960
CFSM	.12	5.65	2.14	7.07	3.39	8.25	3.62	2.02	.75	.23	.26	.16
IN.	.14	6.30	2.46	8.15	3.53	9.51	4.04	2.33	.84	.27	.30	.17

CAL YR 1988 TOTAL 197486 MEAN 540 MAX 8280 MIN 13 AC-FT 391700 CFSM 2.56 IN. 34.82
WTR YR 1989 TOTAL 215788 MEAN 591 MAX 9560 MIN 20 AC-FT 428000 CFSM 2.80 IN. 38.04

e Estimated

COAST FORK WILLAMETTE RIVER BASIN

93

14155000 DORENA LAKE NEAR COTTAGE GROVE, OR

LOCATION.--Lat 43°47'10", long 122°57'15", in SE 1/4 sec.32, T.20 S., R.2 W., Lane County, Hydrologic Unit 17090002, on left end of Dorena Dam on Row River, 5.0 mi east of Cottage Grove, and at mile 7.61.

DRAINAGE AREA.--265 mi².

PERIOD OF RECORD.--October 1949 to current year. Prior to October 1971, published as Dorena Reservoir near Cottage Grove.

REVISED RECORDS.--WRD OR-78-1: 1969.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Reservoir is formed by earthfill dam with concrete outlet and spillway, completed in 1949 by Corps of Engineers; controlled storage began Oct. 11, 1949. Capacity, 77,580 acre-ft between elevations 739.0 ft, sill of outlet gates, and 835.0 ft, crest of spillway. Dead storage, 18 acre-ft below elevation 739.0 ft. Reservoir used for flood control and improvement of navigation. Figures given herein represent total contents.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 95,550 acre-ft Dec. 23, 1964, elevation, 844.03 ft; minimum contents observed since first filling, 159 acre-ft Dec. 14, 1970, elevation, 743.60 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 74,560 acre-ft May 28, elevation, 833.37 ft; minimum contents, 6,240 acre-ft Jan. 1, elevation, 768.80 ft.

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

760	2,810	785	15,850	810	39,380	835	77,600
765	4,560	790	19,580	815	45,620	840	87,320
770	6,840	795	23,780	820	52,480		
775	9,540	800	28,490	825	60,060		
780	12,530	805	33,700	830	68,470		

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	810.09	770.75	770.55	770.00	777.72	797.24	812.64	825.47	831.39	832.27	830.16	829.08
2	809.26	770.54	770.39	771.94	777.16	797.94	812.97	825.73	831.70	832.22	830.09	829.00
3	808.41	771.50	770.48	773.54	777.32	798.33	813.12	825.97	832.02	832.17	830.01	828.88
4	807.58	773.16	770.51	773.44	778.31	798.81	813.54	826.21	832.29	832.10	829.94	828.76
5	806.74	773.57	770.42	771.83	778.99	801.54	814.13	826.52	832.50	832.04	829.87	828.62
6	805.89	775.87	770.83	771.13	779.67	806.45	814.81	826.87	832.62	831.97	829.80	828.36
7	805.04	776.47	771.25	770.83	780.41	806.93	815.58	827.20	832.74	831.91	829.73	828.12
8	804.15	775.97	770.88	771.47	781.03	806.82	816.32	827.45	832.83	831.82	829.67	827.92
9	803.29	775.08	770.82	783.79	781.61	806.82	816.95	827.75	832.93	831.75	829.60	827.72
10	802.35	774.96	771.19	805.47	782.15	806.48	817.56	828.15	833.01	831.69	829.52	827.51
11	801.34	775.66	771.30	803.38	782.68	805.28	818.01	828.54	833.08	831.63	829.45	827.31
12	800.17	776.04	771.12	798.46	783.25	804.74	818.50	828.84	833.12	831.55	829.36	827.10
13	799.01	775.57	770.89	794.00	783.80	805.58	819.02	829.08	833.17	831.48	829.28	826.88
14	797.70	774.73	770.54	788.19	784.29	806.03	819.52	829.28	833.23	831.41	829.20	826.66
15	796.23	775.05	770.53	781.10	784.70	806.63	819.95	829.45	833.26	831.33	829.12	826.44
16	794.72	776.46	770.75	776.94	785.48	807.96	820.26	829.60	833.25	831.31	829.02	825.98
17	793.16	779.48	770.88	775.46	787.92	808.49	820.60	829.75	833.21	831.31	828.94	824.97
18	791.55	775.33	770.92	773.91	789.02	809.17	821.01	829.93	833.12	831.26	828.85	823.38
19	789.89	773.56	771.12	772.06	790.21	809.53	821.47	830.06	833.04	831.20	828.76	821.63
20	788.17	773.73	771.60	771.31	790.37	809.04	821.92	830.17	832.95	831.13	828.67	819.84
21	786.39	776.05	773.24	770.79	790.17	811.81	822.28	830.28	832.87	831.05	828.60	818.02
22	784.58	788.76	775.43	771.61	792.31	811.46	822.59	830.38	832.76	830.98	828.63	816.50
23	782.62	792.16	775.80	771.37	794.15	810.16	822.91	830.60	832.64	830.90	828.91	815.32
24	780.55	786.33	775.06	771.17	793.94	809.80	823.24	831.24	832.52	830.81	829.07	814.13
25	778.38	778.15	773.72	771.12	793.86	810.29	824.61	831.98	832.44	830.73	829.10	812.92
26	776.30	774.04	772.58	771.72	794.58	810.53	825.42	832.29	832.40	830.64	829.10	812.09
27	775.09	772.77	771.75	773.31	795.51	810.73	825.36	832.81	832.35	830.56	829.08	811.80
28	774.06	776.47	771.38	774.42	796.44	813.90	825.24	833.08	832.31	830.46	829.04	811.10
29	772.95	773.16	771.42	775.08	---	815.08	825.31	832.32	832.31	830.38	828.99	810.07
30	771.80	770.69	772.56	775.95	---	813.97	825.31	831.35	832.30	830.29	829.05	809.07
31	771.05	---	770.36	777.14	---	813.15	---	831.10	---	830.23	829.08	---
MAX	810.09	792.16	775.80	805.47	796.44	815.08	825.42	833.08	833.26	832.27	830.16	829.08
MIN	771.05	770.54	770.36	770.00	777.16	797.24	812.64	825.47	831.39	830.23	828.60	809.07
(†)	7380	7190	7020	10780	25080	43240	60560	70430	72600	68880	66860	38290
(‡)	-33090	-190	-170	+3760	+14300	+18160	+17320	+9870	+2170	-3720	-2020	-28570

CAL YR 1988 MAX 833.77 MIN 770.27 AC-FT† -70
WTR YR 1989 MAX 833.26 MIN 770.00 AC-FT† -2180

† Contents, in acre-feet, at 2400, on last day of month.
‡ Change in contents, in acre-feet.

COAST FORK WILLAMETTE RIVER BASIN

14155500 ROW RIVER NEAR COTTAGE GROVE, OR

LOCATION.--Lat 43°47'35", long 122°59'25", in NE 1/4 sec.36, T.20 S., R.3 W., Lane County, Hydrologic Unit 17090002, on right bank 1.7 mi upstream from Mosby Creek, 2.1 mi downstream from Dorena Dam, 3.5 mi east of Cottage Grove, and at mile 5.5.

DRAINAGE AREA.--270 mi².

PERIOD OF RECORD.--January 1939 to current year. Prior to October 1947, published as "near Dorena."

GAGE.--Water-stage recorder. Datum of gage is 685.24 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Jan. 5 to Oct. 12, 1939, nonrecording gage at site 180 ft upstream at datum 1.00 ft higher.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since October 1949 by Dorena Lake (station 14155000). No diversion upstream from station.

AVERAGE DISCHARGE.--50 years, 750 ft³/s, 37.72 in/yr, 543,400 acre-ft/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,400 ft³/s Dec. 28, 1945, gage height, 18.20 ft; minimum discharge, 0.20 ft³/s Sept. 25 to Oct. 7, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,090 ft³/s Jan. 11, gage height, 8.27 ft; minimum discharge, 87 ft³/s June 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	523	106	1110	1080	994	255	2120	328	291	117	111	99
2	520	106	918	568	1040	347	1760	188	181	117	111	126
3	516	106	701	1080	671	393	1620	188	113	117	111	144
4	512	129	600	1740	264	338	1200	188	101	117	104	144
5	510	172	540	1930	264	560	991	147	101	117	94	166
6	505	181	439	1300	237	1520	888	104	143	117	94	227
7	501	251	419	951	188	2370	750	104	125	110	94	221
8	494	416	507	675	188	1840	650	104	109	114	94	192
9	488	453	397	1670	188	1700	568	104	109	109	94	192
10	494	390	319	2170	188	2210	487	104	109	109	94	192
11	539	344	338	5040	188	2420	442	104	109	109	94	192
12	601	562	358	4880	188	1840	369	104	111	109	94	192
13	601	871	358	3920	182	1450	328	104	114	109	94	192
14	641	766	358	3880	177	1550	328	104	145	109	94	192
15	696	373	249	3830	177	2050	328	104	175	109	94	192
16	701	464	184	2690	177	2300	328	104	188	110	94	363
17	690	1740	184	1910	375	1960	255	104	188	111	94	822
18	697	2530	184	1860	987	2210	192	105	188	111	94	1250
19	699	1170	184	1820	1100	2560	185	106	188	111	94	1350
20	704	1040	184	1770	1170	2360	174	106	188	111	94	1330
21	702	1670	233	1760	1180	2200	174	104	188	111	94	1320
22	690	3210	480	1370	939	3500	174	104	188	111	98	1070
23	706	4000	860	1220	1310	2930	174	104	188	111	99	794
24	707	4820	1010	1010	1570	1800	174	106	188	111	99	788
25	698	4770	1000	809	1160	1490	225	106	150	111	99	782
26	614	3090	781	592	595	1460	564	359	117	111	99	569
27	345	1950	616	465	357	1320	898	664	117	111	99	219
28	286	2640	472	465	255	1300	716	1580	117	111	99	464
29	281	2900	374	507	---	2240	476	1980	117	111	95	647
30	275	1840	1090	759	---	2900	476	1760	117	111	94	647
31	186	---	1890	928	---	2670	---	905	---	113	97	---
TOTAL	17122	43060	17337	54649	16309	56043	18014	10376	4463	3466	3013	15078
MEAN	552	1435	559	1763	582	1808	600	335	149	112	97.2	503
MAX	707	4820	1890	5040	1570	3500	2120	1980	291	117	111	1350
MIN	186	106	184	465	177	255	174	104	101	109	94	99
AC-FT	33960	85410	34390	108400	32350	111200	35730	20580	8850	6870	5980	29910
MEAN†	14.1	1432	557	1825	840	2104	892	495	185	51.2	64.4	22.5
CFSM†	0.05	5.30	2.06	6.76	3.11	7.79	3.30	1.83	0.69	0.19	0.24	0.08
IN.†	0.06	5.92	2.38	7.79	3.24	8.99	3.68	2.12	0.77	0.22	0.28	0.09
AC-FT†	870	85220	34220	112200	46650	129400	53050	30450	11020	3150	3960	1340

CAL YR 1988 TOTAL 241607 MEAN 660 MAX 4830 MIN 91 AC-FT 479200 MEAN† 660 CFSM† 2.44 IN.† 33.28 AC-FT† 479100
WTR YR 1989 TOTAL 258930 MEAN 709 MAX 5040 MIN 94 AC-FT 513600 MEAN† 706 CFSM† 2.61 IN.† 35.52 AC-FT† 511400

† Adjusted for change in contents in Dorena Lake.

COAST FORK WILLAMETTE RIVER BASIN

95

14157500 COAST FORK WILLAMETTE RIVER NEAR GOSHEN, OR

LOCATION.--Lat 43°58'50", long 122°57'55", in NW 1/4 sec.29, T.18 S., R.2 W., Lane County, Hydrologic Unit 17090002, on right bank at downstream side of bridge on State Highway 58, 2.5 mi southeast of Goshen, and at mile 6.4.

DRAINAGE AREA.--642 mi².

PERIOD OF RECORD.--August 1905 to February 1912, October 1950 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 1218: Drainage area. WSP 1248: 1905-12. WSP 1935: 1956.

GAGE.--Water-stage recorder. Datum of gage is 473.80 ft above National Geodetic Vertical Datum of 1929. Aug. 23, 1905, to Feb. 7, 1912, nonrecording gage at site 600 ft upstream at different datum.

REMARKS.--Records excellent except those for period of backwater Oct. 1 to Nov. 13, and for period of shifting control May 30 to Sept. 17, which are good. Flow regulated since 1942 by Cottage Grove Lake (station 14153000) and since 1949 by Dorena Lake (station 14155000). Several small diversions for logponds and irrigation upstream from station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--45 years (water years 1906-11, 1951-89), 1,626 ft³/s, 1,178,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58,500 ft³/s Nov. 22, 1909, gage height, 19.5 ft, site and datum then in use, from rating curve extended above 15,000 ft³/s; minimum discharge, 36 ft³/s Sept. 29, 30, Oct. 11, 12, 1908.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,600 ft³/s Jan. 10, gage height, 13.25 ft; minimum discharge, 130 ft³/s Aug. 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	740	192	2130	3180	1760	817	4040	688	721	192	192	172
2	730	199	1910	1980	1790	1080	3480	407	549	185	179	169
3	725	245	1540	2260	1540	1120	3230	384	296	185	179	200
4	731	396	1240	2980	894	996	2690	383	261	182	175	199
5	729	393	1090	3550	885	1770	2190	359	266	179	154	200
6	725	550	951	2850	885	4180	2010	276	275	178	149	232
7	717	493	854	2220	885	4790	1610	262	280	175	147	290
8	713	712	949	2030	885	3870	1340	252	220	171	147	232
9	700	927	871	4080	885	3140	1110	239	214	172	149	229
10	698	919	665	11700	884	3830	1010	263	211	173	148	228
11	715	730	652	10700	766	3860	882	263	207	171	144	240
12	888	911	663	8670	680	3410	795	249	207	165	143	253
13	897	1460	624	6730	668	3820	678	239	215	164	142	245
14	917	1400	605	6260	602	4210	649	227	232	164	141	239
15	991	855	498	5870	566	4730	626	221	305	167	141	238
16	999	1090	358	4990	640	6430	604	212	340	175	140	293
17	987	3720	346	3690	1410	5140	554	208	327	185	142	896
18	985	4430	337	3480	2410	5340	417	213	311	177	144	1690
19	992	2920	351	3280	2740	5390	416	215	265	172	144	1950
20	1000	1600	400	3060	2580	4720	387	207	260	167	144	1950
21	1030	2860	980	3250	2390	4290	382	200	257	167	145	1930
22	1020	8120	2320	3460	2490	5580	372	199	253	167	164	1770
23	1010	10000	3270	2800	2850	5270	385	221	251	163	195	1200
24	1020	8800	3370	2390	2960	3430	411	386	247	170	193	1230
25	1000	7230	2940	1920	2530	3310	683	405	241	163	178	1230
26	972	5590	2310	1520	1650	3020	1120	467	189	164	169	1160
27	593	3610	1730	1230	1200	3020	1390	985	185	166	162	474
28	398	4990	1620	1190	932	4200	1220	1930	185	166	159	585
29	346	5010	1350	1160	---	4880	822	2670	192	166	157	1060
30	336	3710	2170	1320	---	5260	772	2330	198	165	168	1060
31	314	---	4090	1650	---	4810	---	1760	---	170	175	---
TOTAL	24618	84062	43184	115450	41357	119713	36275	17320	8160	5326	4909	21844
MEAN	794	2802	1393	3724	1477	3862	1209	559	272	172	158	728
MAX	1030	10000	4090	11700	2960	6430	4040	2670	721	192	195	1950
MIN	314	192	337	1160	566	817	372	199	185	163	140	169
AC-FT	48830	166700	85660	229000	82030	237500	71950	34350	16190	10560	9740	43330

CAL YR 1988 TOTAL 492640 MEAN 1346 MAX 10800 MIN 129 AC-FT 977200
WTR YR 1989 TOTAL 522218 MEAN 1431 MAX 11700 MIN 140 AC-FT 1036000

MCKENZIE RIVER BASIN

14158500 MCKENZIE RIVER AT OUTLET OF CLEAR LAKE, OR

LOCATION.--Lat 44°21'40", long 121°59'40", in SE 1/4 sec.8, T.14 S., R.7 E., Linn County, Hydrologic Unit 17090004, Willamette National Forest, on west bank of Clear Lake in narrow channel, 150 ft upstream from outlet and at mile 89.6.

DRAINAGE AREA.--92.4 mi², hydrologic drainage boundary uncertain owing to ground-water exchange.

PERIOD OF RECORD.--June 1912 to September 1915, October 1947 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 1288: 1949. WSP 1318: 1915(M). WSP 1738: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,015.32 ft above National Geodetic Vertical Datum of 1929 (levels by Eugene Water and Electric Board). June 20, 1912, to July 31, 1915, nonrecording gage at site 1.0 mi north at different datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by natural storage in lake. At high stages an undetermined flow enters numerous sinkholes in lava rock along south edge of lake upstream from station.

AVERAGE DISCHARGE.--45 years, 463 ft³/s, 68.05 in/yr, 335,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,300 ft³/s Dec. 23, 1964, gage height, 8.15 ft; minimum discharge, 136 ft³/s Nov. 9-11, 1987.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,020 ft³/s Apr. 20, gage height, 4.13 ft; minimum discharge, 140 ft³/s Oct. 31, Nov. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	183	149	615	322	357	276	589	791	519	381	276	235
2	183	169	593	314	351	279	598	774	527	377	276	236
3	182	181	572	305	343	275	578	759	533	372	273	235
4	182	184	548	297	338	273	562	759	529	368	271	233
5	181	184	524	294	333	284	571	778	522	364	269	232
6	180	200	512	291	327	317	610	802	513	361	267	230
7	179	208	513	287	322	325	675	804	502	357	265	229
8	178	226	501	285	315	341	724	786	490	353	263	228
9	176	235	485	301	309	369	735	772	479	350	261	225
10	176	245	480	345	302	400	733	766	469	347	259	224
11	175	246	477	336	295	417	733	732	460	342	256	224
12	175	258	473	347	288	492	761	701	454	339	254	222
13	174	267	471	366	280	644	815	679	449	336	252	221
14	173	276	471	376	274	617	870	661	443	332	251	220
15	173	291	464	384	267	593	910	644	437	328	250	219
16	171	303	453	391	268	585	906	627	429	326	250	218
17	170	307	435	399	264	574	905	612	423	323	249	216
18	169	304	422	399	262	588	920	597	416	315	247	215
19	169	305	415	399	263	581	980	574	410	311	245	214
20	167	312	410	397	259	558	1010	552	408	308	245	212
21	166	337	407	400	259	601	980	537	403	304	243	210
22	166	425	401	399	263	646	920	525	401	301	249	209
23	165	534	395	394	267	618	882	522	398	298	245	208
24	164	621	388	390	268	590	869	521	395	296	242	207
25	163	591	377	387	270	618	854	514	393	294	242	206
26	163	550	367	382	272	641	856	508	391	292	241	205
27	162	552	359	378	274	626	834	515	390	290	240	204
28	157	690	350	372	274	624	815	533	387	287	240	203
29	148	685	345	366	---	615	801	532	386	284	240	201
30	142	643	347	360	---	594	798	524	384	282	241	202
31	140	---	334	360	---	592	---	519	---	279	237	---
TOTAL	5252	10478	13904	11023	8164	15553	23794	19920	13340	10097	7839	6543
MEAN	169	349	449	356	292	502	793	643	445	326	253	218
MAX	183	690	615	400	357	646	1010	804	533	381	276	236
MIN	140	149	334	285	259	273	562	508	384	279	237	201
AC-FT	10420	20780	27580	21860	16190	30850	47200	39510	26460	20030	15550	12980
CFSM	1.83	3.78	4.85	3.85	3.16	5.43	8.58	6.95	4.81	3.52	2.74	2.36
IN.	2.11	4.22	5.60	4.44	3.29	6.26	9.58	8.02	5.37	4.07	3.16	2.63

CAL YR 1988 TOTAL 134910 MEAN 369 MAX 690 MIN 140 AC-FT 267600 CFSM 3.99 IN. 54.31
WTR YR 1989 TOTAL 145907 MEAN 400 MAX 1010 MIN 140 AC-FT 289400 CFSM 4.33 IN. 58.74

MCKENZIE RIVER BASIN

97

14158790 SMITH RIVER ABOVE SMITH RIVER RESERVOIR, NEAR BELKNAP SPRINGS, OR

LOCATION.--Lat 44°20'05", long 122°02'45", in SW 1/4 SW 1/4 sec.24, T.14 S., R.6 E., Linn County, Hydrologic Unit 17090004, in Willamette National Forest, on right bank 200 ft upstream from Smith River Reservoir, 0.7 mi downstream from Browder Creek, 10 mi north of town of Belknap Springs, and at mile 4.4.

DRAINAGE AREA.--16.2 mi².

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

REVISED RECORDS.--WDR OR 80-2: 1978(P).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2,610.00 ft above National Geodetic Vertical Datum of 1929 (levels by Eugene Water and Electric Board). Prior to Sept. 10, 1964, at datum 1.56 ft higher.

REMARKS.--Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--29 years, 90.3 ft³/s, 75.70 in/yr, 65,420 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,160 ft³/s Dec. 22, 1964, gage height, 11.9 ft, from floodmark, from rating curve extended above 560 ft³/s, on basis of slope-area measurement of peak flow; minimum discharge, 2.5 ft³/s Sept. 15-18, 1980.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	1730	*1,250	*8.06	No other peak greater than base discharge.			
Minimum discharge, 3.4 ft ³ /s Oct. 28 to Nov. 1.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	5.6	137	40	111	54	156	180	94	17	8.7	5.7
2	4.4	29	122	41	90	50	168	171	102	16	12	5.6
3	4.2	96	110	52	e81	44	136	167	99	15	9.1	5.4
4	4.1	112	106	61	e73	42	131	198	92	14	8.3	5.2
5	4.3	73	104	59	e65	137	180	241	83	14	7.9	5.0
6	4.1	127	151	54	e58	527	264	263	75	13	7.7	4.9
7	4.0	70	175	49	e51	321	348	252	65	12	7.6	4.8
8	3.9	54	149	45	e46	214	370	218	58	12	7.6	4.6
9	3.7	47	150	225	e42	224	336	212	53	12	7.3	4.6
10	3.7	117	157	374	e38	300	298	185	47	12	6.8	4.4
11	3.7	105	150	192	36	294	289	148	44	11	6.7	4.4
12	3.7	150	142	138	33	282	322	118	42	11	6.6	4.2
13	3.7	115	156	113	31	260	361	101	40	11	6.4	4.1
14	4.8	83	129	92	29	198	404	92	41	10	6.3	4.0
15	5.0	80	104	79	27	164	389	86	43	10	6.2	4.0
16	4.4	112	86	87	28	154	338	87	37	12	6.1	4.0
17	4.0	97	74	109	32	137	319	88	33	14	6.1	4.0
18	3.9	70	64	107	48	183	342	82	30	11	6.0	4.2
19	3.9	64	58	100	77	166	399	72	29	10	5.9	4.0
20	3.8	99	53	97	64	144	373	67	32	9.9	5.9	3.9
21	3.7	417	49	97	62	256	291	64	28	9.7	6.0	3.8
22	3.8	1050	44	88	85	233	223	61	26	9.4	14	3.7
23	3.7	608	41	77	100	187	184	68	24	9.2	12	3.7
24	3.7	305	38	69	83	168	170	73	23	8.9	8.0	3.7
25	3.5	202	34	61	73	276	167	91	22	8.6	7.0	4.1
26	3.5	146	31	57	65	242	177	81	20	8.5	6.4	4.4
27	3.5	216	30	56	60	205	168	115	19	8.4	6.0	4.4
28	3.4	331	28	53	56	199	165	113	18	8.2	5.8	4.2
29	3.4	214	29	52	---	176	168	101	18	8.0	5.8	4.0
30	3.4	163	60	63	---	150	179	90	19	7.9	7.3	5.3
31	3.4	---	46	120	---	165	---	87	---	7.9	6.1	---
TOTAL	120.8	5357.6	2807	2907	1644	6152	7815	3972	1356	341.6	229.6	132.3
MEAN	3.90	179	90.5	93.8	58.7	198	260	128	45.2	11.0	7.41	4.41
MAX	5.0	1050	175	374	111	527	404	263	102	17	14	5.7
MIN	3.4	5.6	28	40	27	42	131	61	18	7.9	5.8	3.7
AC-FT	240	10630	5570	5770	3260	12200	15500	7880	2690	678	455	262
CFSM	.24	11.0	5.59	5.79	3.62	12.3	16.1	7.91	2.79	.68	.46	.27
IN.	.28	12.30	6.45	6.68	3.78	14.13	17.95	9.12	3.11	.78	.53	.30

CAL YR 1988	TOTAL 29203.1	MEAN 79.8	MAX 1050	MIN 2.9	AC-FT 57920	CFSM 4.93	IN. 67.06
WTR YR 1989	TOTAL 32834.9	MEAN 90.0	MAX 1050	MIN 3.4	AC-FT 65130	CFSM 5.55	IN. 75.40

e Estimated

MCKENZIE RIVER BASIN

14158795 SMITH RIVER RESERVOIR NEAR BELKNAP SPRINGS, OR

LOCATION.--Lat 44°18'20", long 122°02'40", in SW 1/4 SW 1/4 sec.36, T.14 S., R.6 E., Linn County, Hydrologic Unit 17090004, Willamette National Forest, in intake tower near left end of Smith River Dam on Smith River, 800 ft upstream from Bunchgrass Creek, 8 mi north of town of Belknap Springs, and at mile 2.1.

DRAINAGE AREA.--18.2 mi²

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

REVISED RECORDS.--WDR OR-86-2: 1985.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Eugene Water and Electric Board).

REMARKS.--Reservoir is formed by earthfill dam with concrete spillway completed in 1963 by Eugene Water and Electric Board; storage began Mar. 18, 1963. Total capacity is 15,000 acre-ft at elevation 2,605.0 ft, top of spillway gates, and usable capacity is 9,900 acre-ft between elevations 2,525.0 ft, minimum power pool, and 2,605.0 ft. Storage of 5,100 acre-ft, below elevation 2,525.0 ft, not normally available for release. Water used for power generation. Figures herein represent total contents.

COOPERATION.--Elevations and area-volume curves furnished by Eugene Water and Electric Board.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 15,200 acre-ft Dec. 22, 1964, elevation, 2,606.5 ft; minimum contents, 5,700 acre-ft Apr. 11, 14, 1964, elevation, 2,532.90 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 14,780 acre-ft Oct. 31, elevation, 2,603.98 ft; minimum contents, 12,180 acre-ft Jan. 19, elevation, 2,587.68 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	2,602.49	14,520	--
Oct. 31.....	2,600.25	14,140	-380
Nov. 30.....	2,593.71	13,090	-1,050
Dec. 31.....	2,591.87	12,800	-290
CAL YR 1988.....	--	--	-830
Jan. 31.....	2,589.50	12,430	-370
Feb. 28.....	2,589.24	12,390	-40
Mar. 31.....	2,596.91	13,610	+1,220
Apr. 30.....	2,599.65	14,040	+430
May 31.....	2,599.10	13,960	-80
June 30.....	2,600.17	14,130	+170
July 31.....	2,600.18	14,130	0
Aug. 31.....	2,600.06	14,110	-20
Sept. 30.....	2,600.58	14,200	+90
WTR YR 1989.....	--	--	-320

MCKENZIE RIVER BASIN

99

14158850 MCKENZIE RIVER BELOW TRAIL BRIDGE DAM, NEAR BELKNAP SPRINGS, OR

LOCATION.--Lat 44°16'05", long 122°02'55", in T.15 S., R.6 E., (unsurveyed), Linn County, Hydrologic Unit 17090004, in Willamette National Forest, on left bank 0.4 mi downstream from Trail Bridge Dam, 0.5 mi upstream from Anderson Creek, 5 mi north of town of Belknap Springs, and at mile 81.5.

DRAINAGE AREA.--184 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 1,980.00 ft above National Geodetic Vertical Datum of 1929 (levels by Eugene Water and Electric Board). Prior to Oct. 11, 1963, at datum 5.60 ft higher.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated since 1963 by Smith River Reservoir (station 14158795). Diurnal fluctuations by powerplants and by Trail Bridge re-regulating reservoir upstream. Water is diverted from McKenzie River in SW 1/4 sec.20, T.14 S., R.7 E., to Smith River Reservoir and returned to river upstream from station.

AVERAGE DISCHARGE.--30 years, 1,020 ft³/s, 75.28 in/yr, 739,000 acre-ft/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,200 ft³/s Dec. 22, 1964, gage height, 12.45 ft, from rating curve extended above 3,700 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 185 ft³/s Feb. 3, 1963; minimum daily, 425 ft³/s Nov. 23, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,640 ft³/s Nov. 22, gage height, 8.43 ft; minimum discharge, 542 ft³/s Oct. 29 to Nov. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	581	557	1280	818	e995	e801	1310	1480	1070	842	689	675
2	582	664	1250	802	e950	e787	1330	1470	1100	820	721	661
3	586	774	1220	836	e913	e794	1300	1460	1110	818	724	656
4	587	775	1190	840	e913	e794	1270	1440	1100	819	724	641
5	588	687	1110	803	e900	e774	1270	1510	1070	820	718	643
6	589	774	1180	788	e875	e1490	1290	1510	1050	808	688	661
7	587	748	1170	795	e850	1200	1400	1520	1060	789	686	664
8	584	765	1170	799	e821	1110	1500	1490	1040	788	684	664
9	579	771	1110	1120	e800	1050	1490	1490	990	788	685	659
10	580	833	1100	1450	e780	1190	1530	1450	984	787	685	635
11	578	789	1090	1030	e787	1200	1510	1400	985	788	688	629
12	585	875	1080	1010	e734	1200	1520	1350	973	789	687	628
13	581	841	1100	1030	e721	1340	1590	1330	946	777	697	634
14	579	789	1070	963	e747	1340	1620	1280	945	778	689	652
15	591	804	1000	990	e734	1280	1700	1260	936	765	690	637
16	587	894	992	1070	e734	1280	1690	1260	865	764	659	634
17	581	895	977	1100	e728	1220	1650	1230	917	782	662	636
18	573	835	944	997	e747	1310	1660	1220	918	778	671	626
19	581	779	916	1020	e870	1310	1750	1200	918	732	682	624
20	582	869	917	997	e814	1260	1760	1170	912	756	690	621
21	584	1260	927	979	e787	1390	1720	1150	843	749	683	628
22	586	2110	936	990	e787	1380	1660	1120	865	737	703	634
23	599	1720	913	980	e787	1300	1570	1130	864	733	694	633
24	603	1470	898	916	e849	1270	1560	1140	864	725	692	629
25	602	1380	884	941	e849	1370	1530	1140	865	730	677	619
26	602	1270	837	942	e849	1340	1540	1090	855	735	663	621
27	613	1300	834	942	e808	1330	1510	1130	845	731	657	618
28	567	1490	825	902	e801	1350	1500	1120	850	732	656	619
29	559	1360	831	856	---	1360	1500	1130	838	731	667	622
30	551	1310	925	e835	---	1310	1480	1110	852	718	690	624
31	548	---	903	e950	---	1330	---	1090	---	702	684	---
TOTAL	18075	30388	31579	29491	22930	37460	45710	39870	28430	23811	21285	19127
MEAN	583	1013	1019	951	819	1208	1524	1286	948	768	687	638
MAX	613	2110	1280	1450	995	1490	1760	1520	1110	842	724	675
MIN	548	557	825	788	721	774	1270	1090	838	702	656	618
AC-FT	35850	60270	62640	58500	45480	74300	90670	79080	56390	47230	42220	37940
MEAN†	577	995	1014	945	818	1228	1531	1285	951	768	686	639
CFSM†	3.14	5.41	5.51	5.14	4.45	6.67	8.32	6.98	5.17	4.17	3.73	3.47
IN.†	3.62	6.04	6.36	5.93	4.63	7.70	9.29	8.05	5.77	4.81	4.30	3.88
AC-FT†	35470	59220	62350	58130	45440	75520	91100	79000	56560	47230	42200	38030

CAL YR 1988 TOTAL 333323 MEAN 911 MAX 2110 MIN 548 AC-FT 661100 MEAN† 910 CFSM† 4.95 IN.† 67.30 AC-FT† 660300
WTR YR 1989 TOTAL 348156 MEAN 954 MAX 2110 MIN 548 AC-FT 690600 MEAN† 953 CFSM† 5.18 IN.† 70.36 AC-FT† 690300

e Estimated

† Adjusted for change in contents in Smith River Reservoir.

MCKENZIE RIVER BASIN

14159000 MCKENZIE RIVER AT MCKENZIE BRIDGE, OR

LOCATION.--Lat 44°10'45", long 122°07'45", on line between NE 1/4 and NW 1/4 sec.18, T.16 S., R.6 E., Lane County, Hydrologic Unit 17090004, Willamette National Forest, on left bank 1.0 mi upstream from Glen Creek, 1.7 mi east of town of McKenzie Bridge, and at mile 69.9.

DRAINAGE AREA.--348 mi² at cableway 1.2 mi upstream, where all discharge measurements are made.

PERIOD OF RECORD.--August 1910 to current year. Monthly discharge only for some periods, published in WSP 1318. Published as "near McKenzie Bridge" August 1910 to September 1911 and October 1914 to September 1916.

REVISED RECORDS.--WSP 1248: 1911-16, 1920-25. WSP 1448: 1919. WSP 1638: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,419.04 ft above National Geodetic Vertical Datum of 1929. Prior to June 2, 1932, nonrecording gage at several sites within 2 mi of present site at various datums.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated since March 1963 by Smith River Reservoir (Carmen-Smith Project) 12 mi upstream (station 14158795). No diversion upstream from station. All records given herein are for measuring site.

AVERAGE DISCHARGE.--79 years, 1,683 ft³/s, 1,219,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,100 ft³/s Dec. 22, 1964, gage height, 10.36 ft, from rating curve extended above 7,100 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 805 ft³/s Oct. 20, 1931.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,390 ft³/s Nov. 22, gage height, 4.00 ft; minimum daily discharge, 953 ft³/s Oct. 31.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	994	965	2090	1430	e1750	e1520	2330	2220	1680	1400	1170	1080
2	995	1130	2020	1430	e1680	e1510	2410	2190	1730	1380	1230	1070
3	996	1350	1920	1490	e1670	e1480	2310	2170	1730	1370	1210	1050
4	999	1480	1870	1520	e1670	e1460	2240	2190	1710	1370	1200	1040
5	1000	1270	1760	1490	e1650	e1660	2280	2300	1670	1360	1180	1040
6	1010	1450	1890	1460	e1570	e2970	2370	2330	1640	1350	1150	1050
7	993	1320	1920	1440	e1490	e2440	2560	2310	1630	1330	1140	1060
8	995	1320	1880	1450	e1460	e2150	2690	2250	1610	1330	1140	1060
9	990	1320	1810	2770	e1420	e2090	2620	2260	1580	1330	1130	1050
10	984	1470	1790	3540	e1410	e2320	2600	2190	1560	1330	1130	1030
11	981	1460	1760	2270	e1390	e2330	2520	2080	1560	1330	1130	1000
12	983	1580	1740	1990	e1360	e2320	2560	1980	1530	1340	1130	1000
13	989	1520	1750	e1960	e1340	e2480	2650	1960	1510	1330	1130	1010
14	988	1400	1690	e1780	e1330	e2370	2720	1890	1510	1330	1130	1040
15	1000	1400	1620	e1750	e1330	e2270	2790	1870	1520	1310	1130	1040
16	1000	1510	1590	e1850	e1360	e2270	2700	1870	1430	1320	1090	1020
17	998	1540	1570	e1940	e1400	e2160	2610	1850	1460	1340	1090	1020
18	981	1450	1520	e1840	e1450	e2360	2640	1820	1460	1320	1100	1020
19	985	1380	1490	e1860	e1610	e2350	2800	1790	1460	1270	1100	1010
20	986	1530	1490	e1810	e1580	e2250	2790	1750	1460	1280	1120	1000
21	992	2220	1500	e1810	e1550	e2610	2650	1730	1400	1280	1100	1010
22	992	4300	1520	e1780	e1640	e2540	2490	1690	1410	1270	1180	1010
23	997	3520	1490	e1720	e1680	2340	2360	1720	1400	1260	1190	1010
24	1010	2560	1460	e1660	e1660	2250	2330	1760	1410	1240	1140	1010
25	1010	2290	1450	e1670	e1640	2460	2320	1770	1410	1230	1120	996
26	1010	2090	1390	e1660	e1580	2410	2350	1720	1400	1240	1090	997
27	1010	2130	1380	e1660	e1550	2330	2270	1790	1400	1220	1080	993
28	980	2810	1370	e1630	e1520	2400	2240	1780	1400	1190	1070	990
29	970	2370	1390	e1560	---	2390	2240	1770	1400	1200	1080	996
30	962	2200	1550	e1570	---	2290	2240	1740	1410	1190	1110	1010
31	953	---	1520	e1800	---	2350	---	1710	---	1180	1100	---
TOTAL	30733	54335	51190	55590	42740	69130	74680	60450	45480	40220	35090	30712
MEAN	991	1811	1651	1793	1526	2230	2489	1950	1516	1297	1132	1024
MAX	1010	4300	2090	3540	1750	2970	2800	2330	1730	1400	1230	1080
MIN	953	965	1370	1430	1330	1460	2240	1690	1400	1180	1070	990
AC-FT	60960	107800	101500	110300	84770	137100	148100	119900	90210	79780	69600	60920

CAL YR 1988 TOTAL 573616 MEAN 1567 MAX 4300 MIN 953 AC-FT 1138000
WTR YR 1989 TOTAL 590350 MEAN 1617 MAX 4300 MIN 953 AC-FT 1171000

e Estimated

MCKENZIE RIVER BASIN

101

14159400 COUGAR LAKE NEAR RAINBOW, OR

LOCATION.--Lat 44°07'40", long 122°14'25", in SE 1/4 SE 1/4 sec.31, T.16 S., R.5 E., Lane County, Hydrologic Unit 17090004, Willamette National Forest, in intake tower near left end of Cougar Dam on South Fork McKenzie River, 2.7 mi south of Rainbow, and at mile 4.5.

DRAINAGE AREA.--207 mi².

PERIOD OF RECORD.--October 1963 to current year. Prior to October 1971, published as Cougar Reservoir near Rainbow.

GAGE.--Water-stage recorder. Datum gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Lake is formed by earthfill dam with concrete spillway completed in 1963 by the Corps of Engineers; storage began September 1963. Total capacity is 219,100 acre-ft at elevation 1,699 ft, maximum pool, and usable capacity is 164,800 acre-ft between elevations 1,516 ft, minimum power pool, and 1,699 ft. Lake used for flood control and power generation. Figures given herein represent total contents.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 214,100 acre-ft June 29, 1977, elevation, 1,695.06 ft; minimum contents, 33,690 acre-ft Oct. 31 to Nov. 2, 1965, elevation, 1,475.40 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 208,800 acre-ft June 4, elevation, 1,690.83 ft; minimum contents, 63,490 acre-ft Dec. 29, elevation, 1,531.34 ft.

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

1,510	50,920	1,650	162,300
1,550	75,940	1,696	215,300
1,600	114,800		

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1604.83	1555.79	1567.60	1532.97	1549.02	1553.76	1640.48	1678.26	1690.40	1690.02	1678.67	1649.93
2	1603.04	1555.27	1566.16	1533.41	1548.70	1555.00	1642.24	1679.54	1690.59	1689.86	1678.11	1648.78
3	1601.23	1555.58	1564.56	1534.27	1547.83	1555.95	1643.01	1680.85	1690.78	1689.68	1677.49	1647.60
4	1599.41	1555.91	1562.79	1535.42	1546.70	1556.91	1644.19	1682.49	1690.82	1689.48	1676.84	1646.39
5	1597.74	1554.97	1560.88	1534.99	1545.46	1560.40	1645.57	1684.14	1690.77	1689.27	1676.20	1645.17
6	1596.22	1555.12	1559.45	1534.16	1544.09	1568.83	1647.63	1685.62	1690.65	1689.04	1675.54	1643.92
7	1594.30	1554.23	1558.19	1532.97	1542.58	1574.28	1650.26	1686.90	1690.48	1688.81	1674.90	1642.69
8	1592.37	1552.84	1556.53	1533.01	1540.97	1577.96	1653.07	1688.27	1690.27	1688.56	1674.18	1641.36
9	1590.39	1550.87	1554.80	1546.70	1539.27	1581.94	1655.64	1689.67	1690.06	1688.33	1673.37	1640.00
10	1588.38	1550.11	1553.08	1555.35	1537.51	1586.68	1657.91	1689.99	1690.13	1688.08	1672.54	1638.63
11	1586.33	1550.05	1551.20	1557.98	1535.66	1591.36	1659.84	1689.87	1690.44	1687.83	1671.57	1637.22
12	1584.26	1550.94	1549.74	1559.10	1533.79	1595.79	1661.79	1689.97	1690.71	1687.57	1670.50	1635.82
13	1582.14	1551.32	1549.11	1559.59	1532.47	1600.49	1664.01	1690.11	1690.80	1687.31	1669.42	1634.36
14	1580.96	1550.90	1548.17	1559.48	1532.67	1603.83	1666.51	1690.14	1690.77	1687.06	1668.32	1632.89
15	1580.22	1550.11	1547.01	1559.31	1533.11	1606.97	1668.89	1690.13	1690.72	1686.79	1667.23	1631.41
16	1579.45	1549.42	1545.62	1559.21	1534.05	1609.54	1670.88	1690.29	1690.52	1686.61	1666.13	1629.92
17	1578.57	1549.05	1544.09	1559.28	1535.54	1611.02	1671.83	1690.54	1690.23	1686.44	1665.02	1628.45
18	1577.74	1548.19	1542.45	1559.30	1537.81	1612.88	1672.30	1690.59	1690.10	1686.21	1663.90	1626.94
19	1576.84	1547.15	1540.80	1558.25	1540.71	1614.67	1673.06	1690.42	1690.18	1685.95	1662.77	1625.40
20	1575.29	1546.72	1539.21	1557.56	1543.11	1615.62	1673.71	1690.18	1690.29	1685.67	1661.62	1623.86
21	1572.99	1548.51	1537.71	1555.77	1545.26	1619.36	1674.01	1690.04	1690.35	1685.39	1660.49	1622.30
22	1570.65	1557.72	1536.26	1554.25	1548.48	1622.47	1673.91	1690.21	1690.45	1685.10	1659.77	1620.70
23	1568.23	1564.39	1534.67	1552.30	1551.29	1624.53	1674.11	1690.58	1690.51	1684.80	1659.23	1619.01
24	1565.75	1566.59	1532.89	1550.07	1551.74	1626.08	1674.56	1690.72	1690.51	1684.50	1658.35	1617.35
25	1563.26	1567.69	1531.62	1547.67	1551.24	1628.10	1675.31	1690.56	1690.52	1684.20	1657.37	1615.58
26	1561.61	1568.18	1531.51	1545.97	1550.43	1629.80	1675.97	1690.10	1690.52	1683.70	1656.35	1613.85
27	1560.65	1569.24	1531.46	1546.07	1551.13	1631.20	1676.42	1690.18	1690.48	1683.09	1655.30	1612.44
28	1559.68	1571.30	1531.40	1546.50	1552.46	1633.34	1676.72	1690.30	1690.39	1682.27	1654.19	1610.73
29	1558.70	1570.21	1531.51	1547.01	---	1635.32	1676.96	1690.27	1690.28	1681.31	1653.11	1609.00
30	1557.72	1568.90	1532.35	1547.47	---	1637.36	1677.24	1690.22	1690.18	1680.32	1652.15	1607.31
31	1556.72	---	1532.81	1548.57	---	1638.97	---	1690.29	---	1679.40	1651.06	---
MAX	1604.83	1571.30	1567.60	1559.59	1552.46	1638.97	1677.24	1690.72	1690.82	1690.02	1678.67	1649.93
MIN	1556.72	1546.72	1531.40	1532.97	1532.47	1553.76	1640.48	1678.26	1690.06	1679.40	1651.06	1607.31
(†)	80680	89640	64420	74940	77660	151000	192400	208100	208000	195000	163400	121100
(‡)	-39820	+8960	-25220	+10520	+2720	+73340	+41400	+15700	-100	-13000	-31600	-42300

CAL YR 1988 MAX 1690.97 MIN 1531.40 AC-FT† -2720

WTR YR 1989 MAX 1690.82 MIN 1531.40 AC-FT† +600

† Contents in acre-feet, at 2400, on last day of month.

‡ Change in contents, in acre-feet.

MCKENZIE RIVER BASIN

14159500 SOUTH FORK MCKENZIE RIVER NEAR RAINBOW, OR

LOCATION.--Lat 44°08'10", long 122°14'50", in NE 1/4 sec.31, T.16 S., R.5 E., Lane County, Hydrologic Unit 17090004, in Willamette National Forest, on right bank 0.2 mi upstream from Cougar Creek, 0.6 mi downstream from Cougar Dam, 2.1 mi south of Rainbow, and at mile 3.9.

DRAINAGE AREA.--208 mi².

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1638: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,236.42 ft above National Geodetic Vertical Datum of 1929 (Federal Highway Administration bench mark). Oct. 1 to Nov. 4, 1947, nonrecording gage at site 40 ft upstream at datum 0.80 ft higher.

REMARKS.--No estimated daily discharges. Water-discharge records good. Flow regulated since 1963 by Cougar Lake (station 14159400), usable capacity, 165,000 acre-ft. No diversion upstream from station.

AVERAGE DISCHARGE.--42 years, 858 ft³/s, 56.02 in/yr, 621,600 acre-ft/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,600 ft³/s Dec. 11, 1956, gage height, 8.66 ft, from rating curve extended above 8,100 ft³/s; maximum gage height, 8.90 ft Dec. 22, 1955 (backwater from debris); minimum discharge, 17 ft³/s Nov. 18, 1965; minimum daily, 85 ft³/s Apr. 26-28, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 24,500 ft³/s Dec. 28, 1945, gage height, 8.8 ft, from floodmarks, at Corps of Engineers gage at site 40 ft upstream at datum 0.80 ft higher; gage height at present site and datum, about 9.3 ft, computed by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,990 ft³/s Nov. 28, gage height, 3.14 ft; minimum discharge, 188 ft³/s Mar. 2; minimum daily, 298 ft³/s Mar. 2, 4, 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	919	512	1520	531	918	301	832	484	829	428	677	808
2	929	518	1500	534	1020	298	834	313	825	428	607	812
3	923	526	1490	535	1040	304	829	314	826	427	607	816
4	869	709	1480	688	1040	298	837	318	886	428	604	814
5	848	792	1480	985	1030	307	815	481	913	430	605	820
6	888	794	1480	1020	1030	308	813	699	909	431	604	817
7	949	790	1480	1010	1030	298	815	812	867	432	604	816
8	949	962	1480	684	1030	321	809	664	831	431	650	844
9	952	1070	1480	701	1010	304	801	702	783	431	682	861
10	968	895	1490	736	1010	307	807	1290	566	434	682	861
11	969	712	1480	1050	1010	306	804	1280	425	432	746	865
12	970	716	1240	1030	1010	308	803	929	424	431	789	866
13	833	719	1030	1030	1000	311	792	823	531	431	791	864
14	492	799	1030	1020	845	305	793	829	585	430	790	877
15	490	874	1030	1030	435	379	791	828	638	429	788	878
16	492	880	1030	1030	318	640	787	699	654	432	787	878
17	496	890	1030	1030	314	886	1250	693	652	430	791	880
18	505	887	1020	1020	316	882	1570	801	519	430	793	887
19	532	885	1010	1020	318	879	1580	826	427	432	792	888
20	992	886	1010	1510	319	874	1580	831	428	435	793	886
21	1010	1030	1000	1520	311	875	1510	770	407	438	795	885
22	1030	1090	1000	1530	312	868	1480	604	369	435	795	889
23	1040	1050	1010	1510	329	859	1090	570	370	436	784	894
24	1050	1030	1020	1510	747	847	860	740	382	436	788	897
25	1040	1030	862	1500	1060	843	856	1040	382	433	789	905
26	572	1030	480	1510	1070	846	854	1100	383	539	781	921
27	519	1040	432	1090	813	839	854	1030	381	595	787	947
28	518	1720	435	554	299	844	854	1030	406	697	796	941
29	521	1980	439	555	---	844	854	1030	427	772	792	948
30	524	1630	487	558	---	837	856	906	426	774	803	953
31	521	---	528	895	---	832	---	834	---	749	814	---
TOTAL	24310	28446	33483	30926	20984	18150	29010	24270	17451	14916	22906	26218
MEAN	784	948	1080	998	749	585	967	783	582	481	739	874
MAX	1050	1980	1520	1530	1070	886	1580	1290	913	774	814	953
MIN	490	512	432	531	299	298	787	313	369	427	604	808
AC-FT	48220	56420	66410	61340	41620	36000	57540	48140	34610	29590	45430	52000
MEAN†	137	1099	670	1169	798	1778	1663	1038	580	270	225	163
CFSM†	0.66	5.28	3.22	5.62	3.84	8.55	8.00	4.99	2.79	1.30	1.08	0.78
IN.†	0.76	5.90	3.71	6.48	4.00	9.86	8.92	5.76	3.11	1.50	1.25	0.87
AC-FT†	8400	65380	41190	71860	44340	109300	98940	63840	34510	16590	13830	9700

CAL YR 1988 TOTAL 277444 MEAN 758 MAX 2080 MIN 268 AC-FT 550300 MEAN† 754 CFSM† 3.62 IN.† 49.38 AC-FT† 547600
WTR YR 1989 TOTAL 291070 MEAN 797 MAX 1980 MIN 298 AC-FT 577300 MEAN† 798 CFSM† 3.84 IN.† 52.11 AC-FT† 577900

† Adjusted for change in contents in Cougar Lake.

MCKENZIE RIVER BASIN

14159500 SOUTH FORK MCKENZIE RIVER NEAR RAINBOW, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: July 1955 to current year.

INSTRUMENTATION.--Temperature recorder since July 1955.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 20.0°C July 28, 1958; minimum, 0.5°C Jan. 20-23, 1962.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 13.5°C Sept. 25-30, but may have been higher during period of missing record; minimum recorded, 4.0°C Mar. 8, 11, 13, but may have been lower during period of missing record.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1				---	---	---	7.0	7.0	7.0	5.5	5.0	5.0
2				---	---	---	7.0	7.0	7.0	5.5	5.0	5.5
3				---	---	---	7.0	7.0	7.0	5.5	5.5	5.5
4				---	---	---	7.0	6.5	7.0	5.5	5.0	5.5
5				---	---	---	7.0	6.5	7.0	5.0	5.0	5.0
6				---	---	---	7.0	6.5	7.0	---	---	---
7				---	---	---	7.0	6.5	7.0	---	---	---
8				---	---	---	7.0	6.5	6.5	---	---	---
9				---	---	---	7.0	6.5	7.0	---	---	---
10				12.0	11.5	12.0	7.0	6.5	7.0	---	---	---
11				11.5	11.0	11.0	7.0	6.5	6.5	---	---	---
12				11.5	10.5	11.0	7.0	6.5	6.5	---	---	---
13				11.0	10.0	10.5	6.5	6.5	6.5	---	---	---
14				10.5	10.0	10.0	6.5	6.0	6.5	---	---	---
15				10.5	10.0	10.5	6.0	6.0	6.0	---	---	---
16				10.5	10.0	10.0	6.0	6.0	6.0	---	---	---
17				10.0	9.5	10.0	6.0	6.0	6.0	---	---	---
18				10.0	9.5	9.5	6.0	6.0	6.0	---	---	---
19				9.5	9.0	9.5	6.0	6.0	6.0	---	---	---
20				9.5	9.0	9.5	6.0	5.5	6.0	---	---	---
21				9.0	8.5	9.0	5.5	5.5	5.5	---	---	---
22				9.0	8.5	9.0	5.5	5.5	5.5	---	---	---
23				9.0	8.0	8.5	5.5	5.5	5.5	---	---	---
24				8.0	7.5	8.0	5.5	5.5	5.5	---	---	---
25				8.0	7.5	7.5	5.5	5.5	5.5	---	---	---
26				8.0	7.5	8.0	5.5	5.5	5.5	---	---	---
27				7.5	7.5	7.5	5.5	5.5	5.5	---	---	---
28				7.5	7.5	7.5	5.5	5.5	5.5	---	---	---
29				7.5	7.5	7.5	5.5	5.0	5.0	---	---	---
30				7.5	7.0	7.0	5.5	5.0	5.0	---	---	---
31				---	---	---	5.5	5.0	5.5	---	---	---
MONTH				---	---	---	7.0	5.0	6.0	---	---	---

MCKENZIE RIVER BASIN

14159500 SOUTH FORK MCKENZIE RIVER NEAR RAINBOW, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1				---	---	---	5.5	5.0	5.0	6.5	5.0	5.5
2				---	---	---	5.5	5.0	5.0	6.5	4.5	5.5
3				---	---	---	5.5	5.0	5.0	6.0	5.0	5.5
4				---	---	---	5.5	5.0	5.0	7.0	5.0	6.0
5				---	---	---	5.5	5.0	5.5	6.5	5.0	5.5
6				---	---	---	5.5	5.0	5.5	6.5	5.5	6.0
7				4.5	4.5	4.5	5.5	5.0	5.0	6.5	5.5	6.0
8				5.0	4.0	4.5	5.5	5.0	5.5	6.5	5.5	6.0
9				5.5	4.5	5.0	5.5	5.0	5.5	6.0	5.5	6.0
10				5.5	5.0	5.0	5.5	5.0	5.0	6.0	5.5	6.0
11				5.0	4.0	5.0	5.5	5.0	5.5	6.0	5.0	6.0
12				5.5	4.5	4.5	5.5	4.5	5.0	6.5	5.0	5.5
13				5.0	4.0	4.5	5.5	5.0	5.5	6.5	5.0	6.0
14				5.0	4.5	5.0	5.5	5.0	5.5	6.5	5.5	6.0
15				5.0	4.5	4.5	5.5	5.0	5.0	6.5	5.0	6.0
16				5.0	4.5	4.5	5.5	5.0	5.5	6.5	5.5	6.0
17				5.0	4.5	5.0	5.5	5.0	5.5	6.5	5.0	6.0
18				5.0	4.5	5.0	6.0	5.0	5.5	6.5	5.5	6.0
19				5.5	5.0	5.0	5.5	5.0	5.5	6.0	5.5	6.0
20				6.0	5.0	5.5	5.5	5.0	5.5	6.5	5.5	6.0
21				5.0	4.5	4.5	5.5	5.0	5.5	6.5	5.5	6.0
22				5.0	4.5	5.0	5.5	5.0	5.5	6.5	6.0	6.0
23				5.5	4.5	5.0	5.5	5.0	5.5	6.5	5.5	6.0
24				5.0	4.5	5.0	5.5	5.0	5.5	6.5	5.5	6.0
25				5.0	5.0	5.0	6.0	5.0	5.5	6.5	5.5	6.0
26				5.5	4.5	5.0	6.0	5.0	5.5	6.5	5.5	6.0
27				5.0	4.5	5.0	6.0	5.0	5.5	6.5	5.5	6.0
28				5.5	5.0	5.0	6.0	4.5	5.5	6.5	6.0	6.5
29				5.5	5.0	5.0	6.5	5.0	5.5	6.5	6.0	6.0
30				5.5	5.0	5.0	6.0	5.0	5.5	6.5	6.0	6.5
31				5.5	5.0	5.0	---	---	---	6.5	5.5	6.5
MONTH				---	---	---	6.5	4.5	5.5	7.0	4.5	6.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	7.0	5.5	6.5	7.5	6.0	7.0	8.5	8.0	8.0	10.5	9.0	10.0
2	7.0	6.0	6.5	8.0	6.0	7.0	8.5	7.5	8.0	10.5	9.5	10.0
3	7.0	6.0	6.5	8.0	6.5	7.5	8.5	7.5	8.0	10.5	9.5	10.0
4	7.0	5.5	6.5	8.0	7.0	7.5	9.0	7.5	8.0	11.0	9.0	10.0
5	7.0	6.5	6.5	8.5	6.0	7.5	9.0	7.0	8.0	10.5	9.0	10.0
6	7.0	6.0	6.5	8.5	6.0	7.0	9.0	7.5	8.5	11.0	9.5	10.5
7	7.0	6.5	7.0	8.0	7.0	7.5	9.0	7.5	8.5	11.5	9.0	10.5
8	7.0	6.0	6.5	8.5	6.5	7.5	9.0	7.5	8.5	11.0	9.5	10.5
9	7.0	6.5	7.0	8.0	6.5	7.0	9.0	7.5	8.5	11.5	10.5	11.0
10	7.0	6.0	6.5	8.5	6.5	7.5	9.0	8.0	8.5	11.5	10.0	11.0
11	7.0	6.0	6.5	8.5	6.5	7.5	9.0	8.0	8.5	12.0	10.5	11.0
12	7.0	6.0	6.5	8.5	6.5	7.5	9.0	7.0	8.5	12.0	10.0	11.0
13	7.0	5.5	6.5	8.5	6.5	7.5	9.5	8.0	8.5	12.0	11.0	11.5
14	7.0	6.0	6.5	8.0	6.5	7.5	9.5	8.0	8.5	12.0	11.5	11.5
15	7.0	6.5	7.0	8.5	7.0	7.5	9.5	8.0	8.5	12.0	11.5	12.0
16	7.5	6.5	7.0	8.0	7.0	7.5	9.5	8.0	8.5	12.0	11.5	12.0
17	7.5	6.0	7.0	8.0	6.5	7.5	9.0	8.0	8.5	12.5	11.5	12.0
18	7.5	6.0	7.0	8.5	7.0	7.5	9.0	8.0	9.0	13.0	12.0	12.5
19	7.0	6.0	6.5	9.0	6.5	8.0	9.5	8.5	9.0	12.5	12.0	12.5
20	7.5	6.5	7.0	8.5	6.5	7.5	9.5	8.5	9.0	13.0	12.0	12.5
21	7.5	6.0	7.0	8.5	6.5	8.0	9.5	8.5	9.0	13.0	12.5	12.5
22	7.5	6.0	7.0	8.5	7.0	8.0	9.5	8.5	9.0	13.0	12.0	12.5
23	7.5	6.0	7.0	8.5	7.0	8.0	9.5	9.0	9.0	13.0	12.5	13.0
24	7.5	5.5	7.0	8.5	7.0	8.0	9.5	8.5	9.0	13.0	12.5	13.0
25	7.5	6.0	7.0	9.0	7.5	8.0	9.5	9.0	9.5	13.5	12.5	13.0
26	8.0	6.0	7.0	8.5	7.0	8.0	10.0	9.0	9.5	13.5	12.5	13.0
27	7.0	6.5	7.0	8.5	7.0	8.0	10.0	8.5	9.5	13.5	13.0	13.0
28	7.5	6.0	7.0	8.5	7.0	8.0	10.0	9.0	9.5	13.5	13.0	13.0
29	7.5	6.5	7.0	8.5	7.5	8.0	10.0	9.0	9.5	13.5	13.0	13.5
30	7.5	6.5	7.0	8.5	7.5	8.0	10.0	8.5	9.5	13.5	13.0	13.5
31	---	---	---	8.5	8.0	8.0	10.0	9.5	10.0	---	---	---
MONTH	8.0	5.5	7.0	9.0	6.0	7.5	10.0	7.0	9.0	13.5	9.0	11.5

MCKENZIE RIVER BASIN

105

14161100 BLUE RIVER BELOW TIDBITS CREEK, NEAR BLUE RIVER, OR

LOCATION.--Lat 44°13'05", long 122°15'50", in SE 1/4 NE 1/4 sec.36, T.15 S., R.4 E., Lane County, Hydrologic Unit 17090004, in Willamette National Forest, on left bank 0.2 mi downstream from Tidbits Creek, 5.5 mi northeast of town of Blue River, and at mile 8.5.

DRAINAGE AREA.--45.8 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 1,386.90 ft above National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark).

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--26 years, 254 ft³/s, 75.31 in/yr, 184,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,400 ft³/s Dec. 22, 1964, gage height, 15.32 ft, from floodmarks, from rating curve extended above 2,800 ft³/s on basis of slope-area measurement of peak flow; minimum daily discharge, 6.0 ft³/s Oct. 27-29, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	1900	3,580	8.38	Mar. 6	0300	2,340	7.28
Jan. 9	2300	*3,980	*8.68				

Minimum discharge, 9.2 ft³/s Oct. 30 to Nov. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	14	344	201	448	240	592	247	164	45	26	24
2	13	155	331	219	329	227	741	228	156	43	42	23
3	13	460	310	329	260	200	574	219	146	41	34	22
4	12	479	300	380	222	184	523	238	134	40	29	21
5	12	264	282	339	200	682	630	266	123	38	26	20
6	12	478	407	274	182	1840	776	271	115	37	25	19
7	12	243	438	225	167	991	840	253	106	36	24	19
8	11	212	343	209	154	640	792	228	99	35	24	18
9	11	197	308	1200	146	671	689	227	93	34	24	17
10	11	375	301	1780	139	907	610	211	87	34	23	17
11	10	347	270	696	133	847	561	185	83	33	22	16
12	10	501	242	443	129	781	587	161	78	32	22	16
13	10	371	231	353	123	819	605	145	75	31	21	16
14	11	270	205	296	117	587	619	135	79	30	20	15
15	13	285	175	274	111	516	559	129	87	30	20	15
16	15	484	155	367	140	579	459	128	76	36	20	15
17	13	433	138	486	255	511	426	127	69	50	19	15
18	12	303	126	499	374	813	442	126	65	37	19	16
19	11	264	123	451	657	710	473	118	63	34	19	16
20	11	472	121	463	444	547	438	109	65	32	19	15
21	11	1540	124	462	392	968	360	105	61	30	19	15
22	11	3020	126	408	556	773	297	102	57	29	42	14
23	11	1740	123	324	627	547	261	120	54	28	119	13
24	11	793	118	274	443	478	264	176	52	27	64	13
25	10	519	108	239	350	859	271	236	50	26	42	13
26	10	411	99	219	307	737	287	203	48	26	34	14
27	10	658	95	222	278	645	268	262	46	26	30	15
28	9.8	1250	94	226	251	704	250	266	46	25	27	14
29	9.6	681	102	229	---	653	246	228	46	24	25	14
30	9.3	435	308	324	---	542	256	197	49	24	29	15
31	9.2	---	262	550	---	653	---	176	---	24	27	---
TOTAL	348.9	17654	6709	12961	7934	20851	14696	5822	2472	1017	936	495
MEAN	11.3	588	216	418	283	673	490	188	82.4	32.8	30.2	16.5
MAX	15	3020	438	1780	657	1840	840	271	164	50	119	24
MIN	9.2	14	94	201	111	184	246	102	46	24	19	13
AC-FT	692	35020	13310	25710	15740	41360	29150	11550	4900	2020	1860	982
CFSM	.25	12.8	4.73	9.13	6.19	14.7	10.7	4.10	1.80	.72	.66	.36
IN.	.28	14.34	5.45	10.53	6.44	16.94	11.94	4.73	2.01	.83	.76	.40

CAL YR 1988	TOTAL 84583.9	MEAN 231	MAX 3020	MIN 9.2	AC-FT 167800	CFSM 5.05	IN. 68.70
WTR YR 1989	TOTAL 91895.9	MEAN 252	MAX 3020	MIN 9.2	AC-FT 182300	CFSM 5.50	IN. 74.64

MCKENZIE RIVER BASIN

14161500 LOOKOUT CREEK NEAR BLUE RIVER, OR

LOCATION.--Lat 44°12'35", long 122°15'20", in T.15 or 16 S., R.5 E. (unsurveyed), Lane County, Hydrologic Unit 17090004, in Willamette National Forest, on left bank 6.0 mi northeast of town of Blue River, and at mile 0.5.

DRAINAGE AREA.--24.1 mi².

PERIOD OF RECORD.--August 1949 to September 1955, September 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,377.76 ft above National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark).

REMARKS.--Water-discharge records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--32 years, 124 ft³/s, 69.87 in/yr, 89,840 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,660 ft³/s Dec. 22, 1964, gage height, 8.88 ft, from rating curve extended above 1,300 ft³/s, on basis of slope-area measurement of peak flow; minimum discharge, 4.8 ft³/s Sept. 16, 17, 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	1700	1,270	5.45	Jan. 9	2230	*1,680	*5.92

Minimum discharge, 8.1 ft³/s Oct. 28 to Nov. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.7	10	200	111	195	104	285	124	80	25	17	16
2	9.5	69	177	119	163	99	327	115	79	24	28	16
3	9.4	114	164	152	134	87	280	114	74	23	22	15
4	9.4	154	153	169	127	81	259	137	68	23	19	15
5	9.7	95	140	161	118	211	273	155	62	22	19	14
6	9.5	146	177	137	102	570	304	158	58	22	18	14
7	9.3	89	181	117	86	424	334	147	54	22	16	14
8	9.2	95	159	115	77	305	330	131	50	21	17	13
9	9.1	91	150	615	65	288	301	130	48	21	16	13
10	9.0	154	142	841	57	318	271	118	45	22	15	13
11	8.9	150	129	380	62	316	249	98	42	21	15	12
12	9.0	209	117	259	59	315	249	82	41	20	14	12
13	9.0	172	114	207	56	329	262	72	39	20	14	12
14	9.3	128	100	168	53	279	280	68	41	20	14	12
15	9.9	133	87	161	50	268	263	65	46	20	14	11
16	9.8	193	77	215	67	278	230	63	42	23	13	11
17	9.3	199	69	237	125	249	215	63	38	31	13	12
18	9.0	157	64	230	160	313	221	62	36	23	13	12
19	9.0	139	64	209	209	301	242	56	34	21	13	12
20	9.0	216	63	203	182	258	226	53	37	20	13	11
21	8.9	502	69	209	169	374	185	51	34	18	13	11
22	8.8	1040	76	196	206	337	155	50	32	18	29	11
23	8.6	703	73	167	237	268	134	61	30	18	60	11
24	8.6	388	68	143	197	235	129	82	29	17	35	11
25	8.6	284	59	123	164	295	142	99	28	17	26	11
26	8.4	242	53	112	140	274	152	89	27	17	23	12
27	8.3	307	50	106	123	262	138	111	26	17	21	12
28	8.3	500	47	101	111	293	127	107	26	16	19	11
29	8.2	324	57	97	---	279	124	98	27	16	18	11
30	8.1	241	162	115	---	258	129	87	27	16	19	12
31	8.1	---	142	192	---	292	---	81	---	16	18	---
TOTAL	278.9	7244	3383	6367	3494	8560	6816	2927	1300	630	604	373
MEAN	9.00	241	109	205	125	276	227	94.4	43.3	20.3	19.5	12.4
MAX	9.9	1040	200	841	237	570	334	158	80	31	60	16
MIN	8.1	10	47	97	50	81	124	50	26	16	13	11
AC-FT	553	14370	6710	12630	6930	16980	13520	5810	2580	1250	1200	740
CFSM	.37	10.0	4.53	8.52	5.18	11.5	9.43	3.92	1.80	.84	.81	.52
IN.	.43	11.18	5.22	9.83	5.39	13.21	10.52	4.52	2.01	.97	.93	.58

CAL YR 1988 TOTAL 39319.4 MEAN 107 MAX 1040 MIN 8.1 AC-FT 77990 CFSM 4.46 IN. 60.69
WTR YR 1989 TOTAL 41976.9 MEAN 115 MAX 1040 MIN 8.1 AC-FT 83260 CFSM 4.77 IN. 64.79

MCKENZIE RIVER BASIN

107

14162100 BLUE RIVER LAKE NEAR BLUE RIVER, OR

LOCATION.--Lat 44°10'20", long 122°19'40", in SE 1/4 SE 1/4 sec.16, T.16 S., R.4 E., Lane County, Hydrologic Unit 17090004, in intake tower near left end of Blue River Dam on Blue River, 1.4 mi north of town of Blue River, and at mile 1.7.

DRAINAGE AREA.--87.3 mi².

PERIOD OF RECORD.--October 1968 to current year. Prior to October 1971, published as Blue River Reservoir near Blue River.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Midnight elevations for Oct. 29 through Nov. 14 furnished by Corps of Engineers. Reservoir is formed by earthfill dam with concrete gate and spillway section, completed in 1968 by Corps of Engineers; storage began October 1968. Total capacity is 89,520 acre-ft at elevation 1,357 ft, maximum pool, and usable capacity is 85,550 acre-ft between elevations 1,180 ft, minimum flood control pool, and 1,357 ft, maximum pool. Reservoir used for flood control. Figures given herein represent total contents.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 85,680 acre-ft June 12, 13, 1977, elevation, 1,353.02 ft; minimum contents observed since first filling in 1968, 305 acre-ft Dec. 7, 1973, elevation, 1,125.47 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 83,500 acre-ft May 24, elevation, 1,350.72 ft; minimum contents, 3710 acre-ft Nov. 30, elevation 1178.01 ft.

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

1,120	136	1,160	1,880	1,250	19,260
1,130	437	1,180	3,970	1,290	36,960
1,140	764	1,200	7,030	1,340	73,710
1,150	1,210	1,220	11,040	1,354	86,620

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1260.80	1226.56	1181.87	1192.39	1210.09	1283.64	1322.10	1343.94	1350.64	1350.10	1324.06	1278.63
2	1260.64	1226.35	1180.97	1191.62	1211.01	1285.07	1323.63	1344.69	1350.62	1349.99	1322.35	1278.00
3	1260.49	1228.96	1180.36	1192.95	1211.23	1286.21	1324.36	1345.46	1350.57	1349.86	1320.83	1277.34
4	1260.35	1228.71	1179.90	1185.36	1214.36	1287.29	1324.89	1346.33	1350.50	1349.59	1320.56	1276.69
5	1260.22	1223.08	1179.75	1181.41	1217.80	1291.61	1325.74	1347.32	1350.43	1349.15	1320.56	1276.03
6	1260.06	1221.04	1182.49	1182.10	1220.66	1300.88	1327.02	1347.88	1350.38	1348.61	1316.20	1275.34
7	1259.91	1214.53	1180.81	1182.75	1223.04	1303.76	1328.20	1348.11	1350.33	1348.09	1314.44	1274.65
8	1259.76	1207.50	1179.33	1183.46	1225.08	1304.64	1329.02	1348.22	1350.33	1347.60	1313.66	1273.96
9	1259.60	1199.46	1181.90	1212.93	1226.93	1304.74	1329.37	1348.49	1350.31	1347.03	1311.64	1273.26
10	1259.42	1199.87	1182.38	1242.85	1228.63	1305.14	1329.59	1348.77	1350.25	1346.59	1307.74	1272.56
11	1259.26	1204.33	1180.10	1239.13	1230.18	1304.60	1329.66	1348.93	1350.28	1345.99	1305.75	1271.84
12	1259.09	1205.77	1179.17	1224.52	1231.66	1304.54	1330.32	1349.06	1350.39	1345.10	1303.68	1271.11
13	1258.92	1203.04	1179.98	1208.62	1233.05	1305.32	1331.31	1349.20	1350.55	1344.44	1301.56	1270.39
14	1258.77	1202.35	1179.63	1202.11	1234.28	1305.75	1332.37	1349.31	1350.65	1343.65	1299.41	1269.65
15	1258.66	1203.15	1181.89	1197.22	1235.30	1306.25	1333.20	1349.46	1350.60	1342.76	1297.21	1268.90
16	1258.54	1206.41	1184.67	1196.41	1237.43	1306.99	1333.63	1349.66	1350.48	1342.00	1294.89	1268.17
17	1258.40	1205.38	1186.51	1197.57	1241.39	1307.94	1333.89	1349.89	1350.40	1341.58	1292.63	1267.45
18	1258.23	1202.67	1187.82	1196.01	1246.07	1309.13	1334.24	1350.02	1350.30	1340.34	1290.50	1266.71
19	1257.15	1202.23	1188.86	1191.86	1252.68	1309.95	1334.75	1350.03	1350.21	1339.62	1288.79	1265.95
20	1254.99	1203.03	1190.75	1188.16	1257.06	1310.78	1335.10	1350.02	1350.19	1338.56	1287.00	1265.20
21	1252.78	1215.19	1192.57	1185.24	1260.85	1313.93	1335.49	1349.99	1350.10	1337.65	1285.25	1264.43
22	1250.57	1238.29	1195.99	1183.91	1265.73	1315.55	1335.76	1350.13	1350.06	1336.73	1283.77	1263.66
23	1248.33	1240.13	1195.89	1182.15	1270.70	1315.50	1336.34	1350.54	1350.13	1335.81	1283.37	1262.88
24	1246.05	1229.76	1194.79	1183.64	1274.08	1315.37	1337.28	1350.66	1350.19	1334.89	1283.16	1262.10
25	1243.61	1214.72	1192.82	1185.41	1276.62	1316.98	1338.34	1350.52	1350.23	1333.96	1282.70	1261.31
26	1241.03	1192.29	1191.17	1186.35	1278.69	1318.07	1339.48	1350.13	1350.27	1333.53	1282.16	1260.48
27	1238.34	1189.99	1189.30	1188.38	1280.53	1318.87	1340.47	1350.03	1350.31	1333.53	1281.60	1259.60
28	1235.95	1199.00	1188.11	1190.39	1282.11	1319.81	1341.36	1349.94	1350.35	1333.53	1281.00	1258.68
29	1233.72	1184.99	1188.24	1192.10	---	1320.00	1342.21	1349.90	1350.30	1333.53	1280.42	1257.78
30	1231.26	1182.43	1195.88	1195.91	---	1320.16	1343.08	1350.15	1350.20	1327.51	1279.86	1256.89
31	1228.89	---	1196.10	1205.22	---	1321.27	---	1350.46	---	1325.75	1279.26	---
MAX	1260.80	1240.13	1196.10	1242.85	1282.11	1321.27	1343.08	1350.66	1350.65	1350.10	1324.06	1278.63
MIN	1228.89	1182.43	1179.17	1181.41	1210.09	1283.64	1322.10	1343.94	1350.06	1325.75	1279.26	1256.89
(†)	13180	4300	6370	7980	32630	58220	76450	83250	83010	61730	31170	21630
(‡)	-9940	-8880	+2070	+1610	+24650	+25590	+18230	+6800	-240	-21280	-30560	-9540

CAL YR 1988 MAX --- MIN --- AC-FT+ +2320
WTR YR 1989 MAX 1350.66 MIN 1179.17 AC-FT+ -1490

† Contents in acre-feet, at 2400, on last day of month.
‡ Change in contents, in acre-feet.

MCKENZIE RIVER BASIN

14162200 BLUE RIVER AT BLUE RIVER, OR

LOCATION.--Lat 44°09'45", long 122°19'55", in NW 1/4 SE 1/4 sec.21, T.16 S., R.4 E., Lane County, Hydrologic Unit 17090004, on right bank 0.3 mi upstream from Simmonds Creek, 0.7 mi north of town of Blue River, 0.8 mi downstream from Blue River Dam, and at mile 0.9.

DRAINAGE AREA.--87.7 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,056.53 ft above National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Aug. 25, 1966, nonrecording gage at datum 0.80 ft higher.

REMARKS.--Water-discharge records good. Flow regulated since October 1968 by Blue River Lake (station 14162100). No diversion upstream from station. Discharge not adjusted for storage or release from Blue River Lake as losses from reservoir at times exceed natural flow.

AVERAGE DISCHARGE.--23 years, 461 ft³/s, 334,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,270 ft³/s Feb. 23, 1968, gage height, 8.93 ft; minimum discharge, 0.80 ft³/s Oct. 8, 10, 11, 1968; minimum daily, 3.7 ft³/s Oct. 8, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,040 ft³/s Nov. 23, gage height, 7.64 ft; minimum discharge, 42 ft³/s Feb. 14; minimum daily, 47 ft³/s Feb. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	309	760	618	e461	58	817	78	215	e116	686	201
2	59	309	717	538	e542	58	822	78	283	e116	693	199
3	59	438	647	639	e245	55	823	67	274	e122	605	199
4	59	884	610	828	e48	52	824	56	e255	e175	572	199
5	59	1070	549	861	54	66	826	55	e237	e245	602	199
6	59	1050	640	523	54	375	826	227	e220	e277	600	197
7	59	1020	844	424	59	863	932	333	e192	e277	647	197
8	59	966	685	430	59	854	1000	333	e167	e277	688	197
9	59	959	477	e821	54	951	1000	288	e167	e277	684	196
10	59	647	534	e389	54	1290	937	240	e167	e300	680	195
11	59	336	584	e1930	53	1500	901	240	e126	e327	675	195
12	59	791	474	e2720	53	1290	720	204	e75	e327	688	194
13	59	872	397	e2310	47	1170	626	179	e62	e327	689	192
14	59	530	389	e1080	52	969	629	179	e96	e349	685	192
15	59	439	237	e954	65	912	629	144	e169	e408	681	192
16	59	664	167	e960	68	906	629	122	e175	e408	676	191
17	59	953	170	e954	71	826	629	122	e149	e408	671	190
18	59	776	173	e1080	71	1040	631	166	e149	e408	622	190
19	223	534	175	e1120	70	1000	633	184	e149	e404	504	190
20	422	847	181	e1080	62	742	633	184	e136	e404	501	188
21	417	1510	227	e1050	53	675	492	184	e136	e404	500	188
22	414	2600	345	e875	53	821	432	111	e101	e404	497	187
23	409	3010	374	e728	66	990	235	63	e58	e404	338	186
24	404	2920	371	e448	76	911	90	293	e58	e404	206	186
25	418	2720	362	e368	70	819	79	490	e59	e404	204	186
26	423	2610	351	e362	65	821	79	525	e59	e478	204	199
27	417	1400	341	e321	65	821	79	525	e58	534	204	208
28	357	1940	329	e309	63	937	79	525	e58	629	203	208
29	306	2130	202	e315	---	1120	78	412	e149	695	201	206
30	301	994	384	e321	---	967	78	231	e134	694	201	206
31	304	---	647	e339	---	816	---	178	---	693	201	---
TOTAL	5877	36228	13343	25695	2753	24675	17188	7016	4333	11695	15808	5853
MEAN	190	1208	430	829	98.3	796	573	226	144	377	510	195
MAX	423	3010	844	2720	542	1500	1000	525	283	695	693	208
MIN	59	309	167	309	47	52	78	55	58	116	201	186
AC-FT	11660	71860	26470	50970	5460	48940	34090	13920	8590	23200	31360	11610

CAL YR 1988 TOTAL 157431 MEAN 430 MAX 3010 MIN 52 AC-FT 312300
WTR YR 1989 TOTAL 170464 MEAN 467 MAX 3010 MIN 47 AC-FT 338100

e Estimated

MCKENZIE RIVER BASIN
14162200 BLUE RIVER AT BLUE RIVER, OR--Continued
WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: August 1966 to current year.

INSTRUMENTATION.--Temperature recorder since August 1966.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 26.0°C July 6, 1968; minimum, 0.0°C Jan. 5-9, 1974, Dec. 23, 24, 1983.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 18.5°C several days in September; minimum, 1.5°C February 4-8.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	18.0	16.5	17.0	16.0	16.0	16.0	6.5	5.5	6.0	5.0	4.5	5.0
2	17.5	16.5	17.0	16.0	15.0	15.5	6.0	5.5	6.0	5.5	5.0	5.0
3	17.5	16.5	17.0	14.5	13.0	13.5	6.5	6.0	6.0	6.0	5.5	5.5
4	17.5	16.5	17.0	13.0	12.5	12.5	6.5	5.5	6.0	6.0	6.0	6.0
5	17.5	16.5	17.0	12.5	12.5	12.5	6.0	5.5	5.5	6.0	5.5	6.0
6	17.5	16.5	17.0	12.5	12.0	12.0	6.5	5.5	6.5	5.5	5.0	5.5
7	17.5	17.0	17.0	12.0	11.5	11.5	7.5	6.5	7.0	5.0	4.5	5.0
8	17.5	16.5	17.0	11.5	11.0	11.5	7.0	6.5	6.5	4.5	4.5	4.5
9	17.5	16.5	17.0	11.0	11.0	11.0	7.0	6.5	6.5	6.0	4.5	5.0
10	17.5	16.5	17.0	11.0	10.0	10.5	7.0	6.5	6.5	7.0	5.5	6.0
11	17.0	16.5	17.0	10.0	9.5	9.5	7.0	6.5	6.5	6.0	5.5	5.5
12	17.0	17.0	17.0	9.5	9.5	9.5	6.5	6.5	6.5	6.0	5.5	5.5
13	17.0	17.0	17.0	9.5	9.0	9.0	7.0	6.5	6.5	5.5	5.5	5.5
14	17.0	17.0	17.0	9.0	7.5	8.5	6.5	6.0	6.5	5.5	5.0	5.0
15	17.5	17.0	17.0	10.0	6.5	8.0	6.5	5.0	5.5	5.0	4.5	5.0
16	17.5	16.5	17.0	8.0	8.0	8.0	5.0	4.5	5.0	5.0	4.5	5.0
17	17.5	16.5	17.0	8.0	7.5	8.0	4.5	3.5	4.0	6.0	5.0	5.5
18	17.0	16.5	17.0	7.5	7.0	7.5	3.5	3.5	3.5	6.5	5.5	6.0
19	17.0	17.0	17.0	7.5	7.0	7.0	3.5	3.5	3.5	6.5	5.5	6.0
20	17.0	17.0	17.0	7.5	7.0	7.0	4.0	3.5	3.5	6.0	5.5	5.5
21	17.5	17.0	17.5	7.0	7.0	7.0	4.0	4.0	4.0	5.5	5.5	5.5
22	17.5	17.5	17.5	8.0	7.0	7.5	4.0	4.0	4.0	5.5	5.0	5.5
23	17.5	17.0	17.0	8.0	8.0	8.0	4.0	4.0	4.0	5.5	4.5	5.0
24	17.0	17.0	17.0	8.0	7.5	7.5	4.0	3.5	4.0	4.5	4.0	4.5
25	17.0	16.5	17.0	7.5	7.0	7.0	4.0	3.5	4.0	4.5	4.0	4.0
26	16.5	16.5	16.5	7.0	6.5	7.0	4.0	3.5	3.5	5.0	4.0	4.5
27	16.5	16.5	16.5	7.0	6.5	7.0	3.5	3.5	3.5	5.0	4.5	5.0
28	16.5	16.0	16.0	7.0	6.5	7.0	3.5	3.5	3.5	5.0	4.5	4.5
29	16.0	16.0	16.0	7.5	6.5	7.0	3.5	3.5	3.5	5.5	4.5	5.0
30	16.0	16.0	16.0	6.5	6.0	6.5	4.5	3.5	4.0	5.5	5.0	5.0
31	16.0	16.0	16.0	---	---	---	4.5	4.5	4.5	5.0	5.0	5.0
MONTH	18.0	16.0	17.0	16.0	6.0	9.5	7.5	3.5	5.0	7.0	4.0	5.0

MCKENZIE RIVER BASIN

14162200 BLUE RIVER AT BLUE RIVER, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	5.0	5.0	5.0	4.0	4.0	4.0	6.0	6.0	6.0			
2	5.0	4.5	4.5	4.5	4.0	4.0	6.5	6.0	6.0			
3	4.0	2.5	3.5	5.5	4.0	4.5	6.0	6.0	6.0			
4	2.5	1.5	2.0	4.5	4.0	4.5	6.0	6.0	6.0			
5	2.5	1.5	2.0	5.0	4.5	4.5	6.5	6.0	6.0			
6	2.5	1.5	2.0	5.5	4.5	5.0	6.0	6.0	6.0			
7	2.5	1.5	2.0	4.5	4.5	4.5	6.0	6.0	6.0			
8	2.5	1.5	2.0	5.0	4.5	4.5	6.0	6.0	6.0			
9	2.5	2.0	2.0	5.0	4.5	4.5	6.0	6.0	6.0			
10	2.5	2.0	2.0	5.0	4.5	5.0	6.5	6.0	6.0			
11	3.0	2.0	2.0	5.0	4.5	5.0	6.5	6.0	6.0			
12	3.0	2.0	2.5	5.0	5.0	5.0	6.5	6.0	6.0			
13	3.0	2.0	2.5	5.0	5.0	5.0	6.5	6.0	6.0			
14	3.5	2.5	3.0	5.5	5.0	5.0	6.5	6.5	6.5			
15	3.5	2.5	3.0	5.0	5.0	5.0	---	---	---			
16	3.0	3.0	3.0	5.0	5.0	5.0	---	---	---			
17	3.5	3.0	3.5	5.5	5.0	5.0	---	---	---			
18	4.0	3.5	4.0	5.5	5.0	5.5	---	---	---			
19	4.5	4.0	4.0	5.5	5.5	5.5	---	---	---			
20	5.0	4.0	4.5	5.5	5.5	5.5	---	---	---			
21	5.0	4.0	4.5	5.5	5.5	5.5	---	---	---			
22	4.5	4.0	4.5	5.5	5.5	5.5	---	---	---			
23	4.5	4.0	4.5	5.5	5.5	5.5	---	---	---			
24	5.0	4.0	4.5	5.5	5.5	5.5	---	---	---			
25	5.0	4.0	4.5	5.5	5.5	5.5	---	---	---			
26	5.0	4.0	4.0	5.5	5.5	5.5	---	---	---			
27	5.0	4.0	4.0	6.0	5.5	6.0	---	---	---			
28	5.0	4.0	4.5	6.0	5.5	6.0	---	---	---			
29	---	---	---	6.5	5.5	6.0	---	---	---			
30	---	---	---	6.5	6.0	6.0	---	---	---			
31	---	---	---	6.0	6.0	6.0	---	---	---			
MONTH	5.0	1.5	3.5	6.5	4.0	5.0	---	---	---			
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1				---	---	---	9.0	9.0	9.0	17.5	17.5	17.5
2				---	---	---	9.5	9.0	9.0	17.5	17.5	17.5
3				---	---	---	9.5	9.5	9.5	18.0	17.5	17.5
4				---	---	---	9.5	9.5	9.5	18.0	17.5	18.0
5				---	---	---	10.0	9.5	10.0	18.0	18.0	18.0
6				---	---	---	10.0	10.0	10.0	18.0	18.0	18.0
7				---	---	---	10.5	10.0	10.0	18.0	18.0	18.0
8				---	---	---	10.5	10.0	10.5	18.5	18.0	18.0
9				---	---	---	10.5	10.5	10.5	18.5	18.0	18.0
10				---	---	---	11.0	10.5	10.5	18.5	18.0	18.5
11				---	---	---	11.0	10.5	11.0	18.5	18.5	18.5
12				---	---	---	11.5	11.0	11.0	18.5	18.5	18.5
13				---	---	---	11.5	11.5	11.5	18.5	18.5	18.5
14				---	---	---	12.0	11.5	12.0	18.5	18.5	18.5
15				---	---	---	12.0	12.0	12.0	18.5	18.5	18.5
16				---	---	---	12.5	12.0	12.5	18.5	18.5	18.5
17				---	---	---	13.5	12.5	13.0	18.5	18.5	18.5
18				---	---	---	14.0	13.5	13.5	18.5	18.5	18.5
19				---	---	---	14.0	14.0	14.0	18.5	18.5	18.5
20				---	---	---	14.5	14.0	14.5	18.5	18.5	18.5
21				---	---	---	15.0	14.5	15.0	18.5	18.5	18.5
22				---	---	---	15.5	15.0	15.5	18.5	18.5	18.5
23				---	---	---	16.0	15.5	16.0	18.5	18.5	18.5
24				---	---	---	16.0	16.0	16.0	18.5	18.0	18.5
25				---	---	---	16.5	16.0	16.0	18.5	18.0	18.0
26				---	---	---	16.5	16.5	16.5	18.0	18.0	18.0
27				9.0	8.5	8.5	17.0	16.5	16.5	18.5	18.0	18.5
28				9.0	7.5	8.5	17.0	17.0	17.0	18.5	18.5	18.5
29				9.0	8.5	9.0	17.0	17.0	17.0	18.5	18.5	18.5
30				9.0	8.5	9.0	17.0	17.0	17.0	18.5	18.5	18.5
31				9.0	9.0	9.0	17.5	17.0	17.5	---	---	---
MONTH				---	---	---	17.5	9.0	13.0	18.5	17.5	18.5

MCKENZIE RIVER BASIN

111

14162500 MCKENZIE RIVER NEAR VIDA, OR

LOCATION.--Lat 44°07'30", long 122°28'10", in NE 1/4 NE 1/4 sec.5, T.17 S., R.3 E., Lane County, Hydrologic Unit 17090004, on right bank 0.4 mi downstream from Mason Creek, 5.4 mi east of Vida, and at mile 47.7.

DRAINAGE AREA.--930 mi² at cableway 0.4 mi downstream, where all discharge measurement are made.

PERIOD OF RECORD.--July 1910 to March 1911 (published as "at Martins Rapids, near Vida"), September 1924 to current year. Monthly discharge only for some periods, published in WSP 1318.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 855.71 ft above National Geodetic Vertical Datum of 1929 (levels by Eugene Water and Electric Board). July 1, 1910, to Mar. 31, 1911, nonrecording gage at site 3 mi downstream at different datum. Sept. 1, 1924, to Nov. 16, 1928, nonrecording gage at site 20 ft upstream at datum 0.15 ft lower. Nov. 17, 1928, to Sept. 23, 1968, water-stage recorder at present site on left bank at datum 0.15 ft lower.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1963 by Smith River Reservoir (station 14158795) and Cougar Lake (station 14159400), and since 1968 by Blue River Lake (station 14162100). No diversion upstream from station. All records given herein are for measuring site.

AVERAGE DISCHARGE.--65 years (water years 1925-89), 4,042 ft³/s, 2,928,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 64,400 ft³/s Dec. 28, 1945, gage height, 17.70 ft, site and datum then in use, from rating curve extended above 32,000 ft³/s; minimum discharge, 1,260 ft³/s Nov. 7, 1930, Sept. 17, Oct. 4, 8, 9, 1931.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in January 1923 reached a stage of 17.2 ft, from floodmarks, discharge, 62,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 17,900 ft³/s Jan. 10, gage height, 6.90 ft; maximum gage height, 7.25 ft Jan. 10, from crest-stage gage; minimum discharge, 1,740 ft³/s Oct. 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2260	2010	6170	3850	4590	2780	6310	4140	3790	2480	3030	2530
2	2260	2340	5900	3740	4460	2790	6620	3830	3880	2450	3010	2490
3	2260	3080	5570	4110	4130	2670	6280	3740	3950	2420	2880	2480
4	2260	4150	5370	4570	3670	2600	6010	3750	3970	2420	2770	2460
5	2180	4010	5100	4910	3490	3700	6010	4050	3960	2440	2800	2450
6	2100	4540	5330	4400	3450	7630	6140	4640	3860	2500	2750	2450
7	2220	4010	5660	4100	3340	6760	6450	4930	3750	2500	2790	2450
8	2230	4000	5380	3830	3230	5670	6670	4770	3610	2500	2890	2470
9	2230	4120	5020	7830	3190	5350	6490	4720	3530	2500	2930	2480
10	2230	4060	5000	12600	3160	6250	6340	5290	3230	2500	2930	2460
11	2230	3650	4990	8980	3110	6380	6070	5130	2900	2500	2970	2430
12	2230	4400	4680	8320	3070	6140	5890	4450	2810	2500	3050	2430
13	2240	4450	4280	7460	2920	6460	5840	4110	2830	2500	3070	2430
14	2000	3720	4180	5820	2440	6070	5990	4010	2930	2500	3050	2450
15	1770	3630	3870	5570	2200	6000	6070	3880	3220	2540	3040	2460
16	1770	4150	3670	5990	2380	6400	5910	3720	3140	2550	2990	2450
17	1760	5120	3600	6090	3020	6210	6030	3610	3010	2660	2980	2450
18	1760	4470	3510	6020	3200	6770	6460	3760	2870	2660	2950	2470
19	1910	3800	3490	6030	3860	7030	6740	3810	2700	2580	2800	2450
20	2340	4500	3530	6280	3530	6140	6830	3710	2700	2540	2830	2440
21	2670	6750	3770	6280	3310	7120	6410	3620	2610	2540	2820	2420
22	2680	12500	4130	6020	3650	7110	5980	3330	2470	2530	3120	2430
23	2700	12000	4170	5560	4120	6560	5250	3240	2410	2520	3220	2430
24	2710	9210	4070	5040	4140	6080	4680	3810	2400	2500	2740	2420
25	2560	8580	3790	4690	4140	6330	4890	4500	2400	2500	2600	2430
26	2350	8140	3160	4520	3950	6270	5030	4580	2400	2590	2530	2460
27	2220	6960	3000	3900	3420	6000	4770	4690	2400	2700	2480	2480
28	2130	10400	2930	3490	2850	6740	4580	4870	2390	2900	2460	2470
29	2030	9260	2880	3380	---	7150	4480	4630	2410	3120	2480	2460
30	2030	7140	3830	3570	---	6590	4430	4140	2490	3120	2620	2510
31	2010	---	4200	4340	---	6570	---	3830	---	3090	2600	---
TOTAL	68330	169150	134230	171290	96020	182320	175655	129290	91020	80350	88180	73690
MEAN	2204	5638	4330	5525	3429	5881	5855	4171	3034	2592	2845	2456
MAX	2710	12500	6170	12600	4590	7630	6830	5290	3970	3120	3220	2530
MIN	1760	2010	2880	3380	2200	2600	4430	3240	2390	2420	2460	2420
AC-FT	135500	335500	266200	339800	190500	361600	348400	256400	180500	159400	174900	146200

CAL YR 1988 TOTAL 1370490 MEAN 3745 MAX 12500 MIN 1760 AC-FT 2718000
WTR YR 1989 TOTAL 1459520 MEAN 3999 MAX 12600 MIN 1760 AC-FT 2895000

MCKENZIE RIVER BASIN

14163000 GATE CREEK AT VIDA, OR

LOCATION.--Lat 44°08'45", long 122°34'15", in SW 1/4 sec.28, T.16 S., R.2 E., Lane County, Hydrologic Unit 17090004, on right bank 300 ft downstream from bridge on State Highway 126, at Vida, and at mile 0.2.

DRAINAGE AREA.--47.6 mi².

PERIOD OF RECORD.--June 1951 to September 1957; annual maximums, water years 1958-65; August 1966 to current year.

REVISED RECORDS.--WDR OR-83-2: 1976(M,P), 1978(M,P), 1979(M,P), 1980(M), 1981(M,P), 1982(M,P).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 764.56 ft above National Geodetic Vertical Datum of 1929. June 11, 1951, to Sept. 30, 1957, water-stage recorder, and Oct. 1, 1957, to Aug. 1, 1966, crest-stage gage at same site and datum.

REMARKS.--Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--29 years (water years 1952-57, 1967-89), 211 ft³/s, 60.20 in/yr, 152,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,140 ft³/s Dec. 22, 1964, gage height, 12.18 ft, from slope-area measurement of peak flow; minimum discharge, 11 ft³/s Oct. 2, 12, 13, 19, 20, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	0600	1,920	6.08	Jan. 9	2300	(a)	*9.09
Jan. 9	2300	*4,290	8.80				

Minimum discharge, 16 ft³/s Aug. 19-21.

(a) From crest-stage gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	27	336	278	326	217	592	111	106	43	34	30
2	22	107	269	350	266	215	656	104	96	40	47	29
3	22	207	224	478	228	191	584	104	89	38	38	27
4	23	262	194	480	206	184	520	105	83	36	29	26
5	25	159	174	399	195	472	473	94	76	35	26	25
6	23	291	182	306	174	979	410	89	73	34	24	25
7	22	138	175	250	162	622	366	85	70	33	22	24
8	22	141	162	290	155	451	326	81	67	32	23	23
9	22	132	150	1850	148	398	292	92	65	33	23	22
10	21	179	140	2270	145	388	263	93	62	34	22	21
11	21	194	129	968	139	358	238	88	59	32	20	21
12	21	272	121	629	137	360	220	83	58	30	20	20
13	21	223	118	493	132	584	204	78	57	29	19	20
14	23	156	110	393	126	530	188	75	67	30	19	20
15	25	185	104	409	119	681	175	71	71	30	19	20
16	24	272	99	626	222	754	163	68	60	41	18	20
17	22	474	95	674	454	604	152	69	54	48	18	20
18	22	325	92	616	453	742	142	82	52	35	18	21
19	23	229	112	534	678	722	143	79	52	31	18	20
20	22	345	143	495	467	562	135	70	58	30	17	20
21	22	911	201	504	380	726	129	67	51	29	18	19
22	22	1710	315	461	449	598	125	65	47	27	59	19
23	21	1210	259	378	461	466	131	85	45	26	120	18
24	21	646	231	328	379	405	149	178	42	25	62	18
25	21	631	195	286	318	494	190	160	41	24	42	19
26	21	643	165	260	278	484	206	129	41	25	35	21
27	21	660	149	253	249	498	169	187	40	26	32	22
28	21	1140	136	237	227	680	143	205	40	24	30	21
29	21	647	181	226	---	723	127	167	46	23	30	20
30	21	433	468	261	---	638	119	139	53	25	40	27
31	20	---	391	365	---	662	---	120	---	28	34	---
TOTAL	681	12949	5820	16347	7673	16388	7730	3223	1821	976	976	658
MEAN	22.0	432	188	527	274	529	258	104	60.7	31.5	31.5	21.9
MAX	25	1710	468	2270	678	979	656	205	106	48	120	30
MIN	20	27	92	226	119	184	119	65	40	23	17	18
AC-FT	1350	25680	11540	32420	15220	32510	15330	6390	3610	1940	1940	1310
CFSM	.46	9.07	3.94	11.1	5.76	11.1	5.41	2.18	1.28	.66	.66	.46
IN.	.53	10.12	4.55	12.78	6.00	12.81	6.04	2.52	1.42	.76	.76	.51

CAL YR 1988 TOTAL 73711 MEAN 201 MAX 1970 MIN 18 AC-FT 146200 CFSM 4.23 IN. 57.61
WTR YR 1989 TOTAL 75242 MEAN 206 MAX 2270 MIN 17 AC-FT 149200 CFSM 4.33 IN. 58.80

MCKENZIE RIVER BASIN

113

14165000 MOHAWK RIVER NEAR SPRINGFIELD, OR

LOCATION.--Lat 44°05'34", long 122°57'20", in SE 1/4 NW 1/4 sec.17, T.17 S., R.2 W., Lane County, Hydrologic Unit 17090004, on left bank 50 ft downstream from bridge, 1.3 mi northeast of Springfield, and at mile 1.59.

DRAINAGE AREA.--177 mi².

PERIOD OF RECORD.--September 1935 to September 1952, October 1963 to current year. Prior to October 1935 monthly discharge only, published in WSP 1318.

REVISED RECORDS.--WSP 1248: 1939. WSP 1738: Drainage area. WDR OR-86-2: 1985(m).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 442.47 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1935, to Sept. 30, 1952, nonrecording gage at same site and datum.

REMARKS.--Records good. Many diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--43 years, 532 ft³/s, 40.82 in/yr, 385,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,000 ft³/s Dec. 22, 1964, gage height, 22.60 ft; minimum discharge, 8.2 ft³/s Sept. 9, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 22, 1955, reached at stage of 22.9 ft, from floodmark, probably affected by backwater from McKenzie River, discharge, 9,200 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	1200	3,720	10.93	Jan. 10	0830	(a)	*17.02
Jan. 10	0830	*7,690	16.74				

Minimum discharge, 17 ft³/s Sept. 24.

(a) From crest-stage gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	36	1010	1030	565	555	1310	e234	179	88	72	48
2	35	80	818	990	528	661	1300	e224	163	82	80	43
3	33	170	690	1000	485	577	1170	e224	153	74	68	39
4	35	257	595	955	e440	542	1080	228	144	72	52	36
5	41	182	531	984	e430	830	981	199	133	68	46	35
6	41	e311	532	937	e395	1720	880	188	127	64	41	34
7	38	e172	479	861	e380	1490	797	179	127	61	37	32
8	36	153	429	871	361	1190	734	169	122	57	36	31
9	36	135	391	2270	348	1050	675	170	123	57	37	28
10	34	258	360	6270	343	983	620	194	120	61	37	26
11	33	e302	330	3440	341	894	570	176	114	61	35	23
12	34	e385	305	2260	346	860	532	164	109	53	32	21
13	34	e330	287	1920	340	1420	498	159	114	51	32	21
14	35	e258	266	1680	324	1590	467	152	122	52	32	21
15	36	352	249	1500	308	1770	438	145	164	53	31	20
16	37	543	237	1530	491	2060	410	138	131	57	29	20
17	35	1270	228	1430	1260	1830	382	138	116	92	28	22
18	33	807	219	1290	1140	1860	367	155	108	70	28	25
19	34	561	257	1140	1100	1690	373	150	103	61	28	28
20	35	546	310	1040	952	1420	350	136	106	56	27	25
21	36	1160	543	1120	819	1560	335	130	101	54	27	24
22	36	3340	886	1180	e859	1360	306	130	91	51	68	22
23	37	2690	1130	1030	e927	1170	308	150	87	48	136	21
24	35	1950	1330	906	839	1070	362	236	79	44	80	19
25	34	1840	1110	799	741	1450	345	193	76	42	59	20
26	35	1680	845	718	666	1360	319	166	74	42	49	23
27	34	1520	715	658	614	1340	282	233	76	44	45	33
28	34	2630	638	605	575	1570	259	312	74	44	41	32
29	34	1840	638	558	---	1650	244	253	82	41	38	29
30	34	1310	888	529	---	1490	230	219	109	41	56	30
31	33	---	1210	556	---	1440	---	193	---	43	60	---
TOTAL	1095	27068	18456	42057	16917	40452	16924	5737	3427	1784	1467	831
MEAN	35.3	902	595	1357	604	1305	564	185	114	57.5	47.3	27.7
MAX	41	3340	1330	6270	1260	2060	1310	312	179	92	136	48
MIN	33	36	219	529	308	542	230	130	74	41	27	19
AC-FT	2170	53690	36610	83420	33550	80240	33570	11380	6800	3540	2910	1650
CFSM	.20	5.10	3.36	7.66	3.41	7.37	3.19	1.05	.65	.33	.27	.16
IN.	.23	5.69	3.88	8.84	3.56	8.50	3.56	1.21	.72	.37	.31	.17

CAL YR 1988 TOTAL 174727 MEAN 477 MAX 3850 MIN 17 AC-FT 346600 CFSM 2.70 IN. 36.72
WTR YR 1989 TOTAL 176215 MEAN 483 MAX 6270 MIN 19 AC-FT 349500 CFSM 2.73 IN. 37.04

e Estimated

WILLAMETTE RIVER BASIN

14166000 WILLAMETTE RIVER AT HARRISBURG, OR

LOCATION.--Lat 44°16'14", long 123°10'21", in NW 1/4 NE 1/4 sec.16, T.15 S., R.4 W., Linn County, Hydrologic Unit 17090003, on right bank 75 ft north of intersection of First Street and Kesling Street in Harrisburg and at mile 161.0.

DRAINAGE AREA.--3,420 mi², approximately.

PERIOD OF RECORD.--October 1944 to current year. Gage-height records collected at same site in 1927-28, 1931, 1934, are contained in reports of National Weather Service.

GAGE.--Water-stage recorder. Datum of gage is 288.39 ft above National Geodetic Vertical Datum of 1929. Oct 1 to Nov. 14, 1944, nonrecording gage at bridge 1,110 ft upstream at different datum. Nov. 15, 1944, to Aug. 15, 1973, at site 1,100 ft upstream at datum 2.00 ft higher.

REMARKS.--Records good except those for Nov. 22-24 and Jan. 10-12, which are fair. Flow regulated by 8 reservoirs upstream from station. Many small diversions upstream from station for irrigation.

AVERAGE DISCHARGE.--45 years, 12,060 ft³/s, 8,737,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 210,000 ft³/s Dec. 29, 1945, gage height, 19.69 ft, from rating curve extended above 115,000 ft³/s; minimum discharge, 1,990 ft³/s Oct. 30, 1944.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood stage of 20.5 ft was reached in December 1861, and 20.1 ft in February 1890 (information from Corps of Engineers). Flood of Jan. 1, 1943, reached a stage of 19.1 ft from National Weather Service.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 65,600 ft³/s Jan. 10, gage height, 13.43 ft; minimum discharge, 4,000 ft³/s July 4, but may have been less during missing record June 29 or July 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5950	6500	24300	13900	e12000	7180	27300	7470	10000	4280	5160	6420
2	5970	6780	22300	10900	16200	7580	25800	6620	8740	4190	5070	6320
3	5980	7690	17500	13500	16700	7510	24500	6310	8090	4170	5030	6300
4	5990	9330	14300	16100	14600	6970	20700	6360	8200	e4100	4730	6300
5	6000	10200	13400	17800	12400	7910	19000	6260	8290	e4300	4770	6280
6	5970	10600	12100	16700	9660	18600	18300	7010	8890	e4400	4760	7090
7	5890	10400	12200	14400	8500	23700	17300	7970	8850	4370	4670	7550
8	6030	10000	12100	13800	7860	19600	17000	8350	8370	4340	4730	7960
9	6180	10400	11100	e20300	7980	15600	16000	8710	8330	4350	4820	8330
10	6170	10600	10300	e52000	8170	17500	15300	9520	7830	4360	4900	8170
11	6100	10800	10100	47700	7360	17600	14500	10200	7260	4390	4900	7690
12	6290	10300	9840	44000	6790	17000	14000	9740	6110	4350	5040	6740
13	6380	12800	9170	37300	6600	17900	13400	8690	5160	4320	5100	6710
14	6380	11700	8830	33700	6200	20600	13300	8020	4870	4310	5070	6670
15	6130	11800	8530	31100	5520	20500	13200	7600	e5400	4450	5150	6720
16	6160	12500	7900	30400	5600	25900	13000	6620	e6100	4620	5140	6690
17	6080	18600	7590	26600	9430	25200	12600	6100	e6100	4980	5070	6980
18	6650	20400	7440	22700	11000	25100	13100	6010	e6000	4770	5330	7920
19	7110	17400	7420	21100	12500	27600	12700	6620	5380	4660	5350	8090
20	7400	15100	7380	20500	12200	24800	12400	6880	4890	4610	5390	8380
21	7850	17100	8070	20600	10900	23900	12600	6660	4820	4580	5370	8300
22	8070	e40800	10800	22500	10700	26500	12000	6530	4590	4500	5650	8360
23	8160	52700	13700	19900	12700	27400	11400	6340	4450	4450	6490	7760
24	8220	45500	15000	17800	12900	22400	9730	6890	4410	4430	5420	7730
25	8210	38200	14500	15800	12000	21900	8830	8430	4310	4390	5210	7770
26	8220	31700	11800	13800	10300	21600	9380	8950	4220	4400	5240	7800
27	7670	28900	9740	11800	9110	20900	9670	10200	4160	4630	5470	7350
28	7160	34900	8640	e11000	7760	22800	9520	13400	4120	4650	5540	6890
29	6690	35700	7500	e9200	---	27300	8330	15000	e4100	4850	5670	7380
30	6630	30800	8880	e8700	---	30500	7520	13300	e4300	4890	5970	7580
31	6450	---	14600	e9500	---	29400	---	12100	---	4960	6430	---
TOTAL	208140	590200	357030	665100	283640	628950	432380	258860	186340	139050	162640	220230
MEAN	6714	19670	11520	21450	10130	20290	14410	8350	6211	4485	5246	7341
MAX	8220	52700	24300	52000	16700	30500	27300	15000	10000	4980	6490	8380
MIN	5890	6500	7380	8700	5520	6970	7520	6010	4100	4100	4670	6280
AC-FT	412800	1171000	708200	1319000	562600	1248000	857600	513400	369600	275800	322600	436800

CAL YR 1988 TOTAL 3680110 MEAN 10050 MAX 52700 MIN 4080 AC-FT 7299000
WTR YR 1989 TOTAL 4132560 MEAN 11320 MAX 52700 MIN 4100 AC-FT 8197000

e Estimated

WILLAMETTE RIVER BASIN

115

14166500 LONG TOM RIVER NEAR NOTI, OR

LOCATION.--Lat 44°03'00", long 123°25'30", in SE 1/4 NW 1/4 sec.33, T.17 S., R.6 W., Lane County, Hydrologic Unit 17090003, on left bank 0.2 mi upstream from Southern Pacific Railroad bridge, 0.8 mi downstream from Noti Creek, 1.3 mi southeast of Noti, and at mile 37.4.

DRAINAGE AREA.--89.3 mi².

PERIOD OF RECORD.--October 1935 to current year.

REVISED RECORDS.--WSP 1318: 1936(M). WSP 1738: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 389.05 ft above National Geodetic Vertical Datum of 1929 (levels by National Weather Service). Prior to Nov. 6, 1940, nonrecording gage at same site and datum.

REMARKS.--Records good. Slight regulation caused by logpond upstream from Noti. No diversion upstream from station.

AVERAGE DISCHARGE.--54 years, 231 ft³/s, 35.13 in/yr, 167,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,990 ft³/s Dec. 22, 1955, gage height, 20.17 ft; minimum discharge, 0.04 ft³/s Aug. 13, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,600 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 10	1400	*1,960	*12.88	No other peak greater than base discharge.			
Minimum discharge, 8.3 ft ³ /s Sept. 15, 16, 24.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	20	280	590	208	189	451	119	64	45	25	17
2	12	37	215	435	207	238	471	111	64	41	35	15
3	12	140	175	340	194	216	433	109	58	38	32	14
4	12	106	148	288	174	198	394	120	54	34	26	14
5	13	66	131	312	175	382	367	108	50	31	23	13
6	16	132	132	287	159	986	330	100	50	30	22	12
7	16	75	121	266	144	701	297	95	49	28	20	12
8	15	e48	107	264	143	522	275	91	48	26	18	11
9	16	e44	98	475	140	477	256	89	48	27	18	11
10	16	128	93	1710	141	483	240	89	47	29	19	12
11	16	154	88	1130	147	512	219	85	46	28	24	10
12	16	99	86	719	153	533	206	84	46	26	19	9.6
13	17	107	83	643	160	752	198	83	47	24	14	9.4
14	18	77	78	697	161	1020	188	80	50	25	15	9.5
15	19	75	74	697	158	960	178	78	53	25	18	9.1
16	18	127	71	691	203	932	172	75	48	27	23	9.2
17	17	251	67	633	500	800	165	75	45	37	15	9.4
18	16	193	66	568	483	881	158	85	43	34	14	10
19	16	119	73	485	448	741	155	85	42	30	15	11
20	16	125	79	422	377	598	150	76	43	26	16	10
21	15	329	209	410	312	537	145	73	41	25	18	11
22	15	775	502	446	308	456	142	72	38	24	17	10
23	15	891	649	388	304	403	146	87	36	23	22	9.5
24	16	823	663	342	273	377	189	160	33	23	21	9.1
25	15	817	589	302	250	469	179	133	32	22	18	9.6
26	16	585	418	280	223	483	155	98	31	23	17	9.2
27	16	461	324	260	205	481	138	87	31	23	17	11
28	16	793	278	235	194	544	127	86	32	22	17	11
29	16	563	242	216	---	584	120	79	39	21	13	10
30	18	374	491	203	---	532	117	73	54	20	15	11
31	18	---	825	198	---	496	---	67	---	22	18	---
TOTAL	486	8534	7455	14932	6544	17483	6761	2852	1362	859	604	329.6
MEAN	15.7	284	240	482	234	564	225	92.0	45.4	27.7	19.5	11.0
MAX	19	891	825	1710	500	1020	471	160	64	45	35	17
MIN	12	20	66	198	140	189	117	67	31	20	13	9.1
AC-FT	964	16930	14790	29620	12980	34680	13410	5660	2700	1700	1200	654
CFSM	.18	3.19	2.69	5.39	2.62	6.32	2.52	1.03	.51	.31	.22	.12
IN.	.20	3.56	3.11	6.22	2.73	7.28	2.82	1.19	.57	.36	.25	.14

CAL YR 1988 TOTAL 65285.8 MEAN 178 MAX 2800 MIN 7.1 AC-FT 129500 CFSM 2.00 IN. 27.20
WTR YR 1989 TOTAL 68201.6 MEAN 187 MAX 1710 MIN 9.1 AC-FT 135300 CFSM 2.09 IN. 28.41

e Estimated

WILLAMETTE RIVER BASIN

14168000 FERN RIDGE LAKE NEAR ELMIRA, OR

LOCATION.--Lat 44°07'15", long 123°18'00", near center of sec.4, T.17 S., R.5 W., Lane County, Hydrologic Unit 17090003, in control house at spillway section of dam across Long Tom River and Coyote Creek, 4.5 mi northeast of Elmira, and at mile 25.7.

DRAINAGE AREA.--252 mi², not including Amazon Creek basin (see REMARKS).

PERIOD OF RECORD.--October 1941 to current year. Prior to October 1971, published as Fern Ridge Reservoir near Elmira.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Midnight elevations for Mar. 20 through Apr. 10 furnished by Corps of Engineers. Lake is formed by earth-fill dam with concrete outlet and spillway, completed in 1941 by Corps of Engineers; storage began Nov. 13, 1941. Total capacity, 116,800 acre-ft at elevation 375.1 ft, maximum pool elevation. Usable capacity, 101,100 acre-ft between elevations 340.0 ft, sill of outlet gate, and 373.5 ft, normal maximum operating pool level. Reservoir used for flood control and improvement of navigation. Since November 1951, most of flow of Amazon Creek has been diverted in SE 1/4 sec.29, T.17 S., R.4 W., and discharged into Fern Ridge Lake; drainage area at point of diversion, 21.3 mi².

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 124,500 acre-ft Dec. 27, 1955, elevation, 375.83 ft; minimum contents since first filling in 1942, 163 acre-ft Nov. 11, 1950, elevation, 344.00 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 101,900 acre-ft May 27, elevation, 373.59 ft; minimum contents, 6,750 acre-ft Dec. 14, 15, elevation, 352.71 ft.

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

349	2,270	356	12,440	364	37,490	372	87,720
350	3,250	358	17,020	366	46,940	374	105,800
352	5,730	360	22,670	368	58,320	376	126,300
354	8,760	362	29,460	370	71,900		

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	371.27	362.85	353.35	356.59	355.67	365.10	371.30	373.16	373.51	373.24	372.56	371.94
2	371.25	362.51	353.36	356.37	356.09	365.34	371.32	373.18	373.51	373.23	372.53	371.89
3	371.17	362.17	353.20	355.80	356.41	365.53	371.39	373.23	373.50	373.22	372.51	371.89
4	371.00	361.75	352.93	355.10	356.68	365.73	371.54	373.26	373.50	373.20	372.49	371.87
5	370.79	361.36	352.92	354.54	356.90	366.33	371.69	373.29	373.50	373.18	372.48	371.84
6	370.59	360.89	353.00	353.95	357.13	366.99	371.83	373.31	373.49	373.15	372.45	371.81
7	370.39	360.33	352.98	353.55	357.34	367.26	371.94	373.33	373.49	373.12	372.43	371.80
8	370.18	359.71	352.92	353.33	357.53	367.41	372.05	373.35	373.47	373.09	372.41	371.78
9	369.98	359.14	352.88	353.88	357.71	367.51	372.14	373.37	373.47	373.07	372.38	371.75
10	369.77	358.57	352.86	356.59	357.91	367.44	372.22	373.38	373.46	373.05	372.35	371.73
11	369.55	357.97	352.82	357.12	358.14	367.36	372.27	373.40	373.45	373.03	372.33	371.68
12	369.33	357.32	352.76	356.47	358.43	367.49	372.35	373.41	373.43	373.00	372.29	371.67
13	369.12	356.62	352.75	355.61	358.71	367.93	372.42	373.42	373.44	372.98	372.27	371.64
14	368.87	355.99	352.72	354.83	358.96	368.41	372.46	373.43	373.46	372.95	372.24	371.61
15	368.58	355.61	352.84	353.62	359.20	368.69	372.51	373.44	373.46	372.93	372.22	371.59
16	368.30	355.48	353.04	353.89	359.62	368.97	372.56	373.44	373.46	372.93	372.19	371.56
17	368.02	355.35	353.21	354.18	360.39	369.17	372.60	373.45	373.44	372.91	372.18	371.53
18	367.73	355.12	353.39	354.02	361.28	369.43	372.64	373.49	373.43	372.90	372.16	371.50
19	367.44	354.80	353.56	353.98	361.99	369.57	372.67	373.47	373.42	372.87	372.13	371.47
20	367.15	354.37	353.86	353.96	362.54	369.75	372.71	373.45	373.40	372.84	372.11	371.45
21	366.84	354.52	354.50	354.66	362.96	369.75	372.75	373.43	373.40	372.81	372.10	371.43
22	366.51	354.80	355.64	355.31	363.42	370.15	372.77	373.44	373.35	372.79	372.10	371.41
23	366.19	354.82	356.57	355.57	363.79	370.23	372.84	373.53	373.33	372.76	372.09	371.38
24	365.87	354.82	357.31	355.62	364.09	370.36	372.93	373.57	373.34	372.73	372.07	371.36
25	365.54	354.51	357.67	355.55	364.35	370.56	373.00	373.57	373.30	372.71	372.05	371.33
26	365.17	353.52	357.58	355.40	364.55	370.73	373.03	373.58	373.27	372.67	372.04	371.32
27	364.82	353.50	357.27	355.19	364.74	370.90	373.06	373.58	373.25	372.64	372.01	371.30
28	364.43	354.04	356.87	354.92	364.90	371.16	373.08	373.56	373.23	372.61	372.00	371.28
29	364.01	353.68	356.39	354.59	---	371.26	373.12	373.54	373.26	372.59	372.00	371.26
30	363.60	353.40	356.24	354.73	---	371.29	373.14	373.52	373.25	372.56	371.98	371.27
31	363.20	---	356.55	355.15	---	371.30	---	373.51	---	372.55	371.96	---
MAX	371.27	362.85	357.67	357.12	364.90	371.30	373.14	373.58	373.51	373.24	372.56	371.94
MIN	363.20	353.40	352.72	353.33	355.67	365.10	371.30	373.16	373.23	372.55	371.96	371.26
(†)	34120	7790	13600	10780	41540	81930	97750	101200	98750	92460	87380	81690
(‡)	-47650	-26330	+5810	-2820	+30760	+40390	+15820	+3450	-2450	-6290	-5080	-5690

CAL YR 1988 MAX 373.65 MIN 352.72 AC-FT† +1610
WTR YR 1989 MAX 373.58 MIN 352.72 AC-FT† -80

† Contents in acre-feet, at 2400, on last day of month.
‡ Change in contents, in acre-feet.

LOCATION.--Lat 44°07'25", long 123°17'55", in SW 1/4 NE 1/4 sec.4, T.17 S., R.5 W., Lane County, Hydrologic Unit 170900003, on left bank 0.2 mi downstream from Fern Ridge Dam, 1.7 mi west of Alvadore, and at mile 25.5.

PERIOD OF RECORD.--August 1939 to current year. Prior to October 1943, published as "at Smithfield," and October 1943 to September 1959, as "below Fern Ridge Dam, near Smithfield." Prior to October 1985, published figures included diversion from Fern Ridge Reservoir into Covote Creek channel (station 14169001).

GAGE.--Water-stage recorder and masonry control. Datum of gage is 332.00 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Sept. 21, 1939, nonrecording gage and Sept. 21, 1939, to Sept. 30, 1943, water-stage recorder at site 2.5 mi downstream at datum 11.09 ft lower.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1941 by Fern Ridge Lake (station 14168000). Several small diversions for irrigation upstream from station. Approximately 7 ft³/s diverted from Fern Ridge Reservoir into Coyote Creek channel. Discharge not adjusted for storage or release from Fern Ridge Lake as evaporation from reservoir at times exceeds natural flow and diversions, and beginning in November 1951, most of flow of Amazon Creek has been diverted into Fern Ridge Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,500 ft³/s Jan. 1, 1943, gage height, 15.12 ft, site and datum then in use; minimum daily discharge, 2 ft³/s Aug. 7, 1941.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,140 ft³/s Jan. 10, gage height, 6.16 ft; minimum discharge, 16 ft³/s May 16-19, Aug. 14.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	862	672	1260	72	62	1070	45	43	41	52	42
2	42	942	501	1250	52	62	959	45	24	41	53	42
3	298	1070	498	1350	53	63	593	27	24	41	48	42
4	683	1110	491	1420	53	64	223	17	24	41	45	42
5	814	1090	315	1440	53	66	61	17	24	51	45	42
6	807	1080	264	1280	53	554	44	17	24	66	45	42
7	798	1150	279	977	55	983	44	17	25	68	47	42
8	791	1190	271	959	55	818	44	17	38	68	50	42
9	784	1150	232	1400	55	1060	44	17	43	68	50	42
10	773	1120	213	1520	55	1440	44	17	43	62	50	41
11	802	1090	210	3090	55	1430	44	17	43	51	50	41
12	810	1060	207	3010	56	1110	44	17	44	55	50	47
13	815	1030	173	2890	57	821	44	17	41	65	50	55
14	896	851	156	2710	57	881	44	17	35	70	42	57
15	983	596	90	2530	58	1590	44	17	35	68	39	57
16	964	581	48	1440	59	2020	44	17	35	69	39	55
17	958	576	48	1060	57	1610	45	17	35	61	39	55
18	950	567	48	1180	56	1430	45	16	35	55	39	55
19	937	555	48	950	57	1400	45	89	30	60	39	55
20	924	542	48	790	58	842	45	147	23	68	39	55
21	950	627	109	703	59	595	45	145	27	68	39	55
22	971	1370	351	708	60	578	45	65	42	68	39	55
23	952	1950	829	712	60	570	45	21	57	67	39	55
24	934	1930	1080	713	60	457	47	103	60	66	39	55
25	913	1910	1100	710	62	399	46	143	67	67	39	55
26	939	1830	1180	702	62	393	46	164	66	68	39	55
27	943	1240	1230	693	62	390	46	175	66	68	39	55
28	968	1300	1220	681	62	598	45	193	59	68	39	55
29	1010	1490	1240	668	---	1030	45	192	52	68	39	55
30	969	1040	1260	323	---	1160	45	163	43	68	41	55
31	921	---	1260	94	---	1150	---	106	---	59	42	---
TOTAL	25341	32899	15671	39213	1613	25626	4025	2077	1207	1904	1345	1501
MEAN	817	1097	506	1265	57.6	827	134	67.0	40.2	61.4	43.4	50.0
MAX	1010	1950	1260	3090	72	2020	1070	193	67	70	53	57
MIN	42	542	48	94	52	62	44	16	23	41	39	41
AC-FT	50260	65260	31080	77780	3200	50830	7980	4120	2390	3780	2670	2980

CAL YR 1988	TOTAL 147918	MEAN 404	MAX 4550	MIN 16	AC-FT 293400
WTR YR 1989	TOTAL 152422	MEAN 418	MAX 3090	MIN 16	AC-FT 302300

WILLAMETTE RIVER BASIN

14170000 LONG TOM RIVER AT MONROE, OR

LOCATION.--Lat 44°18'50", long 123°17'45", in NE 1/4 sec.33, T.14 S., R.5 W., Benton County, Hydrologic Unit 17090003, on left bank in canalized river channel at Monroe, 110 ft upstream from bridge on State Highway 99W, 0.1 mi downstream from Shafer Creek, and at mile 6.8.

DRAINAGE AREA.--391 mi².

PERIOD OF RECORD.--November 1920 to July 1921, October 1921 to April 1926, November 1926 to May 1927, October 1927 to current year. Prior to October 1930, published as "near Monroe."

REVISED RECORDS.--WSP 654: Drainage area. WSP 1248: 1923, 1927, 1928(M). WSP 1288: 1952.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 270.57 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 24, 1944, nonrecording gage at various sites ranging from present site to 1.5 mi downstream at different datums.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated since 1941 by Fern Ridge Lake (station 14168000). Several small diversions upstream from station.

AVERAGE DISCHARGE.--66 years (water years 1922-25, 1928-89), 763 ft³/s, 552,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,300 ft³/s Jan. 2, 1943, gage height, 17.14 ft, site and datum then in use, from graph based on gage readings, includes some overflow from Willamette River near Junction City; no flow Oct. 20-22, 1944 (water filling pool at gage); minimum discharge observed prior to regulation, 7 ft³/s Sept. 29, Oct. 1, 1939.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,750 ft³/s Jan. 10, gage height, 7.53 ft; minimum discharge, 17 ft³/s June 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	788	973	1710	276	239	1420	129	118	60	60	41
2	38	821	679	1570	257	356	1270	124	77	52	62	41
3	121	1000	635	1540	210	300	1030	119	69	46	61	42
4	476	1090	601	1650	e148	266	610	94	56	41	50	42
5	724	1070	497	1840	e143	837	345	94	39	34	48	40
6	723	1060	386	1700	e138	1410	276	92	30	39	49	38
7	712	1070	391	1190	e133	1530	249	87	26	50	45	35
8	712	1130	366	1190	e137	1290	234	80	27	60	43	32
9	709	1090	334	1740	e205	1310	221	71	41	55	42	33
10	698	1100	293	2850	230	1880	211	71	53	49	42	35
11	709	1090	284	3580	203	1840	199	70	64	49	46	31
12	731	1050	276	3310	264	1680	195	67	56	36	47	29
13	733	1010	252	3350	276	1870	186	68	45	37	46	33
14	764	942	213	3470	241	1810	180	71	50	48	46	41
15	897	605	188	3120	215	2230	174	67	58	59	39	42
16	888	635	109	2390	301	3080	168	63	57	66	35	49
17	878	739	104	1570	631	2470	161	61	53	68	35	50
18	865	657	99	1670	667	2340	152	54	53	56	35	47
19	854	594	102	1450	654	1970	148	55	46	47	33	46
20	842	627	108	1190	465	1490	145	159	36	53	33	47
21	843	805	332	1270	385	1080	148	176	26	51	37	47
22	882	1710	831	1380	457	948	144	156	21	50	39	49
23	865	2660	1420	1140	466	876	150	87	25	58	39	48
24	848	2840	1940	1070	361	811	205	135	31	54	39	50
25	821	2680	1680	1030	319	913	188	208	40	51	40	51
26	824	2290	1440	995	283	790	165	227	43	51	38	56
27	857	1910	1460	961	261	844	150	221	44	53	36	55
28	848	1980	1430	920	244	1100	142	246	44	54	36	54
29	914	1930	1410	885	---	1410	136	243	59	56	32	73
30	883	1500	1860	689	---	1530	131	229	70	63	30	65
31	846	---	2070	260	---	1490	---	166	---	65	37	---
TOTAL	22544	38473	22763	52680	8570	41990	9133	3790	1457	1611	1300	1342
MEAN	727	1282	734	1699	306	1355	304	122	48.6	52.0	41.9	44.7
MAX	914	2840	2070	3580	667	3080	1420	246	118	68	62	73
MIN	38	594	99	260	133	239	131	54	21	34	30	29
AC-FT	44720	76310	45150	104500	17000	83290	18120	7520	2890	3200	2580	2660

CAL YR 1988 TOTAL 194771 MEAN 532 MAX 5770 MIN 22 AC-FT 386300
WTR YR 1989 TOTAL 205653 MEAN 563 MAX 3580 MIN 21 AC-FT 407900

e Estimated

WILLAMETTE RIVER BASIN

119

14172000 CALAPOOIA RIVER AT HOLLEY, OR

LOCATION.--Lat 44°21'05", long 122°47'10", in SE 1/4 sec.15, T.14 S., R.1 W., Linn County, Hydrologic Unit 17090003, on right bank 200 ft downstream from bridge on State Highway 228, 0.3 mi southwest of Holley, 5.0 mi upstream from Brush Creek, and at mile 45.4.

DRAINAGE AREA.--105 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1935 to current year. Prior to October 1963, published as Calapooya River at Holley.

REVISED RECORDS.--WSP 1044: 1943. WSP 1218: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 527.58 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 7, 1963, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good except for estimated daily discharges, which are fair. Slight regulation at times during low-water periods by small dam upstream. Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--54 years, 434 ft³/s, 56.13 in/yr, 314,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,600 ft³/s Dec. 22, 1964, gage height, 14.60 ft; maximum gage height, 15.30 ft Dec. 22, 1964 (backwater from debris); minimum discharge observed, 13 ft³/s Sept. 8, 1940.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 3,400 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	0830	3,540	5.68	Jan. 10	0030	*6,830	*8.62

Minimum discharge, 21 ft³/s Sept. 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	25	758	573	e490	e395	1010	225	214	72	55	49
2	30	95	643	576	e425	e405	1100	208	193	67	69	46
3	30	419	551	742	e350	e320	966	202	177	63	75	42
4	29	471	478	807	e315	e310	879	208	164	60	58	40
5	31	306	423	758	e280	e900	854	201	146	57	49	38
6	30	519	449	644	e260	e2300	830	196	137	55	44	36
7	29	305	457	549	e250	e1520	808	183	130	53	40	35
8	28	245	400	588	e240	e1040	740	169	122	51	40	33
9	28	221	353	2450	e230	e970	652	173	117	51	40	31
10	27	392	326	4400	e215	e1050	606	201	110	54	39	30
11	26	418	294	1920	e205	e930	542	179	104	51	36	29
12	26	518	267	1240	e215	e1000	519	159	99	47	35	27
13	26	473	255	e860	e205	e1460	498	147	98	45	35	26
14	27	340	236	e660	e195	e1140	480	138	117	46	35	25
15	28	391	215	e650	e185	e1220	449	129	147	47	34	25
16	30	500	201	e850	e450	1340	395	122	116	50	33	25
17	28	787	190	e930	e940	1140	362	121	102	74	32	26
18	27	589	179	e840	e840	1410	350	136	93	61	33	28
19	26	443	203	e730	e810	1280	359	133	89	53	32	27
20	26	636	259	e670	e770	1040	344	118	92	48	30	26
21	26	1410	377	e720	e850	1320	325	111	86	47	30	25
22	27	3290	504	e700	e920	1140	288	108	79	44	85	24
23	26	2310	510	e590	e960	901	272	135	75	42	304	22
24	25	1420	536	e480	e800	811	311	258	70	41	191	22
25	24	1240	447	e410	e670	1210	328	272	67	39	105	23
26	24	1060	368	e370	e550	1110	334	233	66	38	77	27
27	23	1140	323	e345	e490	1080	299	375	67	40	63	29
28	23	2130	289	e320	e430	1330	264	442	67	38	54	28
29	23	1280	321	e305	---	1310	243	347	73	36	50	26
30	23	917	799	e320	---	1110	236	285	88	38	64	32
31	22	---	763	e520	---	1130	---	243	---	40	58	---
TOTAL	832	24290	12374	26517	13540	33622	15643	6157	3305	1548	1925	902
MEAN	26.8	810	399	855	484	1085	521	199	110	49.9	62.1	30.1
MAX	34	3290	799	4400	960	2300	1100	442	214	74	304	49
MIN	22	25	179	305	185	310	236	108	66	36	30	22
AC-FT	1650	48180	24540	52600	26860	66690	31030	12210	6560	3070	3820	1790
CFSM	.26	7.71	3.80	8.15	4.61	10.3	4.97	1.89	1.05	.48	.59	.29
IN.	.29	8.61	4.38	9.39	4.80	11.91	5.54	2.18	1.17	.55	.68	.32
CAL YR 1988	TOTAL 138377	MEAN 378	MAX 3680	MIN 19	AC-FT 274500	CFSM 3.60	IN. 49.02					
WTR YR 1989	TOTAL 140655	MEAN 385	MAX 4400	MIN 22	AC-FT 279000	CFSM 3.67	IN. 49.83					

e Estimated

WILLAMETTE RIVER BASIN

14172000 CALAPOOIA RIVER AT HOLLEY, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1963 to current year.

INSTRUMENTATION.--Temperature recorder since October 1963.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 29.5°C July 17, Aug. 7, 1972, Aug. 12, 16, 1977; minimum, 0.0°C at times during winter months.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 26.5°C Aug. 7; minimum recorded, 2.5°C Dec. 17, 18, but may have been less during periods of missing record Feb. 2 to Mar. 15, Mar. 22 to May 19.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	11.0	8.5	10.0	7.5	6.5	7.0	7.0	6.5	7.0
2	---	---	---	12.0	10.5	11.0	8.0	7.0	7.5	8.0	7.0	7.5
3	---	---	---	11.5	11.0	11.0	8.0	6.5	7.0	8.0	7.5	8.0
4	---	---	---	11.5	10.5	11.0	7.0	6.0	6.5	8.0	7.5	8.0
5	---	---	---	12.0	11.0	11.5	9.0	6.5	7.5	7.5	6.0	6.5
6	---	---	---	11.5	9.5	10.5	10.0	9.0	9.5	6.5	6.0	6.0
7	---	---	---	9.0	8.5	9.0	9.5	9.0	9.0	6.5	5.5	6.0
8	---	---	---	10.0	8.5	9.0	9.0	7.5	8.0	7.0	6.0	6.5
9	---	---	---	9.0	8.5	9.0	9.0	8.0	8.5	8.0	7.0	7.5
10	---	---	---	10.0	9.0	9.5	9.0	8.5	8.5	7.5	7.0	7.5
11	---	---	---	9.5	8.5	9.5	8.5	8.0	8.5	8.0	7.0	7.5
12	---	---	---	10.0	8.5	9.5	8.5	7.5	8.0	7.0	6.0	6.5
13	---	---	---	8.5	8.0	8.5	9.0	7.5	8.5	7.0	5.5	6.5
14	---	---	---	9.0	8.0	8.5	7.5	5.0	6.5	6.5	5.5	6.0
15	---	---	---	9.0	8.0	8.5	4.5	3.5	4.0	7.0	6.5	7.0
16	---	---	---	9.0	8.0	9.0	4.0	3.0	3.5	8.0	7.0	7.5
17	---	---	---	8.5	7.5	8.0	4.0	2.5	3.5	8.0	7.5	8.0
18	---	---	---	8.5	7.5	8.0	5.0	2.5	3.5	8.5	7.5	8.0
19	---	---	---	8.0	7.0	7.5	6.5	5.0	6.0	7.5	6.5	7.0
20	---	---	---	9.0	8.0	8.5	6.5	6.0	6.0	8.0	6.0	7.0
21	---	---	---	9.5	8.0	8.5	6.5	6.0	6.0	7.5	6.5	7.5
22	---	---	---	10.0	9.0	9.5	7.0	6.0	6.5	7.0	5.5	6.5
23	---	---	---	9.0	8.0	8.5	6.5	6.0	6.5	5.5	4.5	5.0
24	---	---	---	8.0	7.5	8.0	6.5	6.0	6.5	6.0	4.5	5.5
25	12.5	9.5	10.5	8.5	8.0	8.5	7.0	6.0	6.5	6.0	5.0	5.5
26	11.0	8.5	10.0	9.0	8.0	8.5	6.0	5.0	5.5	6.0	5.0	5.5
27	11.0	7.5	9.0	9.0	7.5	8.5	6.0	5.5	5.5	7.5	6.0	6.5
28	10.5	7.0	8.5	9.0	8.0	8.5	6.5	6.0	6.0	7.5	6.0	7.0
29	11.5	7.0	9.0	8.5	7.5	8.0	7.0	6.0	6.5	7.5	5.5	6.5
30	13.5	9.0	11.0	7.5	6.5	7.0	7.0	6.5	7.0	8.0	6.0	7.0
31	13.0	8.5	10.5	---	---	---	7.0	6.0	7.0	8.0	6.0	7.0
MONTH	---	---	---	12.0	6.5	9.0	10.0	2.5	6.5	8.5	4.5	7.0

WILLAMETTE RIVER BASIN

121

14172000 CALAPOOIA RIVER AT HOLLEY, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	5.5	3.0	4.0	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	8.5	7.0	8.0	---	---	---	---	---	---
17	---	---	---	8.5	6.5	7.5	---	---	---	---	---	---
18	---	---	---	8.0	7.5	8.0	---	---	---	---	---	---
19	---	---	---	9.0	6.5	7.5	---	---	---	---	---	---
20	---	---	---	9.0	6.0	7.5	---	---	---	16.5	10.5	13.5
21	---	---	---	9.5	7.5	8.5	---	---	---	13.5	12.0	12.5
22	---	---	---	---	---	---	---	---	---	15.5	11.0	13.0
23	---	---	---	---	---	---	---	---	---	13.0	10.5	11.5
24	---	---	---	---	---	---	---	---	---	12.0	9.5	10.5
25	---	---	---	---	---	---	---	---	---	12.0	10.0	11.0
26	---	---	---	---	---	---	---	---	---	11.5	10.0	11.0
27	---	---	---	---	---	---	---	---	---	12.0	10.5	11.0
28	---	---	---	---	---	---	---	---	---	12.0	9.0	10.5
29	---	---	---	---	---	---	---	---	---	11.0	10.0	10.5
30	---	---	---	---	---	---	---	---	---	15.0	9.5	12.0
31	---	---	---	---	---	---	---	---	---	16.5	11.5	14.0
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	18.5	13.0	16.0	16.5	15.0	15.5	16.0	14.5	15.5	18.5	15.5	17.0
2	18.5	14.5	16.5	21.0	14.0	17.0	18.0	14.5	16.0	19.5	15.0	17.0
3	19.5	14.5	17.0	22.0	16.5	18.5	20.0	15.0	17.0	20.5	13.5	16.5
4	20.0	14.0	17.0	22.5	16.0	19.0	22.5	15.5	18.5	21.0	14.0	17.0
5	21.0	15.5	18.0	23.0	15.5	19.0	24.5	16.5	20.0	20.0	15.0	17.0
6	19.5	16.0	17.5	24.0	15.5	19.5	26.0	18.5	22.0	20.0	13.5	16.5
7	20.0	14.5	17.0	24.5	16.5	20.0	26.5	19.0	22.5	20.5	13.5	17.0
8	17.0	15.0	15.5	23.5	16.5	19.5	25.5	20.0	22.0	22.0	14.5	18.0
9	17.5	14.5	15.5	18.5	16.5	17.5	21.5	19.0	20.0	22.0	15.5	18.5
10	20.0	13.0	16.0	20.5	15.5	17.5	24.0	16.0	19.5	21.5	14.5	18.0
11	21.5	15.0	18.0	23.0	14.0	18.0	24.0	15.5	19.5	21.0	14.0	17.0
12	18.0	16.0	17.0	25.0	16.5	20.5	24.0	16.5	19.5	20.5	13.0	16.5
13	18.5	15.5	17.0	20.0	18.0	19.5	24.5	17.0	20.0	21.0	13.0	17.0
14	16.5	15.0	16.0	20.5	17.0	18.5	21.5	17.0	19.5	21.5	14.0	17.5
15	16.0	14.0	14.5	22.5	16.5	19.0	23.5	16.0	19.0	21.5	14.5	17.5
16	17.5	12.5	15.0	18.0	17.0	17.5	23.5	15.5	19.0	20.0	14.5	17.0
17	18.5	13.0	15.5	20.5	16.0	18.0	21.5	16.5	18.5	16.5	14.0	15.5
18	20.0	15.0	17.0	22.0	18.0	19.5	23.5	16.0	19.5	18.5	13.0	15.5
19	18.0	14.5	16.0	24.0	18.0	20.0	24.0	17.5	20.5	17.5	11.5	14.5
20	19.0	14.0	16.0	20.5	18.0	19.0	23.5	19.0	21.0	18.0	11.0	14.5
21	20.5	13.0	16.5	22.0	15.5	18.5	21.0	18.5	19.5	---	---	---
22	21.5	15.0	18.0	24.0	15.5	19.5	19.5	17.5	19.0	---	---	---
23	23.5	16.0	19.5	23.0	17.0	20.0	17.5	15.5	16.5	---	---	---
24	24.5	16.5	20.5	25.0	16.5	20.5	17.0	14.5	16.0	---	---	---
25	25.0	18.0	21.0	25.0	17.0	20.5	20.0	15.0	17.5	---	---	---
26	22.5	18.0	19.5	20.0	17.5	18.5	21.5	16.0	18.5	---	---	---
27	19.0	15.5	17.5	23.0	16.5	19.0	22.0	16.5	18.5	---	---	---
28	17.0	15.5	16.5	25.0	16.0	20.0	22.5	16.0	19.0	---	---	---
29	16.0	14.5	15.5	19.5	17.0	18.0	21.0	16.5	18.5	---	---	---
30	18.5	14.0	16.0	20.5	16.0	18.0	18.5	17.0	17.5	---	---	---
31	---	---	---	19.5	16.0	17.0	21.0	16.0	18.0	---	---	---
MONTH	25.0	12.5	17.0	25.0	14.0	19.0	26.5	14.5	19.0	---	---	---

LOCATION.--Lat 44°37'15", long 123°07'40", in NW 1/4 sec.13, T.11 S., R.4 W., Linn County, Hydrologic Unit 17090003, near right bank on upstream side of bridge on Riverside Drive at Albany, 0.6 mi downstream from Oak Creek, and at mile 3.0.

PERIOD OF DAILY RECORD.--

INSTRUMENTATION.--Temperature recorder since January 1964.

EXTREMES FOR PERIOD OF DAILY RECORD.--

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 25.5°C Aug. 7; minimum, 0.0°C Feb. 6-10.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	19.0	17.0	18.0	12.0	11.5	11.5				---	---	---
2	18.5	17.0	18.0		11.5	---				---	---	---
3	18.0	16.5	17.0	---	---	---				---	---	---
4	16.5	15.5	16.0	---	---	---				---	---	---
5	16.5	15.5	16.0	---	---	---				---	---	---
6	17.5	16.0	16.5	---	---	---				---	---	---
7	17.0	16.5	16.5	---	---	---				---	---	---
8	17.0	16.5	16.5	---	---	---				---	---	---
9	17.0	16.0	16.5	---	---	---				---	---	---
10	17.0	16.0	16.5	---	---	---				---	---	---
11	17.0	16.0	16.5	---	---	---				---	---	---
12	16.0	15.5	15.5	---	---	---				---	---	---
13	16.0	15.5	15.5	---	---	---				---	---	---
14	15.5	15.5	15.5	---	---	---				---	---	---
15	16.0	15.0	15.0	---	---	---				---	---	---
16	17.5	16.0	16.5	---	---	---				---	---	---
17	17.0	16.5	16.5	---	---	---				---	---	---
18	16.5	15.5	16.0	---	---	---				---	---	---
19	17.0	16.0	16.5	---	---	---				10.5	9.5	10.0
20	16.5	15.5	16.0	---	---	---				9.5	9.0	9.0
21	16.0	15.0	15.0	---	---	---				9.0	9.0	9.0
22	15.0	14.5	14.5	---	---	---				9.0	8.0	8.5
23	14.5	13.0	14.0	---	---	---				8.0	6.5	7.5
24	14.0	13.5	13.5	---	---	---				6.5	6.0	6.0
25	13.5	12.5	13.0	---	---	---				6.5	6.0	6.0
26	12.5	12.0	12.5	---	---	---				6.5	6.5	6.5
27	12.0	10.5	11.5	---	---	---				7.0	6.5	6.5
28	11.0	10.0	10.0	---	---	---				7.0	6.5	7.0
29	11.0	10.0	10.5	---	---	---				7.5	7.0	7.5
30	12.0	11.0	11.5	---	---	---				7.5	7.0	7.5
31	12.5	11.5	12.0	---	---	---				8.0	7.5	7.5
MONTH	19.0	10.0	15.0	---	---	---				---	---	---

WILLAMETTE RIVER BASIN

123

14173500 CALAPOOIA RIVER AT ALBANY, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	8.0	6.0	7.0	6.5	6.5	6.5	9.0	9.0	9.0	16.0	14.0	15.0
2	5.5	2.5	4.5	6.5	6.0	6.5	9.0	8.5	8.5	16.5	14.0	15.0
3	2.5	1.0	2.0	6.0	5.0	5.5	8.5	8.5	8.5	16.0	15.0	15.5
4	1.0	.5	.5	5.0	5.0	5.0	9.5	8.5	9.0	18.5	15.0	17.0
5	.5	.5	.5	6.0	5.0	5.0	11.0	9.5	10.5	19.5	16.5	18.0
6	.5	.0	.0	8.0	6.5	7.5	13.0	11.0	12.0	20.0	18.0	19.0
7	.0	.0	.0	8.0	7.5	8.0	13.5	12.5	13.0	21.5	18.5	20.0
8	.0	.0	.0	7.5	7.5	7.5	13.5	12.5	13.0	21.0	18.5	20.0
9	.5	.0	.0	9.0	7.5	8.5	13.0	12.5	12.5	19.5	17.5	18.5
10	1.0	.0	.5	9.0	9.0	9.0	13.5	12.5	13.0	17.0	16.0	16.5
11	1.5	.5	1.0	9.5	9.0	9.5	14.0	13.0	13.5	16.5	15.0	15.5
12	3.0	1.5	2.5	10.0	9.5	10.0	14.5	13.0	13.5	15.5	14.0	15.0
13	3.0	3.0	3.0	10.0	8.0	9.0	15.0	13.5	14.0	17.0	13.5	15.5
14	4.0	3.0	3.5	8.0	7.0	7.5	15.0	14.0	14.5	18.0	15.0	16.5
15	4.5	3.5	4.0	8.0	7.0	7.5	14.5	14.0	14.0	19.0	16.0	17.5
16	4.5	4.0	4.5	9.5	8.5	9.0	15.0	13.5	14.0	18.5	17.0	18.0
17	6.0	4.5	5.5	9.5	8.5	9.0	15.5	13.0	14.0	18.5	17.0	17.5
18	6.5	6.0	6.5	8.5	8.5	8.5	16.0	14.0	15.0	17.0	15.5	16.5
19	7.0	6.5	7.0	9.0	8.5	9.0	17.5	15.0	16.0	17.5	15.0	16.5
20	7.5	7.0	7.5	9.0	8.5	9.0	16.5	15.5	16.0	17.5	15.0	16.5
21	7.5	7.5	7.5	9.5	8.5	9.0	15.5	14.0	15.0	17.0	15.5	15.5
22	7.5	7.5	7.5	9.5	9.0	9.5	13.5	12.5	13.0	16.5	15.0	16.0
23	7.5	7.0	7.5	9.0	8.5	9.0	12.5	12.0	12.0	16.0	15.0	15.5
24	7.0	6.5	7.0	9.0	8.5	8.5	12.0	11.5	12.0	15.0	14.0	14.5
25	7.0	7.0	7.0	10.0	9.0	9.5	12.0	11.0	11.5	16.0	14.0	15.0
26	7.0	6.0	6.5	10.0	8.5	9.5	12.5	11.5	12.0	15.0	14.0	14.5
27	6.5	6.0	6.0	8.5	8.5	8.5	13.5	11.0	12.0	16.0	14.5	15.0
28	7.0	6.0	6.5	9.0	8.5	8.5	14.5	11.5	13.0	15.0	14.0	14.5
29	---	---	---	9.0	9.0	9.0	16.0	13.0	14.5	14.5	13.5	14.0
30	---	---	---	9.0	8.5	9.0	15.0	14.5	15.0	15.5	13.5	14.5
31	---	---	---	9.0	8.5	8.5	---	---	---	17.0	14.5	16.0
MONTH	8.0	.0	4.0	10.0	5.0	8.0	17.5	8.5	13.0	21.5	13.5	16.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	19.5	16.5	18.0	---	---	---	19.0	18.0	18.5	20.0	18.5	19.5
2	21.0	18.0	19.5	---	---	---	19.5	17.0	18.0	19.5	18.0	19.0
3	22.5	---	---	---	---	---	21.0	18.0	19.5	20.0	17.5	18.5
4	---	---	---	---	---	---	23.0	19.0	20.5	21.0	17.5	19.0
5	---	---	---	---	---	---	23.5	20.0	22.0	20.5	18.5	19.5
6	---	---	---	---	---	---	25.0	21.0	23.0	20.5	18.0	19.5
7	---	---	---	---	---	---	25.5	22.0	24.0	20.5	17.5	19.0
8	---	---	---	---	---	---	25.0	22.5	24.0	22.0	18.5	20.0
9	---	---	---	---	---	---	24.5	22.0	23.0	21.5	19.0	20.5
10	---	---	---	---	---	---	24.0	20.0	22.0	21.5	18.5	20.0
11	---	---	---	---	---	---	23.0	19.5	22.0	20.5	18.5	20.0
12	---	---	---	---	---	---	23.0	20.0	21.5	20.5	17.5	19.5
13	---	---	---	---	---	---	24.0	20.5	22.5	21.5	18.0	19.5
14	---	---	---	---	---	---	23.5	21.0	22.5	21.0	18.0	19.5
15	---	---	---	---	---	---	23.0	20.0	21.5	21.0	18.0	19.5
16	---	---	---	---	---	---	23.0	20.0	21.5	20.0	18.0	19.5
17	---	---	---	---	---	---	22.5	20.0	21.0	20.0	18.0	19.0
18	---	---	---	---	---	---	23.0	20.0	21.0	18.5	16.0	17.5
19	---	---	---	---	---	---	24.5	20.5	22.5	18.5	16.0	17.5
20	---	---	---	---	---	---	23.5	21.5	22.5	18.5	15.5	17.5
21	---	---	---	---	---	---	22.5	21.0	21.5	19.0	16.0	17.5
22	---	---	---	---	---	---	21.5	20.0	21.0	20.5	17.0	18.5
23	---	---	---	---	---	---	21.0	19.5	20.5	20.5	17.5	19.0
24	---	---	---	---	---	---	20.5	18.5	19.5	21.0	18.0	19.5
25	---	---	---	25.0	21.0	23.0	20.5	18.0	19.5	19.5	18.5	19.0
26	---	---	---	24.0	21.0	22.0	21.0	18.5	20.0	19.0	17.5	18.5
27	---	---	---	23.0	19.5	21.0	22.0	19.0	20.5	18.5	17.5	18.0
28	---	---	---	22.5	19.5	21.0	20.5	19.0	20.0	19.0	17.0	18.5
29	---	---	---	22.0	20.5	21.5	20.5	19.0	19.5	19.0	18.0	18.0
30	---	---	---	21.0	19.0	20.5	19.0	18.5	19.0	18.0	17.0	17.5
31	---	---	---	20.5	19.0	19.5	21.0	18.5	19.5	---	---	---
MONTH	---	---	---	---	---	---	25.5	17.0	21.0	22.0	15.5	19.0

WILLAMETTE RIVER BASIN

14174000 WILLAMETTE RIVER AT ALBANY, OR

LOCATION.--Lat 44°38'20", long 123°06'20", in SW 1/4 sec.6, T.11 S., R.3 W., Linn County, Hydrologic Unit 17090003, on right bank 5 ft upstream from bridge on U.S. Highway 20 (Ellsworth Street) in Albany, 0.2 mi downstream from Calapooia River, and at mile 119.31.

DRAINAGE AREA.--4,840 mi², approximately.

PERIOD OF RECORD.--November 1878 to April 1888 (fragmentary), January to June 1892, November 1892 to September 1894, December 1894 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 694: Drainage area. WSP 904: 1939. WSP 964: 1881, 1890, 1894, 1897, 1901, 1903, 1908, 1910, 1916, 1923, 1927, 1932(M). WSP 984: 1916. WSP 1248: 1895, 1902, 1907, 1915(M), 1917(M), 1918-19, 1934(M). WSP 1318 (monthly and annual figures only): 1894, 1897, 1901-3, 1907-8, 1910, 1916, 1918-19, 1923, 1927.

GAGE.--Water-stage recorder. Datum of gage is 167.18 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 27, 1906, nonrecording gage at site 0.2 mi upstream at datum 5.00 ft higher. Sept. 27, 1906, to Nov. 12, 1934, nonrecording gage at site 300 ft upstream at datum 5.00 ft higher. Nov. 14, 1934, to Sept. 30, 1962, at datum 5.00 ft higher.

REMARKS.--No estimated daily discharges. Records excellent. Flow regulated by nine reservoirs upstream from station (see elsewhere in this report). Albany power canal diverts water from South Santiam River at Lebanon and discharges into Calapooia River near mouth; small diversions for irrigation and municipal water supply.

AVERAGE DISCHARGE.--95 years (water years 1894, 1896-89), 14,430 ft³/s, 40.49 in/yr, 10,450,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 266,000 ft³/s Jan. 14, 1881, gage height, 37.8 ft, present datum; minimum discharge, 1,840 ft³/s Sept. 1, 2, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 4, 1861, reached a stage of 41.0 ft, discharge, 340,000 ft³/s, from rating curve extended above 220,000 ft³/s. Flood of Feb. 4, 1890, reached a stage of 38.9 ft, discharge, 291,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 63,300 ft³/s Jan. 11, gage height, 20.28 ft; minimum discharge, 4,570 ft³/s July 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6310	7590	31400	21000	14000	9640	31200	8450	11700	5000	5660	7040
2	6210	7750	26200	17700	15400	9810	28900	8150	10000	4870	5750	7010
3	6250	8380	22900	16500	17800	10400	28000	7460	8880	4760	5700	6970
4	6460	9970	18500	18900	16500	9600	25100	7280	8580	4630	5550	6940
5	6860	11600	16600	21300	14700	11000	22100	7190	8580	4650	5350	6960
6	6900	11600	15000	22500	12200	20300	20500	7190	8810	4660	5410	7160
7	6860	12400	14400	20000	10800	29100	19600	8170	9100	4710	5340	7810
8	6930	11700	14300	18200	9500	27100	18700	8560	8850	4690	5270	8000
9	7060	11800	13500	19800	9200	22100	18000	8930	8570	4710	5340	8130
10	7100	11800	12600	38500	9480	21800	17100	9480	8440	4740	5400	8210
11	7080	12500	11900	58800	9360	22800	16300	10100	7930	4710	5440	7980
12	7120	12100	11600	59700	8740	22700	15600	10400	7440	4690	5460	6980
13	7290	13200	11100	51500	9030	24500	14900	9790	6320	4660	5640	6710
14	7310	13800	10400	45500	8770	29300	14500	8770	5700	4700	5630	6690
15	7350	12900	10000	41000	8000	28000	14400	8430	5680	4710	5660	6690
16	7260	13300	9470	37300	7930	31800	14200	7770	6310	5010	5680	6700
17	7240	15900	8930	34400	11900	36200	13800	7140	6580	5290	5710	6790
18	7300	21100	8650	30000	16800	33800	13600	6660	6480	5360	5720	7350
19	8020	19800	8490	26600	17900	33900	13700	6710	6310	5170	5890	7960
20	8190	17600	8610	24400	17700	31900	13300	7390	5630	5090	5920	8200
21	8550	17900	9300	24100	15500	28900	13100	7410	5420	5010	5970	8160
22	8890	26500	12500	27300	14700	29100	13200	7260	5270	4980	6070	8140
23	9020	44500	17300	26000	16600	29400	12600	7140	5020	4900	6650	7940
24	9110	53600	20800	22500	16800	27400	11800	7090	4870	4870	6820	7500
25	9120	53400	22100	20200	15500	25200	10600	8290	4820	4830	6040	7520
26	9100	45400	18500	18300	13800	26500	10300	9310	4790	4790	6000	7570
27	9010	37100	15200	16100	12200	24600	10400	9920	4720	4890	6110	7510
28	8440	37300	13400	14300	10900	24700	10600	12000	4660	5080	6220	6970
29	8040	43200	11800	13200	---	29100	10100	14200	4640	5150	6380	7000
30	7800	38900	13000	12600	---	31700	8800	14300	4860	5360	6420	7410
31	7630	---	19400	12300	---	32500	---	13100	---	5480	6740	---
TOTAL	235810	654590	457850	830500	361710	774850	485000	274040	204960	152150	180940	222000
MEAN	7607	21820	14770	26790	12920	25000	16170	8840	6832	4908	5837	7400
MAX	9120	53600	31400	59700	17900	36200	31200	14300	11700	5480	6820	8210
MIN	6210	7500	8490	12300	7930	9600	8800	6660	4640	4630	5270	6690
AC-FT	467700	1298000	908100	1647000	717500	1537000	962000	543600	406500	301800	358900	440300
CFSM	1.57	4.51	3.05	5.54	2.67	5.16	3.34	1.83	1.41	1.01	1.21	1.53
IN.	1.81	5.03	3.52	6.38	2.78	5.96	3.73	2.11	1.58	1.17	1.39	1.71
CAL YR 1988	TOTAL 4416210	MEAN 12070	MAX 66600	MIN 4450	AC-FT 8760000	CFSM 2.49	IN. 33.94					
WTR YR 1989	TOTAL 4834400	MEAN 13240	MAX 59700	MIN 4630	AC-FT 9589000	CFSM 2.74	IN. 37.16					

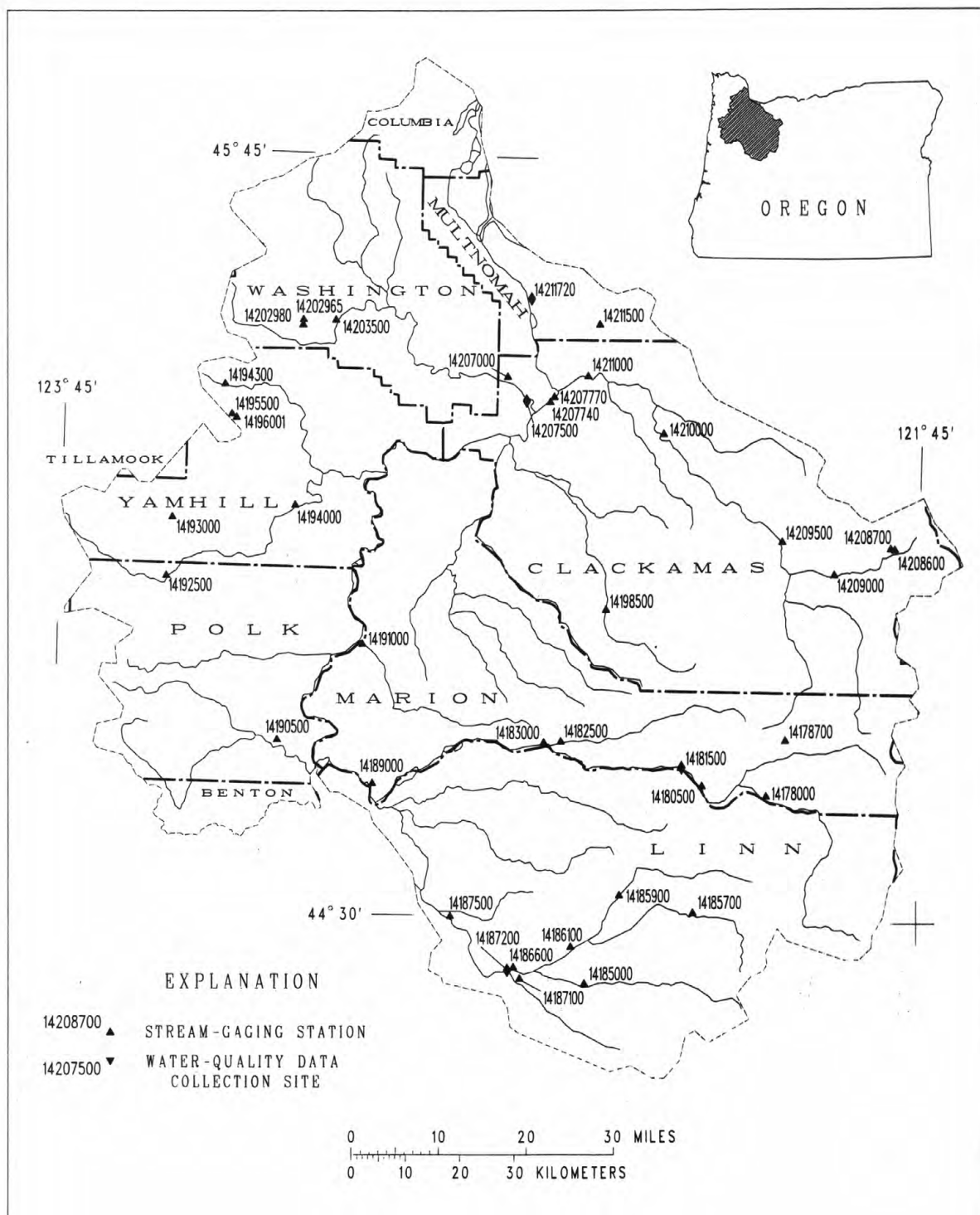


Figure 4.--Location of surface-water and water-quality stations in the Santiam River, Willamette River, downstream from the Luckiamute River, Yamhill River, Molalla-Pudding River, Tualatin River, and Clackamas River basins.

NORTH SANTIAM RIVER BASIN

14178000 NORTH SANTIAM RIVER BELOW BOULDER CREEK, NEAR DETROIT, OR

LOCATION.--Lat 44°42'25", long 122°06'00", in SE 1/4 NW 1/4 sec.17, T.10 S., R.6 E., Marion County, Hydrologic Unit 17090005, on right bank 0.5 mi downstream from Boulder Creek, 3.0 mi southeast of Detroit, and at mile 70.7.

DRAINAGE AREA.--216 mi².

PERIOD OF RECORD.--January 1907 to October 1909, October 1928 to current year. Monthly discharge only January 1907, published in WSP 1318. Prior to October 1952, published as "at Detroit."

REVISED RECORDS.--WSP 814: Drainage area at former site. WSP 1248: 1931. WRD OR-85-2: 1982-82(P).

GAGE.--Water-stage recorder. Datum of gage is 1,590.07 ft above National Geodetic Vertical Datum of 1929. See WSP 1738 for history of changes prior to Oct. 1, 1952.

REMARKS.--No estimated daily discharges. Records excellent except for flows above 3,000 ft³/s, and estimated daily discharges, which are fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--63 years, 1,004 ft³/s, 63.12 in/yr, 727,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,700 ft³/s Dec. 22, 1964, slope-area measurement of peak flow, gage height, 13.76 ft, temporary backwater from debris; minimum discharge, 250 ft³/s Sept. 13, 1909.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,700 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	2100	*5,670	*7.14	Jan. 9	2400	4,120	6.43

Minimum discharge, 335 ft³/s Oct. 28 to Nov. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	372	350	1290	692	898	747	1470	1680	1050	645	471	414
2	371	500	1170	714	829	741	1590	1570	1120	616	498	410
3	367	920	1080	776	e700	694	1440	1490	1140	610	480	406
4	364	1060	1020	809	e630	671	1400	1540	1200	606	469	404
5	363	758	969	808	e650	1030	1530	1720	1200	594	465	402
6	361	1030	1150	774	e670	2420	1770	1860	1150	585	467	397
7	360	741	1410	741	e680	2090	2040	1860	1080	585	472	394
8	357	682	1300	734	650	1700	2140	1760	1020	571	475	392
9	355	664	1260	1540	634	1700	2070	1760	990	562	520	390
10	352	1070	1260	2820	618	2070	2000	1720	950	551	472	386
11	352	1080	1210	1810	602	2080	1970	1480	921	546	456	382
12	351	1270	1190	1440	589	2090	2020	1290	935	549	449	378
13	351	1110	1300	1280	574	2090	2120	1170	924	550	442	378
14	360	918	1200	1130	560	1780	2250	1110	920	545	438	377
15	379	871	1070	1080	547	1620	2300	1070	1010	541	433	377
16	374	956	970	1120	591	1560	2180	1060	906	551	429	378
17	372	954	886	1200	646	1450	2090	1080	821	577	430	377
18	363	816	828	1180	711	1620	2150	1070	782	548	427	377
19	362	760	813	1130	826	1530	2460	981	777	536	426	374
20	354	927	793	1080	798	1400	2490	931	813	525	424	371
21	351	1800	775	1090	795	1710	2190	915	744	510	434	369
22	351	4400	755	1040	903	1700	1870	897	722	502	535	365
23	347	3540	730	963	1010	1540	1690	947	735	501	508	365
24	344	2200	709	902	954	1450	1840	1020	760	491	476	366
25	344	1690	669	851	887	1820	1800	1060	742	488	449	367
26	343	1390	630	812	835	1780	1910	993	718	489	437	376
27	340	1500	609	787	795	1680	1730	1130	687	485	427	372
28	339	2360	593	756	764	1720	1620	1130	652	476	420	368
29	335	1790	609	735	---	1620	1560	1080	647	474	421	369
30	335	1470	813	738	---	1470	1620	1030	687	473	431	392
31	337	---	747	876	---	1510	---	1010	---	468	420	---
TOTAL	11006	39577	29808	32408	20346	49083	57310	39414	26803	16750	14101	11473
MEAN	355	1319	962	1045	727	1583	1910	1271	893	540	455	382
MAX	379	4400	1410	2820	1010	2420	2490	1860	1200	645	535	414
MIN	335	350	593	692	547	671	1400	897	647	468	420	365
AC-FT	21830	78500	59120	64280	40360	97360	113700	78180	53160	33220	27970	22760
CFSM	1.64	6.11	4.45	4.84	3.36	7.33	8.84	5.89	4.14	2.50	2.11	1.77
IN.	1.90	6.82	5.13	5.58	3.50	8.45	9.87	6.79	4.62	2.88	2.43	1.98

CAL YR 1988 TOTAL 341667 MEAN 934 MAX 4400 MIN 335 AC-FT 677700 CFSM 4.32 IN. 58.84
WTR YR 1989 TOTAL 348079 MEAN 954 MAX 4400 MIN 335 AC-FT 690400 CFSM 4.42 IN. 59.95

e Estimated

NORTH SANTIAM RIVER BASIN

127

14178700 EAST HUMBUG CREEK NEAR DETROIT, OR

LOCATION.--Lat 44°47'57", long 122°03'28", in NW 1/4 NE 1/4 sec.15, T.9 S., R.6 E., Marion County, Hydrologic Unit 17090005, in Willamette National Forest, on left bank 1.6 mi upstream from confluence with Humbug Creek, and 6.3 mi northeast of Detroit.

DRAINAGE AREA.--7.32 mi².

PERIOD OF RECORD.--August 1978 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,050 ft, from topographic map.

REMARKS.--Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--11 years, 38.1 ft³/s, 70.68 in/yr, 27,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,310 ft³/s Dec. 25, 1980, from rating curve extended above 450 ft³/s, gage height, 4.42 ft; minimum discharge, 1.6 ft³/s Sept. 30, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 280 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	1600	*595	*3.88	Mar. 5	2300	386	3.61
Jan. 9	2100	550	3.83				

Minimum discharge, 2.1 ft³/s Oct. 26 to Nov. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	2.8	51	26	58	28	68	52	21	6.4	3.7	3.2
2	2.5	16	49	29	42	25	68	47	19	6.1	5.6	3.2
3	2.4	44	47	57	e35	22	57	42	17	5.8	3.9	3.1
4	2.4	47	46	59	e30	20	63	44	16	5.7	3.5	3.0
5	2.4	25	43	50	e25	143	108	49	15	5.5	3.3	2.8
6	2.4	64	114	38	e22	282	142	49	14	5.3	3.2	2.8
7	2.4	31	115	31	e19	151	156	45	13	5.2	3.3	2.7
8	2.3	26	76	28	e17	89	135	40	12	5.0	3.9	2.7
9	2.3	27	66	209	e16	99	111	38	11	5.0	5.9	2.7
10	2.2	62	64	215	e15	150	102	34	11	5.0	3.6	2.7
11	2.2	55	57	83	e14	141	105	31	10	4.7	3.2	2.6
12	2.3	76	53	55	e13	133	112	26	9.6	4.6	3.2	2.5
13	2.3	53	54	45	e12	121	118	23	9.1	4.5	3.1	2.5
14	2.6	36	44	37	11	81	124	22	9.6	4.3	3.1	2.5
15	3.3	42	36	37	11	69	113	21	9.3	4.2	3.2	2.5
16	2.8	82	31	65	13	74	94	20	8.8	5.2	3.1	2.5
17	2.5	60	26	85	24	67	87	19	8.3	5.2	3.1	2.5
18	2.4	42	23	79	42	91	93	19	8.1	4.4	3.0	2.5
19	2.4	35	23	72	52	77	109	17	8.1	4.1	3.0	2.5
20	2.4	59	21	68	42	64	103	16	8.8	4.0	2.9	2.4
21	2.3	219	20	67	40	112	80	15	8.0	3.9	3.2	2.4
22	2.3	427	18	57	67	94	61	15	7.6	3.8	7.5	2.3
23	2.2	215	16	44	70	71	53	16	7.3	3.7	7.1	2.3
24	2.2	95	15	36	51	66	65	23	7.0	3.6	4.7	2.3
25	2.2	59	12	32	40	124	62	35	6.6	3.5	3.9	2.3
26	2.2	43	11	28	36	104	69	31	6.6	3.5	3.5	2.5
27	2.1	89	9.9	30	33	88	60	33	6.5	3.4	3.3	2.4
28	2.1	162	9.3	28	29	92	55	35	6.4	3.3	3.4	2.3
29	2.1	84	12	27	---	80	53	30	6.8	3.2	3.4	2.2
30	2.1	59	56	37	---	68	54	25	7.1	3.2	3.5	3.3
31	2.1	---	37	85	---	74	---	22	---	3.2	3.2	---
TOTAL	72.9	2336.8	1255.2	1839	879	2900	2680	934	308.6	138.5	117.5	78.2
MEAN	2.35	77.9	40.5	59.3	31.4	93.5	89.3	30.1	10.3	4.47	3.79	2.61
MAX	3.3	427	115	215	70	282	156	52	21	6.4	7.5	3.3
MIN	2.1	2.8	9.3	26	11	20	53	15	6.4	3.2	2.9	2.2
AC-FT	145	4640	2490	3650	1740	5750	5320	1850	612	275	233	155
CFSM	.32	10.6	5.53	8.10	4.29	12.8	12.2	4.12	1.41	.61	.52	.36
IN.	.37	11.88	6.38	9.35	4.47	14.74	13.62	4.75	1.57	.70	.60	.40

CAL YR 1988	TOTAL 14223.7	MEAN 38.9	MAX 427	MIN 2.1	AC-FT 28210	CFSM 5.31	IN. 72.28
WTR YR 1989	TOTAL 13539.7	MEAN 37.1	MAX 427	MIN 2.1	AC-FT 26860	CFSM 5.07	IN. 68.81

e Estimated

NORTH SANTIAM RIVER BASIN

14180500 DETROIT LAKE NEAR DETROIT, OR

LOCATION.--Lat 44°43'20", long 122°14'55", in SW 1/4 NW 1/4 sec.7, T.10 S., R.5 E., Marion County, Hydrologic Unit 17090005, in control house near right abutment of Detroit Dam on North Santiam River, 4.9 mi west of Detroit, and at mile 60.9.

DRAINAGE AREA.--437 mi².

PERIOD OF RECORD.--January 1953 to current year. Prior to October 1971, published as Detroit Reservoir near Detroit.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Reservoir is formed by concrete, gravity-type dam with six 42-ft by 28-ft control gates. Length of dam is 1,580 ft, built by Corps of Engineers. Storage began in January 1953. Total capacity is 455,100 acre-ft and usable capacity is 340,100 acre-ft between elevations 1,425.0 ft, proposed lower limit of operation, and 1,569.0 ft, top of spillway gates. Reservoir used for flood control, power development, irrigation, improvement of navigation, pollution abatement, and other purposes. Figures given herein represent total contents.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 457,900 acre-ft July 13, 1972, elevation, 1,569.79 ft; minimum contents, 115,500 acre-ft Jan. 30, 1969, elevation, 1,425.37 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 442,400 acre-ft June 5, elevation, 1,565.34 ft; minimum contents, 116,900 acre-ft Feb. 10, elevation, 1,426.35 ft.

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

1,425	115,000	1,480	210,900	1,530	331,500
1,430	122,200	1,490	232,000	1,540	360,200
1,440	137,700	1,500	254,600	1,550	390,900
1,450	154,400	1,510	278,700	1,560	424,000
1,460	172,200	1,520	304,400	1,570	458,600

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1533.73	1490.59	1470.91	1451.05	1460.13	1448.92	1532.00	1559.40	1564.37	1564.22	1562.36	1557.87
2	1532.63	1489.69	1467.90	1452.06	1456.76	1449.78	1534.02	1559.89	1564.72	1564.12	1562.31	1557.66
3	1531.56	1489.49	1464.60	1452.33	1452.71	1450.53	1535.67	1560.34	1564.85	1564.03	1562.21	1557.43
4	1530.34	1489.12	1461.10	1452.81	1448.10	1451.11	1536.80	1560.88	1565.03	1563.99	1562.06	1557.19
5	1529.17	1488.24	1457.75	1453.18	1443.30	1453.93	1538.26	1561.59	1564.86	1563.93	1561.90	1556.96
6	1527.92	1488.40	1458.20	1452.75	1438.42	1463.41	1539.78	1562.44	1564.66	1563.94	1561.74	1556.72
7	1526.72	1487.50	1459.47	1452.11	1433.41	1469.02	1541.28	1563.14	1564.40	1563.94	1561.57	1556.48
8	1525.50	1486.46	1459.92	1451.77	1430.80	1472.64	1542.86	1563.65	1564.07	1563.94	1561.46	1556.09
9	1524.21	1485.36	1460.17	1457.68	1428.32	1475.91	1544.02	1564.13	1563.67	1563.93	1561.33	1555.63
10	1522.90	1485.43	1460.30	1464.17	1426.57	1480.62	1544.95	1564.12	1563.67	1563.92	1561.15	1555.18
11	1521.59	1485.41	1460.24	1463.69	1426.94	1484.75	1545.78	1563.75	1563.63	1563.88	1561.00	1554.73
12	1520.22	1485.85	1459.91	1461.97	1427.10	1488.93	1546.65	1563.41	1563.61	1563.80	1560.84	1554.28
13	1518.84	1485.73	1460.03	1461.71	1427.21	1493.18	1547.65	1563.33	1563.81	1563.75	1560.70	1553.78
14	1517.50	1484.84	1459.78	1461.52	1427.25	1496.37	1548.90	1563.14	1563.94	1563.70	1560.53	1553.31
15	1516.16	1484.00	1459.13	1461.18	1427.35	1498.77	1550.09	1563.16	1564.10	1563.69	1560.33	1552.79
16	1514.74	1483.48	1458.19	1461.62	1427.81	1501.28	1550.93	1563.43	1563.96	1563.71	1560.10	1552.26
17	1513.32	1482.89	1456.93	1462.43	1428.79	1503.46	1551.58	1563.69	1563.72	1563.74	1559.94	1551.73
18	1511.88	1481.10	1455.48	1463.12	1430.22	1506.33	1552.39	1563.70	1563.45	1563.72	1559.73	1550.86
19	1510.44	1478.29	1454.16	1463.45	1432.06	1508.69	1553.55	1563.52	1563.48	1563.67	1559.62	1549.46
20	1508.95	1476.09	1453.60	1462.63	1433.67	1510.70	1554.86	1563.30	1563.52	1563.61	1559.41	1548.02
21	1507.42	1478.33	1452.48	1462.08	1435.39	1513.51	1555.59	1563.08	1563.46	1563.56	1559.23	1546.57
22	1505.90	1488.03	1451.11	1461.22	1437.72	1516.19	1555.97	1563.14	1563.54	1563.46	1559.27	1545.00
23	1504.24	1490.69	1449.48	1460.22	1440.57	1518.20	1556.09	1563.34	1563.61	1563.48	1559.22	1543.44
24	1502.65	1486.78	1447.76	1459.20	1442.68	1520.13	1556.49	1563.71	1563.77	1563.34	1559.19	1541.76
25	1501.03	1481.35	1446.07	1458.90	1444.36	1523.26	1557.44	1563.84	1563.88	1563.22	1559.03	1540.11
26	1499.41	1476.15	1445.92	1458.84	1445.76	1525.91	1558.30	1563.89	1564.04	1563.05	1558.89	1538.48
27	1497.71	1474.91	1446.13	1459.10	1446.94	1527.94	1558.57	1564.07	1564.10	1562.98	1558.74	1536.78
28	1496.07	1476.54	1446.40	1459.08	1447.98	1529.01	1558.73	1564.44	1564.15	1562.86	1558.58	1535.07
29	1494.59	1475.62	1446.91	1459.21	---	1529.88	1558.74	1564.36	1564.23	1562.73	1558.41	1533.36
30	1493.25	1473.57	1448.81	1459.29	---	1530.38	1558.79	1564.01	1564.28	1562.58	1558.21	1531.90
31	1491.90	---	1450.09	1460.39	---	1530.93	---	1564.06	---	1562.48	1558.09	---
MAX	1533.73	1490.69	1470.91	1464.17	1460.13	1530.93	1558.79	1564.44	1565.03	1564.22	1562.36	1557.87
MIN	1491.90	1473.57	1445.92	1451.05	1426.57	1448.92	1532.00	1559.40	1563.45	1562.48	1558.09	1531.90
(+)	236200	198100	154500	172900	150900	334100	419800	437900	438700	432500	417500	336900
(#)	-108900	-38100	-43600	+18400	-22000	+183200	+85700	+18100	+800	-6200	-15000	-80600

CAL YR 1988 MAX 1564.64 MIN 1445.92 AC-FT† -500

WTR YR 1989 MAX 1565.03 MIN 1426.57 AC-FT† -8200

† Contents, in acre-feet, at 2400, on last day of month.

Change in contents, in acre-feet.

NORTH SANTIAM RIVER BASIN

129

14181500 NORTH SANTIAM RIVER AT NIAGARA, OR

LOCATION.--Lat 44°45'10", long 122°17'50", in NE 1/4 NE 1/4 sec.34, T.9 S., R.4 E., Linn County, Hydrologic Unit 17090005, on left bank 0.1 mi downstream from Little Sardine Creek, 0.8 mi downstream from Big Cliff Dam, 2.1 mi east of Niagara, and at mile 57.3.

DRAINAGE AREA.--453 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1908 to January 1920, October 1921 to March 1922, October 1938 to current year.

Monthly discharge only for some periods, published in WSP 1318. Published as "North Fork of Santiam River near Niagara" prior to October 1913, and as "above Mayflower Creek, near Detroit" October 1938 to September 1952.

REVISED RECORDS.--WSP 1288: 1914-18, 1920. WSP 1718: 1953-54.

GAGE.--Water-stage recorder. Datum of gage is 1,093.78 ft above National Geodetic Vertical Datum of 1929 (Federal Highway Administration bench mark). See WSP 1738 for history of changes prior to Oct. 1, 1952.

REMARKS.--No estimated daily discharges. Water-discharge records excellent. Flow regulated since 1953 by Detroit Lake (station 14180500) and Big Cliff Reservoir, usable capacity for reregulating purposes, 2,930 acre-ft. No diversion upstream from station.

AVERAGE DISCHARGE.--61 years (water years 1910-19, 1939-89), 2,323 ft³/s, 69.64 in/yr, 1,683,000 acre-ft/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 63,200 ft³/s Nov. 22, 1909, gage height, 16.4 ft, from floodmark, site and datum then in use, from rating curve extended above 35,000 ft³/s; minimum discharge, 19 ft³/s Aug. 21, 1963; minimum daily, 395 ft³/s Mar. 25, 26, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,400 ft³/s Nov. 24, gage height, 7.66 ft; minimum discharge, 405 ft³/s Aug. 8; minimum daily, 908 ft³/s Feb. 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2190	2170	5810	978	2900	916	1950	2010	1470	1160	962	996
2	2190	2170	5820	1220	5310	915	948	1970	1460	1160	960	1000
3	2210	2670	5810	2020	5440	921	932	1980	1810	1160	952	1010
4	2380	2930	5760	1980	5660	918	1760	1930	1880	1060	957	1010
5	2380	3010	5450	1970	5680	924	1770	1950	2400	1050	953	999
6	2380	2920	2950	2460	5530	925	2400	1970	2510	946	964	1010
7	2360	2990	2950	2500	5460	927	2770	2090	2250	931	962	1010
8	2340	2960	2970	2150	3470	923	2780	2290	2300	926	968	1310
9	2290	2920	2950	2060	3070	926	2780	2910	2370	929	976	1340
10	2360	2960	2940	3750	2600	947	2910	3070	1590	933	975	1340
11	2420	3080	2960	5660	970	948	2930	3180	1550	939	979	1340
12	2500	3140	2920	5450	1070	957	2900	2720	1560	988	959	1330
13	2460	3130	2940	3480	1070	960	2930	2130	1310	926	955	1340
14	2450	3180	2920	2990	1000	951	2890	2100	1400	936	957	1350
15	2480	3270	2900	3030	972	956	2920	1620	1480	926	962	1360
16	2450	3260	2900	2990	938	964	2970	1420	1760	925	964	1380
17	2450	3390	2960	2930	942	957	2990	1480	1750	928	977	1410
18	2440	4190	2970	2970	923	956	2930	1800	1760	933	981	2060
19	2490	4970	2950	2990	934	955	2900	2080	1340	909	980	2910
20	2560	5140	2360	3590	930	957	2890	2000	1320	931	980	3070
21	2550	4220	2550	3680	927	958	2890	1880	1290	945	975	3190
22	2500	3560	2990	3640	930	949	2890	1530	1070	950	969	3110
23	2530	6930	3080	3550	925	954	2860	1360	1070	954	972	3240
24	2560	10300	2980	3130	921	961	2780	1360	949	943	962	3230
25	2570	10300	2670	2450	916	960	1820	1850	944	947	967	3250
26	2530	9070	1530	1960	933	952	2410	1920	946	953	964	3240
27	2550	5850	1120	1650	908	1420	2740	2090	933	954	957	3290
28	2540	5820	992	1650	912	2780	2810	1760	935	953	953	3270
29	2230	5880	983	1660	---	2760	2740	2220	1020	953	966	3170
30	2150	5810	984	1650	---	2780	2780	2660	1050	948	956	2940
31	2130	---	985	1790	---	2730	---	1770	---	954	962	---
TOTAL	74620	132190	93054	83978	62241	37007	76970	63100	45477	30050	29926	60505
MEAN	2407	4406	3002	2709	2223	1194	2566	2035	1516	969	965	2017
MAX	2570	10300	5820	5660	5680	2780	2990	3180	2510	1160	981	3290
MIN	2130	2170	983	978	908	915	932	1360	933	909	952	996
AC-FT	148000	262200	184600	166600	123500	73400	152700	125200	90200	59600	59360	120000
MEAN†	636	3766	2293	3009	1828	4173	4006	2331	1529	868	721	662
CFSM†	1.40	8.31	5.06	6.64	4.04	9.21	8.84	5.15	3.38	1.92	1.59	1.46
IN.†	1.62	9.28	5.84	7.66	4.20	10.62	9.87	5.93	3.77	2.21	1.84	1.63
AC-FT†	39100	224100	141000	185000	101500	256600	238400	143300	91000	53400	44360	39400

CAL YR 1988 TOTAL 795336 MEAN 2173 MAX 10300 MIN 975 AC-FT 1578000 MEAN† 2174 CFSM† 4.80 IN.† 65.33 AC-FT† 1578000
WTR YR 1989 TOTAL 789118 MEAN 2162 MAX 10300 MIN 908 AC-FT 1565000 MEAN† 2151 CFSM† 4.75 IN.† 64.46 AC-FT† 1557000

† Adjusted for change in contents in Detroit Lake.

NORTH SANTIAM RIVER BASIN

14181500 NORTH SANTIAM RIVER AT NIAGARA, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: January 1953 to current year.

INSTRUMENTATION.--Temperature recorder since January 1953.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 16.5°C July 28, 29, 1958; minimum, 1.0°C Jan. 30 to Feb. 4, 1979.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 14.5°C Oct. 27, 28; minimum, 2.0°C Feb. 7-12, 15-17.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	12.5	12.0	12.0	14.0	14.0	14.0	8.0	7.5	7.5	5.0	5.0	5.0
2	12.5	12.0	12.5	14.0	14.0	14.0	7.5	7.5	7.5	5.0	5.0	5.0
3	12.5	12.0	12.5	14.0	13.5	13.5	7.5	7.0	7.5	5.0	5.0	5.0
4	12.5	12.0	12.5	13.5	13.5	13.5	7.5	7.0	7.0	5.0	5.0	5.0
5	13.0	12.5	12.5	13.5	13.0	13.5	7.5	7.0	7.0	5.0	4.5	5.0
6	13.0	12.5	12.5	13.0	12.0	12.5	7.0	7.0	7.0	4.5	4.5	4.5
7	13.0	12.5	13.0	13.0	12.5	12.5	7.0	6.5	7.0	4.5	4.5	4.5
8	13.0	12.5	13.0	13.0	12.5	12.5	7.0	6.5	7.0	4.5	4.5	4.5
9	13.0	12.5	13.0	12.5	12.0	12.0	7.0	7.0	7.0	5.0	4.5	4.5
10	13.5	13.0	13.0	12.5	12.0	12.5	7.0	7.0	7.0	5.0	4.5	4.5
11	13.5	13.0	13.0	12.0	11.5	11.5	7.0	7.0	7.0	4.5	4.5	4.5
12	13.5	13.0	13.0	12.0	11.0	11.5	7.0	7.0	7.0	4.5	4.5	4.5
13	13.5	13.5	13.5	11.5	11.0	11.0	7.0	6.5	6.5	4.5	4.5	4.5
14	13.5	13.5	13.5	11.5	11.0	11.5	6.5	6.0	6.0	4.5	4.5	4.5
15	14.0	13.5	13.5	11.0	10.5	11.0	6.0	6.0	6.0	4.5	4.5	4.5
16	14.0	13.5	13.5	11.0	10.5	11.0	6.0	6.0	6.0	4.5	4.5	4.5
17	14.0	14.0	14.0	10.5	10.0	10.5	6.0	6.0	6.0	4.5	4.5	4.5
18	14.0	13.5	14.0	10.5	10.0	10.5	6.0	6.0	6.0	4.5	4.5	4.5
19	14.0	13.5	14.0	10.5	10.5	10.5	6.0	6.0	6.0	4.5	4.5	4.5
20	14.0	14.0	14.0	10.0	10.0	10.0	6.0	5.5	5.5	4.5	4.5	4.5
21	14.0	13.5	14.0	10.0	9.5	10.0	5.5	5.5	5.5	4.5	4.5	4.5
22	14.0	14.0	14.0	9.5	9.0	9.5	5.5	5.5	5.5	4.5	4.5	4.5
23	14.0	14.0	14.0	9.0	8.5	8.5	5.5	5.0	5.5	4.5	4.0	4.5
24	14.0	13.5	14.0	8.5	8.0	8.5	5.0	5.0	5.0	4.0	4.0	4.0
25	14.0	14.0	14.0	8.5	8.0	8.0	5.0	5.0	5.0	4.0	4.0	4.0
26	14.0	14.0	14.0	8.5	8.0	8.0	5.0	5.0	5.0	4.0	4.0	4.0
27	14.5	13.5	14.0	8.5	8.0	8.0	5.0	5.0	5.0	4.5	4.0	4.5
28	14.5	14.0	14.0	8.0	7.5	8.0	5.0	5.0	5.0	4.5	4.0	4.5
29	14.0	13.5	14.0	8.0	7.5	7.5	5.0	5.0	5.0	4.5	4.0	4.5
30	14.0	14.0	14.0	8.0	8.0	8.0	5.0	5.0	5.0	4.5	4.0	4.5
31	14.0	14.0	14.0	---	---	---	5.0	5.0	5.0	4.5	4.0	4.5
MONTH	14.5	12.0	13.5	14.0	7.5	11.0	8.0	5.0	6.0	5.0	4.0	4.5

131

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	4.0	4.0	4.0	3.5	3.5	3.5	5.0	4.5	5.0	6.5	6.0	6.0
2	4.0	3.5	4.0	3.5	3.5	3.5	5.0	5.0	5.0	7.0	6.5	6.5
3	3.5	3.5	3.5	3.5	3.5	3.5	5.5	5.0	5.0	7.0	5.5	6.5
4	3.0	3.0	3.0	3.5	3.5	3.5	5.0	5.0	5.0	6.5	5.5	6.0
5	3.0	3.0	3.0	4.0	3.5	3.5	6.0	5.0	5.5	7.0	6.5	6.5
6	3.0	2.5	2.5	4.5	4.0	4.0	6.0	5.5	5.5	7.0	6.5	7.0
7	2.5	2.0	2.5	4.5	4.5	4.5	5.5	5.0	5.5	7.0	6.5	6.5
8	2.0	2.0	2.0	5.0	4.5	5.0	5.5	5.0	5.0	6.5	6.0	6.5
9	2.0	2.0	2.0	5.0	4.5	4.5	6.0	5.0	5.5	7.0	6.0	6.5
10	2.0	2.0	2.0	5.0	4.5	4.5	6.5	5.5	6.0	7.5	6.5	7.0
11	2.0	2.0	2.0	5.0	4.5	5.0	6.0	5.0	5.5	6.5	6.0	6.5
12	2.5	2.0	2.0	5.0	5.0	5.0	5.5	5.0	5.5	6.5	6.0	6.5
13	2.5	2.5	2.5	5.0	4.5	4.5	6.0	5.5	6.0	7.0	6.0	6.5
14	2.5	2.5	2.5	4.5	4.5	4.5	6.0	5.5	5.5	7.0	6.5	7.0
15	2.5	2.0	2.0	4.5	4.5	4.5	5.5	5.0	5.5	7.0	6.5	6.5
16	2.0	2.0	2.0	4.5	4.5	4.5	6.0	5.5	5.5	7.0	7.0	7.0
17	2.5	2.0	2.0	5.0	4.5	5.0	6.0	5.0	5.5	7.0	7.0	7.0
18	2.5	2.5	2.5	5.0	5.0	5.0	6.0	5.5	5.5	7.0	6.5	6.5
19	2.5	2.5	2.5	5.5	5.0	5.0	6.0	5.5	5.5	7.0	6.5	6.5
20	3.0	2.5	3.0	5.5	5.0	5.5	6.0	5.5	6.0	7.0	7.0	7.0
21	3.0	3.0	3.0	5.5	5.0	5.0	5.5	5.5	5.5	7.0	7.0	7.0
22	3.0	3.0	3.0	5.5	5.0	5.5	5.5	5.5	5.5	7.0	6.5	6.5
23	3.5	3.0	3.5	5.5	5.0	5.5	6.0	5.5	5.5	7.0	6.5	7.0
24	3.5	3.5	3.5	5.0	5.0	5.0	5.5	5.5	5.5	7.0	6.5	6.5
25	3.5	3.5	3.5	5.0	5.0	5.0	6.0	5.5	5.5	7.0	6.5	6.5
26	3.5	3.5	3.5	5.5	5.0	5.5	6.0	5.5	6.0	7.0	7.0	7.0
27	3.5	3.5	3.5	5.5	5.0	5.5	6.5	5.5	6.0	7.0	6.5	6.5
28	3.5	3.5	3.5	5.0	4.5	5.0	6.0	5.5	5.5	7.0	6.5	7.0
29	---	---	---	5.0	4.5	5.0	6.5	5.5	6.0	7.0	6.5	7.0
30	---	---	---	5.5	4.5	5.0	6.0	5.5	6.0	7.0	7.0	7.0
31	---	---	---	5.5	5.0	5.5	---	---	---	7.5	7.0	7.5
MONTH	4.0	2.0	3.0	5.5	3.5	4.5	6.5	4.5	5.5	7.5	5.5	6.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	8.0	7.5	7.5	8.5	8.0	8.0	9.5	9.0	9.0	10.0	10.0	10.0
2	8.0	7.5	8.0	8.5	7.5	8.0	9.0	8.5	8.5	10.0	10.0	10.0
3	8.0	7.5	8.0	8.5	8.0	8.5	9.0	9.0	9.0	10.5	10.0	10.0
4	8.0	7.5	7.5	8.5	8.0	8.5	9.5	9.0	9.0	10.5	10.0	10.5
5	7.5	7.5	7.5	9.0	8.0	8.5	9.5	9.0	9.5	10.0	10.0	10.0
6	8.0	7.5	7.5	9.0	8.0	8.5	9.5	9.0	9.5	10.5	10.0	10.5
7	7.5	7.0	7.0	9.0	8.5	8.5	10.0	9.0	9.5	10.5	10.0	10.5
8	8.0	7.0	7.5	8.5	8.5	8.5	10.0	9.0	9.5	11.0	10.5	10.5
9	8.0	7.0	7.5	9.0	8.5	8.5	9.5	9.5	9.5	11.0	10.5	10.5
10	7.5	7.0	7.5	8.5	8.5	8.5	9.5	9.5	9.5	10.5	10.5	10.5
11	8.0	7.5	7.5	9.0	8.5	8.5	10.0	9.5	10.0	10.5	10.5	10.5
12	8.0	7.5	7.5	9.0	8.5	8.5	9.5	9.5	9.5	11.0	10.5	11.0
13	8.0	7.5	8.0	9.0	8.5	9.0	9.5	9.5	9.5	11.0	11.0	11.0
14	8.0	7.5	7.5	9.0	9.0	9.0	9.5	9.5	9.5	11.0	11.0	11.0
15	8.0	7.5	7.5	9.0	9.0	9.0	9.5	9.0	9.5	11.0	11.0	11.0
16	8.0	7.5	7.5	9.0	8.5	9.0	10.0	9.0	9.5	11.0	11.0	11.0
17	8.0	7.5	7.5	9.0	8.5	8.5	9.5	9.5	9.5	11.0	11.0	11.0
18	8.0	7.5	7.5	9.0	8.5	8.5	10.0	9.5	9.5	11.0	11.0	11.0
19	8.0	7.5	7.5	9.0	9.0	9.0	9.5	9.5	9.5	11.0	10.5	11.0
20	8.0	7.5	7.5	9.0	9.0	9.0	9.5	9.5	9.5	11.5	10.5	11.0
21	8.5	8.0	8.0	9.5	9.0	9.5	10.0	9.5	10.0	12.0	11.0	11.5
22	8.5	8.0	8.0	10.0	9.0	9.5	10.0	9.5	9.5	12.0	11.0	11.5
23	9.0	8.0	8.5	9.5	9.0	9.0	9.5	9.5	9.5	12.0	11.5	12.0
24	9.0	8.5	8.5	9.5	9.0	9.5	10.0	9.5	9.5	12.0	11.5	12.0
25	9.0	8.5	9.0	9.5	9.0	9.5	10.0	10.0	10.0	12.5	12.0	12.0
26	8.5	8.5	8.5	9.0	9.0	9.0	10.5	10.0	10.5	12.5	12.0	12.0
27	9.0	8.5	8.5	9.0	9.0	9.0	10.5	10.0	10.0	13.0	12.0	12.5
28	8.5	8.0	8.5	9.5	9.0	9.5	10.5	10.0	10.0	13.0	12.5	12.5
29	8.5	8.0	8.5	9.5	9.0	9.0	10.5	10.0	10.0	13.0	12.5	13.0
30	8.0	8.0	8.0	9.5	9.0	9.0	10.0	10.0	10.0	13.0	13.0	13.0
31	---	---	---	9.0	9.0	9.0	10.0	9.5	10.0	---	---	---
MONTH	9.0	7.0	8.0	10.0	7.5	9.0	10.5	8.5	9.5	13.0	10.0	11.0
YEAR	14.5	2.0	7.5									

NORTH SANTIAM RIVER BASIN

14182500 LITTLE NORTH SANTIAM RIVER NEAR MEHAMA, OR

LOCATION.--Lat 44°47'30", long 122°34'40", in NW 1/4 sec.16, T.9 S., R.2 E., Marion County, Hydrologic Unit 17090005, on left bank 2.0 mi east of Mehama and at mile 2.0.

DRAINAGE AREA.--112 mi² at cableway 1.2 mi downstream where all discharge measurements are made.

PERIOD OF RECORD.--October 1931 to current year. Records for July to September 1924 and July to September 1931 at site 4 mi upstream not equivalent owing to difference in drainage areas.

REVISED RECORDS.--WSP 754: 1932. WSP 1218: 1934, 1936, 1949-50. WSP 1935: Maximum only, 1932-34, 1936, 1938, 1943, 1945-49, 1950(M,P), 1951-53(M), 1954(M,P), 1955(M), 1956(M,P), 1957(M), 1958-59(M,P). WSP 2135: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 655.41 ft above National Geodetic Vertical Datum of 1929. Prior to June 12, 1948, nonrecording gage at about same site and datum.

REMARKS.--Records good. No regulation or diversion upstream from station. Records herein are for measuring site.

AVERAGE DISCHARGE.--58 years, 760 ft³/s, 92.15 in/yr, 550,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,000 ft³/s Dec. 22, 1964, gage height, 16.73 ft, from rating curve extended above 17,000 ft³/s; minimum discharge, 13 ft³/s Aug. 30, 1961.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 8,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 9	2030	*15,000	*11.52	No other peak greater than base discharge.			
Minimum discharge, 24 ft ³ /s Oct. 31, Nov. 1.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	26	1240	806	1110	531	1300	612	546	132	57	75
2	39	82	1150	843	803	519	1400	536	533	118	210	72
3	36	423	1030	1230	637	451	1190	498	492	108	200	68
4	e35	945	925	1360	546	415	1230	517	458	101	130	62
5	e34	580	835	1260	521	1150	1700	641	415	95	102	58
6	34	1810	1580	971	470	4320	1680	699	376	90	87	56
7	32	863	2080	782	418	2460	1710	654	333	86	78	52
8	31	623	1330	864	363	1580	1530	577	298	82	72	50
9	30	660	1030	6320	337	1300	1240	524	276	79	69	48
10	28	1060	909	5530	319	1600	1130	504	250	79	64	45
11	27	1320	757	2240	306	1520	1070	449	230	77	60	43
12	27	1480	656	1550	295	1540	1110	372	222	73	58	42
13	28	1200	719	1260	277	1940	1180	316	216	69	57	40
14	29	773	623	1030	259	1480	1260	286	225	68	53	39
15	38	800	502	1030	245	1440	1210	275	258	66	51	38
16	47	1520	425	1730	443	1600	960	286	215	73	49	37
17	39	1440	370	1880	1410	1430	822	289	186	119	47	37
18	35	951	329	1720	1440	1510	822	358	170	91	47	37
19	34	726	441	1490	1420	1300	990	356	164	79	45	36
20	33	1510	464	1380	1200	1070	1030	332	219	73	44	35
21	32	3420	547	1350	1110	1810	912	304	211	70	47	35
22	32	5310	670	1210	1430	1660	694	280	179	66	166	33
23	31	3540	648	969	1540	1250	582	304	163	63	341	32
24	30	1950	623	806	1120	1100	657	570	151	59	305	32
25	28	1640	529	695	883	2160	708	1020	140	57	195	31
26	28	1510	449	622	742	1870	945	798	133	55	148	34
27	27	2410	399	629	654	1570	748	1250	126	56	121	35
28	26	4080	356	595	576	1730	625	1230	119	54	102	33
29	25	2040	418	548	---	1570	574	870	120	52	91	31
30	25	1410	1310	647	---	1340	611	686	151	52	89	40
31	25	---	1080	1400	---	1470	---	582	---	55	82	---
TOTAL	989	46102	24424	44747	20874	46686	31620	16975	7575	2397	3267	1306
MEAN	31.9	1537	788	1443	745	1506	1054	548	252	77.3	105	43.5
MAX	47	5310	2080	6320	1540	4320	1710	1250	546	132	341	75
MIN	25	26	329	548	245	415	574	275	119	52	44	31
AC-FT	1960	91440	48440	88760	41400	92600	62720	33670	15030	4750	6480	2590
CFSM	.28	13.7	7.03	12.9	6.66	13.4	9.41	4.89	2.25	.69	.94	.39
IN.	.33	15.31	8.11	14.86	6.93	15.51	10.50	5.64	2.52	.80	1.09	.43

CAL YR 1988 TOTAL 250933 MEAN 686 MAX 5700 MIN 24 AC-FT 497700 CFSM 6.12 IN. 83.35
 WTR YR 1989 TOTAL 246962 MEAN 677 MAX 6320 MIN 25 AC-FT 489800 CFSM 6.04 IN. 82.03

e Estimated

NORTH SANTIAM RIVER BASIN

133

14183000 NORTH SANTIAM RIVER AT MEHAMA, OR

LOCATION.--Lat 44°47'20", long 122°37'00", in NW 1/4 sec.18, T.9 S., R.2 E., Marion County, Hydrologic Unit 17090005, on right bank 300 ft downstream from highway bridge at Mehama, 0.5 mi downstream from Little North Santiam River, and at mile 38.71.

DRAINAGE AREA.--655 mi², at cableway 0.8 mi downstream, where all discharge measurements are made.

PERIOD OF RECORD.--July 1905 to March 1907, October 1910 to September 1914, September 1921 to current year. Monthly discharge only September 1921, published in WSP 1318. Prior to October 1913, published as North Fork of Santiam River at Mehama.

REVISED RECORDS.--WSP 739: 1922-23(M). WSP 1044: 1943. WSP 1248: 1906, 1911-14, 1924(M), 1926, 1934-36(M), 1937, 1938(M), 1942(M). WSP 2135: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 602.49 ft above National Geodetic Vertical Datum of 1929. Prior to June 15, 1933, nonrecording gage at site 100 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1953 by Detroit Lake (station 14180500) and Big Cliff Reservoir, usable capacity for reregulating purposes, 2,930 acre-ft. No diversion upstream from station. All records given herein are for measuring site.

AVERAGE DISCHARGE.--73 years (water years 1906, 1911-14, 1922-89), 3,363 ft³/s, 2,436,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 76,600 ft³/s Dec. 28, 1945, gage height, 15.37 ft, from rating curve extended above 36,000 ft³/s, on basis of slope-area measurement of peak flow; maximum gage height, 17.5 ft Nov. 20, 1921, from graph based on gage readings, and Jan. 6, 1923, from floodmark, at site then in use; minimum discharge, 254 ft³/s Aug. 3, 1970; minimum daily, 420 ft³/s Sept. 18, 1924.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21,600 ft³/s Jan. 9, gage height, 9.40 ft; minimum discharge, 852 ft³/s Aug. 8; minimum daily, 1,070 ft³/s July 20, 25, 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2060	2060	7700	2270	3880	1780	4310	2900	2250	1370	1100	1140
2	2060	2160	7520	2350	6280	1790	3060	2670	2160	1380	1240	1150
3	2090	2900	7320	3700	6190	1690	2770	2620	2340	1370	1230	1150
4	2210	3730	7140	3840	6250	1640	3520	2570	2360	1290	1170	1150
5	2240	3510	6730	3720	6230	2590	4240	2710	2890	1260	1130	1130
6	2220	4820	5210	3780	6050	7580	4720	2790	3070	1180	1110	1140
7	2220	3770	5540	3640	5890	4990	5270	2750	2700	1130	1110	1140
8	2200	3510	4620	3510	4230	3410	4990	3000	2710	1120	1110	1360
9	2160	3520	4260	10300	3550	2930	4600	3490	2770	1120	1100	1420
10	2220	3980	4110	12800	3250	3280	4550	3660	2090	1120	1110	1420
11	2270	4420	3920	9810	1670	3130	4450	3850	1900	1120	1110	1420
12	2320	4640	3780	8180	1610	3200	4440	3290	1910	1160	1090	1410
13	2310	4350	3860	5840	1590	4110	4560	2600	1690	1090	1080	1410
14	2300	3950	3720	4690	1520	3390	4570	2480	1740	1100	1080	1410
15	2320	4090	3560	4670	1470	3340	4530	2100	1890	1090	1080	1420
16	2320	4760	3450	5440	1690	3560	4300	1820	2030	1110	1080	1430
17	2320	5010	3430	5590	2880	3250	4130	1810	2040	1150	1090	1460
18	2310	5020	3410	5370	2950	3400	4050	2220	2020	1120	1100	1860
19	2340	5690	3530	5050	2920	3030	4230	2430	1700	1100	1100	2620
20	2380	6670	3090	5360	2640	2670	4290	2370	1670	1070	1090	2850
21	2400	8980	3350	5620	2500	3700	4140	2260	1620	1110	1100	2960
22	2360	10900	3940	5430	2930	3450	3860	1980	1420	1090	1250	2900
23	2370	11900	4090	5030	3100	2850	3690	1790	1360	1100	1420	2990
24	2400	13500	3960	4380	2560	2670	3810	2110	1260	1080	1370	2980
25	2390	13400	3690	3550	2260	4370	2910	3050	1220	1070	1260	3000
26	2380	12100	2350	2940	2040	3930	3480	2940	1210	1080	1200	3040
27	2380	9860	1890	2590	1940	3620	3750	3770	1190	1080	1170	3030
28	2370	12500	1670	2500	1830	5620	3670	3440	1180	1080	1140	3030
29	2170	9240	1740	2450	---	5410	3540	3360	1250	1070	1140	2980
30	2050	8070	2740	2510	---	5060	3610	3670	1340	1080	1140	2800
31	2040	---	2620	3490	---	5110	---	2700	---	1090	1120	---
TOTAL	70180	193010	127940	150400	91900	110550	122040	85200	56980	35380	35620	59200
MEAN	2264	6434	4127	4852	3282	3566	4068	2748	1899	1141	1149	1973
MAX	2400	13500	7700	12800	6280	7580	5270	3850	3070	1380	1420	3040
MIN	2040	2060	1670	2270	1470	1640	2770	1790	1180	1070	1080	1130
AC-FT	139200	382800	253800	298300	182300	219300	242100	169000	113000	70180	70650	117400

CAL YR 1988 TOTAL 1139090 MEAN 3112 MAX 13500 MIN 1040 AC-FT 2259000
WTR YR 1989 TOTAL 1138400 MEAN 3119 MAX 13500 MIN 1070 AC-FT 2258000

SOUTH SANTIAM RIVER BASIN

14185000 SOUTH SANTIAM RIVER BELOW CASCADIA, OR

LOCATION.--Lat 44°23'35", long 122°30'35", in SE 1/4 sec.36, T.13 S., R.2 E., Linn County, Hydrologic Unit 17090006, on left bank 100 ft downstream from bridge at Cascadia Ranger Station, 0.5 mi downstream from Mouse Creek, 0.5 mi upstream from Deer Creek, 1.5 mi southwest of Cascadia, and at mile 48.5.

DRAINAGE AREA.--174 mi², at cableway 0.7 mi upstream, where all discharge measurements are made.

PERIOD OF RECORD.--September 1935 to current year. Monthly discharge only September 1935, published in WSP 1318.

GAGE.--Water-stage recorder. Datum of gage is 759.88 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 1, 1935, nonrecording gage.

REMARKS.--Records good. No regulation or diversion upstream from station. All records given herein are for measuring site.

AVERAGE DISCHARGE.--54 years, 818 ft³/s, 63.84 in/yr, 592,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,600 ft³/s Dec. 22, 1964, gage height, 19.68 ft, from rating curve extended above 14,000 ft³/s; minimum discharge, 23 ft³/s Dec. 1, 2, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,700 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	2100	8,250	10.22	Jan. 9	2400	*14,700	*13.51
Nov. 28	0030	6,600	9.19	Feb. 7	1200	(a)	12.10

Minimum discharge, 39 ft³/s Oct. 29 to Nov. 1.

(a) Backwater from ice.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	44	e1290	922	1160	645	1690	785	609	150	105	109
2	58	151	e1120	1020	912	637	1900	708	559	141	159	102
3	52	825	1020	1300	726	560	1610	680	510	131	142	96
4	50	980	918	1380	632	522	1550	733	468	125	109	89
5	51	647	845	1230	e589	1360	1760	811	415	119	96	85
6	51	1360	948	1030	e546	4650	1860	841	381	115	88	82
7	48	691	1040	880	e506	3080	1970	789	346	110	82	77
8	46	554	918	981	467	2010	1870	713	317	107	80	74
9	45	521	844	e5180	435	1740	1640	714	295	105	78	70
10	43	952	813	7270	418	2090	1530	735	276	107	75	66
11	42	1010	756	2950	398	1950	1380	627	258	103	70	63
12	42	1380	709	1890	389	1950	1370	516	246	97	68	61
13	42	1110	738	1480	371	2590	1410	451	240	93	66	58
14	43	781	675	1180	353	1960	1470	421	273	93	65	57
15	52	783	601	1100	334	1910	1390	391	322	94	63	56
16	58	1030	549	1500	622	2050	1190	381	261	109	61	56
17	52	1460	510	1650	1320	1720	1110	380	230	166	60	57
18	47	1050	479	1560	1330	2420	1120	398	210	127	59	67
19	45	830	517	1440	1930	2220	e1300	363	202	110	58	62
20	44	1430	546	1440	1430	1700	e1250	326	228	101	58	58
21	43	3220	650	1500	1190	2930	e1150	310	199	98	58	e57
22	43	7290	795	1370	1540	2520	e1000	296	181	91	174	e55
23	43	4620	784	1100	1710	1800	e850	357	175	86	540	e53
24	43	2460	735	922	1310	1490	e900	608	164	83	293	e53
25	42	2240	644	789	1050	2460	e900	715	155	80	194	e50
26	42	1950	557	715	887	2230	952	635	149	79	157	e53
27	41	2490	511	712	776	1850	860	1150	145	81	135	54
28	41	4720	477	660	693	2280	785	1300	143	77	120	52
29	40	2460	593	621	---	2350	760	992	149	75	112	49
30	39	e1650	1330	750	---	1920	812	802	180	76	137	61
31	39	---	1170	1300	---	1940	---	681	---	84	124	---
TOTAL	1433	50689	24082	47822	24024	61534	39339	19609	8286	3213	3686	1982
MEAN	46.2	1690	777	1543	858	1985	1311	633	276	104	119	66.1
MAX	66	7290	1330	7270	1930	4650	1970	1300	609	166	540	109
MIN	39	44	477	621	334	522	760	296	143	75	58	49
AC-FT	2840	100500	47770	94850	47650	122100	78030	38890	16440	6370	7310	3930
CFSM	.27	9.71	4.46	8.87	4.93	11.4	7.54	3.64	1.59	.60	.68	.38
IN.	.31	10.84	5.15	10.22	5.14	13.16	8.41	4.19	1.77	.69	.79	.42

CAL YR 1988 TOTAL 282515 MEAN 772 MAX 7300 MIN 38 AC-FT 560400 CFSM 4.44 IN. 60.40
WTR YR 1989 TOTAL 285699 MEAN 783 MAX 7290 MIN 39 AC-FT 566700 CFSM 4.50 IN. 61.08

e Estimated

SOUTH SANTIAM RIVER BASIN

135

14185700 MIDDLE SANTIAM RIVER NEAR UPPER SODA, OR

LOCATION.--Lat 44°30'45", long 122°15'52", in SE 1/4 NE 1/4 sec.24, T.12 S., R.4 E., Linn County, Hydrologic Unit 17090006, on right bank 0.8 mi upstream from Bear Creek, 7.5 mi north of Upper Soda, and at mile 23.9.

DRAINAGE AREA.--74.6 mi².

PERIOD OF RECORD.--October 1980 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,500 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good.

AVERAGE DISCHARGE.--9 years, 417 ft³/s, 75.91 in/yr, 302,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,400 ft³/s Feb. 23, 1986, gage height, 11.05 ft, from rating curve extended above 3,600 ft³/s on basis of slope-area measurement of December 1980; minimum discharge, 18 ft³/s Oct. 30, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	1900	3,510	5.93	Jan. 9	2330	(a)	*7.15
Jan. 9	2230	*4,660	6.62				

Minimum discharge, 21 ft³/s Nov. 1.

(a) From crest-stage gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	25	736	316	e520	381	839	555	393	110	54	49
2	30	139	662	332	e470	363	922	512	399	112	86	47
3	28	449	609	379	e430	326	806	487	379	107	69	46
4	28	545	575	408	e400	308	781	515	327	93	57	44
5	28	371	542	410	e370	668	893	573	335	90	52	43
6	27	598	680	381	e340	2020	1060	603	289	88	49	42
7	27	383	790	351	e310	1490	1230	578	256	82	47	41
8	26	335	693	351	e290	1070	1250	522	237	77	45	40
9	25	333	642	1590	e270	998	1150	510	224	76	44	39
10	25	572	615	2510	e260	1190	1080	484	217	76	42	38
11	24	607	565	1300	246	1180	1010	418	216	73	41	37
12	24	780	521	896	236	1170	1030	367	207	69	39	36
13	24	656	536	725	223	1160	1070	334	194	65	38	36
14	25	507	479	601	212	942	1120	312	199	67	37	36
15	32	483	420	551	200	847	1090	297	203	67	37	35
16	32	605	376	641	236	836	976	291	185	72	36	34
17	28	609	342	739	340	766	907	290	172	96	36	34
18	27	501	e325	732	439	915	911	295	157	75	35	35
19	26	466	312	685	647	883	1010	275	150	71	34	35
20	26	694	298	656	580	780	996	254	180	66	35	35
21	25	1490	293	658	559	1170	871	243	154	64	38	34
22	25	3020	281	617	671	1130	727	234	144	61	87	33
23	24	2170	269	540	769	920	623	258	138	59	108	32
24	24	1320	254	482	654	818	606	336	132	56	74	31
25	23	929	235	433	556	1130	593	398	126	54	62	31
26	23	753	219	399	487	1100	659	378	119	53	56	32
27	23	979	210	382	442	994	601	490	112	53	52	34
28	22	1680	202	362	404	1030	562	517	112	50	49	33
29	22	1170	222	347	---	979	550	478	110	49	48	31
30	22	891	424	367	---	848	567	430	125	48	63	38
31	22	---	361	577	---	877	---	407	---	50	53	---
TOTAL	798	24060	13688	19718	11561	29289	26490	12641	6191	2229	1603	1111
MEAN	25.7	802	442	636	413	945	883	408	206	71.9	51.7	37.0
MAX	32	3020	790	2510	769	2020	1250	603	399	112	108	49
MIN	22	25	202	316	200	308	550	234	110	48	34	31
AC-FT	1580	47720	27150	39110	22930	58090	52540	25070	12280	4420	3180	2200
CFSM	.35	10.8	5.92	8.53	5.53	12.7	11.8	5.47	2.77	.96	.69	.50
IN.	.40	12.00	6.83	9.83	5.77	14.61	13.21	6.30	3.09	1.11	.80	.55

CAL YR 1988 TOTAL 143339 MEAN 392 MAX 3020 MIN 22 AC-FT 284300 CFSM 5.25 IN. 71.48
WTR YR 1989 TOTAL 149379 MEAN 409 MAX 3020 MIN 22 AC-FT 296300 CFSM 5.49 IN. 74.49

e Estimated

SOUTH SANTIAM RIVER BASIN

14185900 QUARTZVILLE CREEK NEAR CASCADIA, OR

LOCATION.--Lat 44°32'25", long 122°26'05", in NW 1/4 sec.10, T.12 S., R.3 E., Linn County, Hydrologic Unit 17090006, on Bureau of Land Management land, on right bank 80 ft downstream from Panther Creek, 10 mi north of Cascadia, and at mile 6.6.

DRAINAGE AREA.--99.2 mi².

PERIOD OF RECORD.--August 1963 to November 1964 (destroyed by flood of December 1964); October 1965 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,050 ft, from topographic map. Aug. 13, 1963, to Dec. 22, 1964, water-stage recorder on left bank at present datum.

REMARKS.--Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--25 years (water years 1964, 1966-89), 665 ft³/s, 91.04 in/yr, 481,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,400 ft³/s Jan. 20, 1972, gage height, 16.38 ft; minimum discharge, 14 ft³/s Aug. 19-23, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 36,500 ft³/s Dec. 22, 1964, from slope-area measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	0700	6,800	11.20	Jan. 9	2100	*11,400	*13.16
Nov. 27	2200	6,030	10.80	Mar. 6	0130	6,580	11.09

Minimum discharge, 23 ft³/s Oct 29 to Nov. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	28	1030	611	1030	483	1230	477	377	95	64	71
2	35	155	999	677	709	453	1440	429	344	87	149	66
3	33	908	938	1060	542	394	1190	408	310	82	111	63
4	31	1220	846	1160	e445	374	1290	461	275	79	81	60
5	31	633	748	1010	e385	1830	1670	521	251	75	71	57
6	31	1440	1200	728	e350	4700	1700	518	226	73	64	54
7	29	612	1200	584	e330	2430	1730	471	205	70	61	52
8	28	614	891	611	313	1460	1500	413	188	67	58	50
9	27	e570	759	4860	294	1410	1250	393	174	66	56	48
10	26	e1650	677	4720	284	1900	1140	369	162	67	53	46
11	25	1300	597	1790	270	1700	1070	318	153	65	51	45
12	25	1660	531	1180	260	1740	1080	272	144	63	50	43
13	25	1250	548	883	245	2100	1110	245	136	61	48	42
14	28	796	474	705	232	1420	1150	234	160	60	47	41
15	43	938	392	725	219	1380	1060	229	182	59	46	40
16	42	1560	345	1640	389	1620	870	231	149	72	45	39
17	34	1400	313	1910	1040	1330	787	232	132	129	44	39
18	31	909	282	1570	1190	1990	810	257	122	91	43	40
19	32	775	345	1320	1380	1500	934	237	118	78	43	39
20	32	1750	371	1250	1090	1150	904	219	138	71	42	38
21	30	3780	406	1290	1000	2110	754	210	121	67	44	37
22	28	6070	443	1090	1610	1620	582	200	111	63	174	36
23	27	3430	406	810	1630	1140	506	238	103	62	327	35
24	27	1710	361	655	1090	1080	536	582	98	60	187	35
25	26	1220	300	553	813	2780	533	734	93	57	128	34
26	25	1160	268	500	671	2020	568	558	88	57	101	35
27	24	2370	248	530	585	1760	505	834	85	57	86	37
28	24	3490	227	507	514	1810	468	792	83	55	77	35
29	24	1740	319	483	---	1480	460	593	88	54	72	34
30	23	1160	1420	682	---	1180	495	481	114	54	98	46
31	23	---	903	1530	---	1350	---	415	---	57	81	---
TOTAL	907	46298	18787	37624	18910	49694	29322	12571	4930	2153	2602	1337
MEAN	29.3	1543	606	1214	675	1603	977	406	164	69.5	83.9	44.6
MAX	43	6070	1420	4860	1630	4700	1730	834	377	129	327	71
MIN	23	28	227	483	219	374	460	200	83	54	42	34
AC-FT	1800	91830	37260	74630	37510	98570	58160	24930	9780	4270	5160	2650
CFSM	.29	15.6	6.11	12.2	6.81	16.2	9.85	4.09	1.66	.70	.85	.45
IN.	.34	17.36	7.05	14.11	7.09	18.64	11.00	4.71	1.85	.81	.98	.50

CAL YR 1988 TOTAL 216023 MEAN 590 MAX 6070 MIN 21 AC-FT 428500 CFSM 5.95 IN. 81.01
WTR YR 1989 TOTAL 225135 MEAN 617 MAX 6070 MIN 23 AC-FT 446600 CFSM 6.22 IN. 84.43

e Estimated

SOUTH SANTIAM RIVER BASIN

137

14186100 GREEN PETER LAKE NEAR FOSTER, OR

LOCATION.--Lat 44°27'10", long 122°32'40", in NE 1/4 SE 1/4 sec.10, T.13 S., R.2 E., Linn County, Hydrologic Unit 17090006, in Green Peter Dam on Middle Santiam River, 7.0 mi northeast of Foster, and at mile 5.7.

DRAINAGE AREA.--273 mi².

PERIOD OF RECORD.--October 1966 to current year. Prior to October 1971, published as Green Peter Reservoir near Foster.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Reservoir is formed by concrete, gravity-type dam with ogee spillway completed in 1966 by Corps of Engineers; controlled storage began Oct. 6, 1966. Total capacity, 428,100 acre-ft, usable capacity 330,800 acre-ft between elevations 887.0 ft, proposed lower limit of operation, and 1,015.0 ft, top of spillway gates. Reservoir used for flood control, power development, improvement of navigation, pollution abatement, and other purposes. Figures given herein represent total contents.

COOPERATION.--Midnight elevations furnished by Corps of Engineers and reviewed by Geological Survey. Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 420,200 acre-ft June 9, 1981, elevation, 1,012.86 ft; minimum contents, 116,900 acre-ft Dec. 15, 1972, elevation, 899.20 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 413,100 acre-ft June 15, elevation, 1,010.90 ft; minimum contents, 122,000 acre-ft Feb. 10, elevation, 902.13 ft.

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

899	116,600	960	251,100
900	118,300	980	309,700
920	155,700	1,000	374,800
940	199,900	1,013	420,700

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	979.11	961.04	949.82	926.15	931.08	937.11	986.89	1004.56	1010.34	1009.38	1005.10	1001.43
2	978.60	960.39	948.19	926.75	928.67	938.16	987.47	1005.07	1010.43	1009.28	1005.07	1001.25
3	978.08	960.76	946.32	927.36	925.88	939.07	987.85	1005.69	1010.48	1009.19	1004.99	1001.06
4	977.56	961.27	944.25	928.08	922.69	939.90	988.56	1006.35	1010.48	1009.10	1004.88	1000.86
5	977.32	960.73	942.11	928.38	919.48	942.90	989.96	1007.04	1010.46	1008.99	1004.79	1000.33
6	976.49	961.34	941.77	928.26	916.28	950.46	990.89	1007.75	1010.46	1008.84	1004.70	999.71
7	975.95	960.84	941.77	927.40	912.87	954.58	991.54	1008.42	1010.59	1008.68	1004.56	999.09
8	975.41	960.32	941.43	926.99	909.23	957.23	991.53	1009.01	1010.70	1008.52	1004.42	998.46
9	974.88	959.01	941.01	934.90	905.53	959.63	991.19	1009.58	1010.76	1008.37	1004.27	997.76
10	974.30	958.81	940.32	944.04	902.18	962.06	990.74	1010.12	1010.79	1008.21	1004.11	997.08
11	973.75	957.92	939.54	944.87	903.00	963.69	990.92	1009.96	1010.78	1008.05	1003.95	996.37
12	973.15	957.65	938.15	944.24	903.78	965.38	991.63	1009.74	1010.76	1007.92	1003.74	995.67
13	972.54	956.74	937.19	943.13	904.52	968.69	992.53	1009.61	1010.75	1007.79	1003.54	994.96
14	971.93	955.03	935.77	941.58	905.21	970.73	993.42	1009.48	1010.78	1007.65	1003.33	994.25
15	971.38	953.46	934.37	939.95	905.84	972.16	993.93	1009.32	1010.81	1007.48	1003.11	993.52
16	970.79	952.60	932.65	939.36	907.41	973.89	994.13	1009.17	1010.70	1007.40	1002.90	992.83
17	970.18	951.70	930.97	939.24	910.26	974.46	994.26	1009.27	1010.57	1007.36	1002.72	992.14
18	969.55	950.10	929.18	938.68	913.14	975.78	994.89	1008.86	1010.51	1007.26	1002.55	991.47
19	968.95	948.23	927.57	937.76	916.39	976.56	996.01	1008.39	1010.52	1007.11	1002.37	990.76
20	968.31	947.56	927.01	936.45	919.02	977.49	997.10	1008.19	1010.50	1006.94	1002.19	990.06
21	967.67	950.42	926.29	935.33	921.38	980.26	997.73	1007.99	1010.43	1006.77	1002.06	989.37
22	967.33	957.34	925.68	933.86	924.61	982.39	998.17	1007.78	1010.36	1006.59	1002.26	988.66
23	966.97	960.25	924.77	931.88	927.83	982.86	998.70	1007.60	1010.29	1006.42	1002.69	987.93
24	966.33	958.23	923.75	929.51	930.21	983.60	999.32	1008.19	1010.14	1006.28	1002.76	987.20
25	965.66	955.00	922.72	929.17	931.97	986.02	1000.10	1008.90	1009.99	1006.13	1002.72	986.41
26	965.00	951.72	922.21	929.18	933.49	986.49	1000.98	1009.53	1009.84	1005.94	1002.61	985.68
27	964.35	952.47	922.11	929.24	934.78	986.64	1001.76	1010.00	1009.69	1005.75	1002.48	985.07
28	963.66	955.33	922.00	929.40	935.97	986.98	1002.46	1010.44	1009.57	1005.59	1002.22	984.29
29	963.00	953.12	922.38	929.51	---	987.03	1003.14	1010.42	1009.47	1005.44	1002.00	983.49
30	962.35	951.20	924.42	929.82	---	986.71	1003.87	1010.15	1009.44	1005.29	1001.78	982.86
31	961.67	---	925.55	931.24	---	986.48	---	1010.21	---	1005.21	1001.61	---
MAX	979.11	961.34	949.82	944.87	935.97	987.03	1003.87	1010.44	1010.81	1009.38	1005.10	1001.43
MIN	961.67	947.56	922.00	926.15	902.18	937.11	986.89	1004.56	1009.44	1005.21	1001.61	982.86
(†)	255700	227700	167300	179700	190400	330100	338100	410600	407800	392800	380300	318700
(‡)	-52900	-28000	-60400	+12400	+10700	+139700	+8000	+72500	-2800	-15000	-12500	-61600

CAL YR 1988 MAX 1012.35 MIN 922.00 AC-FT† +700
WTR YR 1989 MAX 1010.81 MIN 902.18 AC-FT† +10100

† Contents, in acre-feet, at 2400, on last day of month.
‡ Change in contents, in acre-feet.

SOUTH SANTIAM RIVER BASIN

14186600 FOSTER LAKE AT FOSTER, OR

LOCATION.--Lat 44°25'00", long 122°40'25", in NW 1/4 NE 1/4 sec.27, T.13 S., R.1 E., Linn County, Hydrologic Unit 17090006, in Foster Dam on South Santiam River, 0.3 mi above Wiley Creek, 0.5 mi north of Foster, and at mile 37.7.

DRAINAGE AREA.--492 mi².

PERIOD OF RECORD.--December 1966 to current year. Prior to October 1971, published as Foster Reservoir at Foster.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Lake is formed by rockfill embankment with an impervious core and ogee spillway completed in 1966 by Corps of Engineers; controlled storage began in November 1966. Total capacity, 60,780 acre-ft and usable capacity 33,210 acre-ft between elevations 609.0 ft, proposed lower limit of operation, and 641.0 ft, top of spillway gates. Lake used for reregulation of water released from Green Peter Lake, flood control, power development, pollution abatement, and other purposes. Figures given herein represent total contents.

COOPERATION.--Midnight elevations furnished by Corps of Engineers and reviewed by Geological Survey. Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 60,090 acre-ft Sept. 17, 1968, elevation, 640.45 ft; minimum contents, 26,590 acre-ft Nov. 15, 16, 1971, elevation, 607.85 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 57,830 acre-ft Sept. 26, elevation, 638.62 ft; minimum contents, 29,670 acre-ft Dec. 17, elevation, 611.42 ft.

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

607	25,880	630	47,860
610	28,430	635	53,510
615	32,870	640	59,530
620	37,570	641	60,780
625	42,550		

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	637.80	621.44	613.03	613.18	613.94	620.85	626.98	614.10	637.20	637.05	636.85	637.08
2	637.72	620.86	613.09	614.10	613.92	621.09	626.11	614.22	637.25	637.02	637.01	636.97
3	637.62	620.57	613.09	614.32	613.96	621.12	624.65	614.13	637.02	636.99	637.14	636.84
4	637.35	620.01	613.04	614.21	614.03	621.10	623.62	614.35	637.02	636.93	637.19	636.72
5	637.16	619.57	613.11	614.19	613.98	621.78	623.11	614.48	637.11	636.88	637.08	636.99
6	637.13	619.96	613.93	613.67	614.19	621.98	622.60	614.91	636.94	636.90	636.95	636.96
7	637.06	619.12	614.55	613.78	614.23	622.43	621.24	614.59	636.77	636.94	636.97	636.86
8	637.00	617.70	614.70	614.31	614.17	622.60	620.18	614.46	636.71	636.98	636.95	636.78
9	636.95	615.69	614.14	618.99	614.09	621.93	619.38	614.67	636.76	637.00	636.92	636.87
10	636.92	615.23	613.85	620.35	616.88	622.67	618.50	614.93	636.76	637.07	636.90	636.90
11	636.90	614.68	613.45	615.70	616.46	623.89	617.73	617.45	636.84	637.11	636.85	636.93
12	637.04	614.44	614.05	613.28	616.03	624.85	616.70	619.56	636.88	637.06	636.93	636.98
13	637.07	613.26	613.63	613.37	615.54	624.31	615.61	621.00	636.94	637.08	637.02	637.02
14	637.12	612.97	613.85	613.42	615.00	623.74	614.50	622.35	637.09	636.99	637.09	637.06
15	636.86	613.14	613.55	613.44	614.48	624.46	614.58	623.52	637.13	637.03	637.17	637.12
16	636.47	613.11	613.56	613.45	615.13	623.92	614.27	624.86	637.00	637.14	637.24	637.04
17	635.56	613.06	613.67	613.83	616.76	624.32	614.53	625.24	637.09	637.19	637.20	637.01
18	633.94	613.08	613.91	613.92	616.66	624.64	614.53	627.62	636.92	637.15	637.14	636.98
19	632.25	613.18	613.86	613.63	616.80	624.95	614.50	629.93	636.74	637.23	637.11	637.00
20	630.45	613.17	613.54	613.85	616.78	624.68	614.55	631.05	636.86	637.27	637.07	636.97
21	628.49	614.30	614.30	613.90	616.72	626.02	614.29	632.13	636.91	637.32	637.10	636.94
22	626.92	617.92	613.88	613.71	618.12	626.56	614.45	633.27	636.91	637.34	637.23	636.87
23	625.48	614.40	613.75	613.80	619.36	624.93	613.90	634.69	636.90	637.36	637.17	636.92
24	624.80	613.15	613.89	613.61	619.36	624.93	614.30	635.54	636.99	637.25	637.06	637.00
25	624.26	613.05	614.00	613.64	619.75	625.87	614.39	636.32	637.06	637.18	636.96	637.20
26	623.91	613.04	613.74	613.70	620.04	625.52	614.44	636.69	637.11	637.18	636.87	637.35
27	623.70	613.79	613.31	613.92	620.34	626.89	614.49	637.54	637.20	637.21	636.83	637.12
28	623.33	613.07	613.30	613.51	620.63	627.38	614.34	637.17	637.14	637.09	637.10	637.28
29	622.79	613.08	613.52	613.59	---	627.57	614.20	637.65	637.27	636.98	637.31	637.44
30	622.18	613.10	613.58	614.12	---	628.03	614.18	637.64	637.05	636.85	637.45	637.36
31	621.80	---	613.31	614.12	---	628.09	---	637.05	---	636.81	637.23	---
MAX	637.80	621.44	614.70	620.35	620.63	628.09	626.98	637.65	637.27	637.36	637.45	637.44
MIN	621.80	612.97	613.03	613.18	613.92	620.85	613.90	614.10	636.71	636.81	636.83	636.72
(†)	39320	31160	31340	32070	38180	45790	32130	55930	55930	55650	56150	56300
(‡)	-17540	-8160	+180	+730	+6110	+7610	-13660	+23800	0	-280	+500	+150

CAL YR 1988 MAX 637.82 MIN 612.62 AC-FT† -460
WTR YR 1989 MAX 637.80 MIN 612.97 AC-FT† -560

† Contents, in acre-feet, at 2400, on last day of month.
‡ Change in contents, in acre-feet.

SOUTH SANTIAM RIVER BASIN

139

14187000 WILEY CREEK NEAR FOSTER, OR

LOCATION.--Lat 44°22'20", long 122°37'20", in NE 1/4 NE 1/4 sec.12, T.14 S., R.1 E., Linn County, Hydrologic Unit 17090006, on right bank 0.5 mi downstream from Little Wiley Creek, 3.5 mi southeast of Foster, and at mile 4.4.

DRAINAGE AREA.--51.8 mi².

PERIOD OF RECORD.--October 1947 to July 1973, October 1988 to September 1989.

GAGE.--Water-stage recorder. Elevation of gage is 920 ft, from topographic map. Prior to April 6, 1965, water-stage recorder at present site at datum of 718.08 ft above National Geodetic Vertical Datum (Corps of Engineers bench mark). Apr. 6, 1965, to July 1973, water-stage recorder at present site at datum 2.00 ft lower than previous datum, but Apr. 6 to Aug. 17, 1965, gage was nonrecording.

REMARKS.--Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--26 years (1948-72, 1989), 223 ft³/s, 58.46 in/yr, 161,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,640 ft³/s Jan. 21, 1972, gage height, 9.28 ft, from rating curve extended above 3,700 ft³/s; maximum gage height, 11.80 ft, Dec. 21, 1964 (backwater from debris), datum then in use; minimum discharge, 5.6 ft³/s Nov. 26, 1952.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 9	2300	a*7,950	*7.54	No other peak greater than base discharge.			

Minimum discharge, 7.0 ft³/s on several days in October, November, September.

a From rating extended above 550 ft³/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.9	9.1	304	242	264	210	561	86	134	32	25	18
2	8.6	38	248	260	221	215	564	80	116	29	32	16
3	8.2	147	210	331	186	178	483	77	106	27	25	15
4	8.4	150	180	354	167	173	424	78	93	25	19	14
5	9.7	121	159	333	e150	536	408	71	78	24	16	13
6	9.2	282	172	279	e140	1280	392	66	71	22	14	13
7	8.6	130	171	236	e135	799	370	63	65	21	13	12
8	8.3	117	150	272	e130	541	329	58	60	20	13	11
9	8.1	100	135	2110	e125	526	294	66	56	20	12	10
10	7.3	207	123	2840	117	572	263	96	53	20	12	9.0
11	7.0	193	111	846	113	494	235	80	49	20	11	8.6
12	7.1	274	100	517	115	550	218	69	47	18	11	8.2
13	7.3	219	99	435	110	820	212	62	46	17	10	7.9
14	7.6	159	90	357	103	631	200	57	66	18	9.6	7.6
15	8.7	213	81	354	97	669	186	52	85	18	9.6	7.6
16	9.7	259	75	466	249	747	167	49	59	23	9.1	7.3
17	8.5	453	71	494	505	597	155	50	50	34	8.9	7.7
18	8.2	300	67	441	455	810	145	60	45	24	9.0	11
19	7.9	220	88	385	534	684	156	59	43	21	8.8	9.5
20	7.7	277	119	352	418	559	160	50	45	18	8.7	8.6
21	7.6	751	166	395	359	783	135	46	39	18	9.0	8.3
22	8.8	1810	227	376	493	630	114	46	35	16	42	7.8
23	8.5	1080	213	312	537	481	114	71	33	15	103	7.3
24	8.1	605	197	264	425	452	146	175	29	14	51	7.0
25	7.9	610	159	226	340	778	140	149	27	13	32	7.0
26	7.6	502	129	202	285	701	127	122	26	13	25	9.3
27	7.6	633	113	187	255	644	115	274	26	14	21	9.7
28	7.3	1150	101	172	234	832	105	328	26	13	19	9.0
29	7.1	604	138	162	---	843	97	250	31	12	17	8.2
30	7.0	404	380	174	---	660	92	195	41	14	25	12
31	7.0	---	344	275	---	627	---	156	---	17	21	---
TOTAL	250.5	12017.1	4920	14649	7262	19022	7107	3141	1680	610	641.7	300.6
MEAN	8.08	401	159	473	259	614	237	101	56.0	19.7	20.7	10.0
MAX	9.9	1810	380	2840	537	1280	564	328	134	34	103	18
MIN	7.0	9.1	67	162	97	173	92	46	26	12	8.7	7.0
AC-FT	497	23840	9760	29060	14400	37730	14100	6230	3330	1210	1270	596
CFSM	.16	7.73	3.06	9.12	5.01	11.8	4.57	1.96	1.08	.38	.40	.19
IN.	.18	8.63	3.53	10.52	5.22	13.66	5.10	2.26	1.21	.44	.46	.22

WTR YR 1989 TOTAL 71600.9 MEAN 196 MAX 2840 MIN 7.0 AC-FT 142000 CFSM 3.79 IN. 51.42

e Estimated

SOUTH SANTIAM RIVER BASIN

14187200 SOUTH SANTIAM RIVER NEAR FOSTER, OR

LOCATION.--Lat 44°24'45", long 122°41'15", in SE 1/4 NE 1/4 sec.28, T.13 S., R.1 E., Linn County, Hydrologic Unit 17090006, on left bank 0.6 mi downstream from Wiley Creek and at mile 37.0.

DRAINAGE AREA.--557 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1973 to current year. Records for October 1966 to July 1973 (published as South Santiam River at Foster, station 14186700) at site 0.5 mi upstream not equivalent owing to inflow between sites.

GAGE.--Water-stage recorder. Elevation of gage is 560 ft, from topographic map.

REMARKS.--No estimated daily discharges. Water-discharge records excellent. Flow regulated since October 1966 by Green Peter Lake (station 14186100) and since December 1966 by Foster Lake (station 14186600). No diversion upstream from station.

AVERAGE DISCHARGE.--16 years, 2,879 ft³/s, 70.19 in/yr, 2,086,000 acre-ft/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,800 ft³/s Feb. 26, 1982, gage height, 16.61 ft; minimum discharge, 416 ft³/s July 13, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,700 ft³/s Jan. 10, gage height, 16.02 ft; minimum discharge, 416 ft³/s July 13; minimum daily, 536 ft³/s July 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1090	1350	6810	2490	4430	1000	5990	1090	1540	636	564	761
2	1090	2010	6450	2500	6160	1000	6110	1080	1490	620	562	738
3	1140	2990	6250	3800	5800	969	5870	957	1610	616	562	738
4	1210	3620	6120	4080	5710	951	4990	872	1430	616	555	735
5	1200	3600	5860	4080	5690	1720	4090	982	1280	616	554	1100
6	1120	3810	4040	4030	5340	6430	5160	876	1230	617	548	1410
7	1120	3640	3830	3970	5340	4310	6240	1190	917	607	544	1410
8	1110	3770	3810	4000	5390	2990	6920	987	802	606	543	1410
9	1100	5080	3810	8140	5280	3010	6480	864	795	607	545	1410
10	1100	5200	3830	13000	3590	3280	6360	894	791	607	547	1410
11	1070	5920	3800	11800	905	3690	4680	878	786	605	545	1420
12	1060	6180	3780	8830	902	3920	4090	867	787	593	543	1410
13	1130	6400	3790	7010	899	4240	3670	856	789	536	545	1420
14	1110	5710	3770	6590	890	3970	3780	825	813	596	545	1410
15	1300	5780	3760	6470	840	4070	3810	799	971	597	550	1410
16	1390	6240	3750	6990	876	5110	3820	791	1070	604	553	1410
17	1670	7140	3480	7000	1680	5120	3260	833	903	619	550	1400
18	2150	6310	3400	6990	2380	6060	2620	804	864	606	553	1410
19	2120	5910	3670	6940	2920	5790	2170	806	746	603	550	1410
20	2200	6700	2680	6650	2360	4590	2150	794	736	603	551	1420
21	2220	8320	2810	6950	2000	4150	2590	790	737	606	550	1420
22	1600	12900	3700	6970	1720	4070	2170	785	730	601	573	1420
23	1500	13200	3700	6460	2040	6110	1870	814	724	598	823	1370
24	1490	12400	3560	6360	2140	4210	1380	924	730	598	757	1350
25	1420	12600	3200	3490	1560	4860	1160	886	720	594	699	1410
26	1310	11500	2440	2660	1330	7460	1250	871	717	597	695	1410
27	1260	7920	1860	2470	1150	6030	1160	2380	703	594	692	1410
28	1340	12500	1590	2450	1020	7100	1150	3360	709	595	689	1410
29	1430	11900	1410	2130	---	7420	1100	2890	712	594	721	1410
30	1390	8720	2700	2060	---	6710	1100	3000	725	596	784	1420
31	1330	---	2990	3300	---	6890	---	2220	---	597	836	---
TOTAL	42770	209320	116650	170660	80342	137230	107190	36965	27557	18680	18828	39272
MEAN	1380	6977	3763	5505	2869	4427	3573	1192	919	603	607	1309
MAX	2220	13200	6810	13000	6160	7460	6920	3360	1610	636	836	1420
MIN	1060	1350	1410	2060	840	951	1100	785	703	536	543	735
AC-FT	84830	415200	231400	338500	159400	272200	212600	73320	54660	37050	37350	77900
MEAN†	234	6369	2784	5718	3173	6822	3477	2758	872	354	412	276
CFSM†	0.42	11.4	5.00	10.3	5.70	12.2	6.24	4.95	1.57	0.64	0.74	0.50
IN.†	0.48	12.74	5.76	11.82	5.93	14.11	6.96	5.70	1.74	0.73	0.85	0.55
AC-FT†	14390	379000	171200	351600	176200	419500	206900	169600	51860	21770	25350	16450

CAL YR 1988 TOTAL 975650 MEAN 2666 MAX 13200 MIN 645 AC-FT 1935000 MEAN† 2665 CFSM† 4.78 IN.† 65.07 AC-FT† 1935000
WTR YR 1989 TOTAL 1005464 MEAN 2755 MAX 13200 MIN 536 AC-FT 1994000 MEAN† 2768 CFSM† 4.97 IN.† 67.39 AC-FT† 2004000

† Adjusted for change in contents in Green Peter Lake and Foster Lake.

SOUTH SANTIAM RIVER BASIN
14187200 SOUTH SANTIAM RIVER NEAR FOSTER, OR--Continued
WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: July 1973 to current year.

INSTRUMENTATION.--Temperature recorder since July 1973.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 15.5°C at times in 1975, 1978, 1981, 1987; minimum recorded, 2.5°C Dec. 30, 31, 1978, Feb. 1, 1980, Feb. 7, 1985.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 14.0°C Aug. 7, 8, 23, 25-28, Sept. 9, but may have been higher during period of missing record May 13 to July 18; minimum recorded, 3.0°C Feb. 4-6.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1				---	---	---	8.0	7.5	8.0	6.5	6.0	6.5
2				11.5	11.0	11.5	8.5	8.0	8.0	7.0	6.5	6.5
3				11.5	11.0	11.5	8.0	8.0	8.0	7.0	7.0	7.0
4				11.5	11.0	11.0	8.0	8.0	8.0	7.0	7.0	7.0
5				11.5	11.0	11.5	8.5	8.0	8.0	6.5	6.0	6.5
6				11.0	10.5	11.0	8.5	8.5	8.5	6.0	6.0	6.0
7				10.5	10.0	10.5	8.5	8.5	8.5	6.0	6.0	6.0
8				10.5	10.0	10.5	8.5	8.0	8.0	6.0	6.0	6.0
9				10.0	10.0	10.0	8.5	8.5	8.5	7.0	6.0	7.0
10				10.0	10.0	10.0	8.5	8.5	8.5	7.0	6.5	6.5
11				10.5	10.0	10.0	8.5	8.5	8.5	7.0	6.0	6.5
12				10.5	10.0	10.0	8.5	8.0	8.5	6.5	6.0	6.5
13				10.0	10.0	10.0	8.5	8.0	8.5	6.5	6.0	6.0
14				10.0	10.0	10.0	8.0	7.5	8.0	6.0	6.0	6.0
15				10.0	10.0	10.0	7.5	7.5	7.5	6.5	6.0	6.0
16				10.5	10.0	10.0	7.5	7.5	7.5	6.5	6.0	6.5
17				10.0	9.5	10.0	7.5	7.0	7.0	7.0	6.5	6.5
18				10.0	9.5	10.0	7.0	7.0	7.0	7.0	6.5	7.0
19				10.0	9.5	9.5	7.5	7.0	7.5	6.5	6.5	6.5
20				10.0	9.5	10.0	7.5	7.0	7.5	6.5	6.0	6.5
21				9.5	9.5	9.5	7.0	7.0	7.0	6.5	6.0	6.5
22				9.5	9.0	9.5	7.0	6.5	7.0	6.0	6.0	6.0
23				9.0	8.5	9.0	7.0	6.5	7.0	6.0	5.5	5.5
24				8.5	8.5	8.5	7.0	6.5	6.5	5.5	5.5	5.5
25				9.0	8.5	8.5	6.5	6.5	6.5	5.5	5.0	5.5
26				9.0	8.5	9.0	6.5	6.0	6.0	5.5	5.0	5.5
27				9.0	8.5	8.5	6.5	6.0	6.0	6.0	5.5	6.0
28				8.5	8.5	8.5	6.5	6.5	6.5	6.0	5.5	6.0
29				8.5	8.0	8.5	6.5	6.0	6.0	6.5	5.5	6.0
30				8.0	7.5	8.0	6.5	6.5	6.5	6.5	5.5	6.0
31				---	---	---	6.5	6.0	6.5	6.5	5.5	6.0
MONTH				---	---	---	8.5	6.0	7.5	7.0	5.0	6.0

SOUTH SANTIAM RIVER BASIN

14187200 SOUTH SANTIAM RIVER NEAR FOSTER, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	5.5	5.0	5.0	6.0	5.5	6.0	7.0	6.5	6.5	11.5	9.5	10.5
2	5.0	4.0	5.0	6.0	5.0	5.5	7.0	6.5	6.5	11.5	10.0	11.0
3	4.0	3.5	3.5	6.0	5.0	5.5	7.0	6.0	6.5	11.5	10.5	11.0
4	3.5	3.0	3.0	6.0	5.0	5.5	7.5	6.5	7.0	13.0	11.0	11.5
5	3.5	3.0	3.0	7.5	6.0	6.5	9.0	7.5	8.0	13.0	11.0	12.0
6	3.5	3.0	3.0	7.5	6.5	7.0	9.5	7.5	8.5	12.5	12.0	12.5
7	3.5	3.5	3.5	7.0	6.0	6.5	9.0	7.5	8.0	13.0	12.0	12.5
8	4.0	3.5	3.5	7.5	6.0	7.0	8.5	7.5	8.0	13.0	12.0	12.5
9	4.0	3.5	4.0	8.0	7.0	7.5	9.5	7.5	8.5	13.0	11.5	12.0
10	4.0	4.0	4.0	8.0	7.0	7.5	8.5	7.5	8.0	12.5	11.5	12.0
11	4.5	4.0	4.0	8.0	7.5	7.5	9.0	8.0	8.0	12.0	11.0	12.0
12	4.5	4.0	4.5	8.5	7.5	8.0	10.0	7.5	8.5	11.5	10.5	11.0
13	4.5	4.0	4.5	7.5	6.5	6.5	10.0	8.5	9.5	---	---	---
14	5.0	4.0	4.5	7.5	6.5	7.0	10.0	9.0	9.5	---	---	---
15	4.5	4.0	4.5	8.0	7.0	7.5	9.5	9.0	9.5	---	---	---
16	4.5	4.5	4.5	7.5	7.0	7.0	9.0	8.5	9.0	---	---	---
17	6.0	4.5	5.5	7.5	6.5	7.0	10.0	8.5	9.5	---	---	---
18	6.5	5.5	6.0	7.5	7.0	7.0	11.0	8.5	9.5	---	---	---
19	6.5	5.5	6.0	7.5	6.5	7.0	11.0	9.5	10.0	---	---	---
20	7.0	6.0	6.5	8.0	6.5	7.0	10.5	9.5	10.0	---	---	---
21	7.0	5.5	6.5	8.0	7.0	7.5	10.0	9.0	9.5	---	---	---
22	7.0	6.0	6.5	7.5	6.5	7.0	10.0	8.5	9.5	---	---	---
23	6.5	5.5	6.0	7.5	6.0	7.0	9.5	8.0	9.0	---	---	---
24	6.5	5.5	6.0	8.0	7.0	7.5	9.0	8.0	8.5	---	---	---
25	6.5	5.5	6.0	8.0	7.0	7.5	9.0	8.0	8.5	---	---	---
26	6.0	5.0	5.5	7.0	6.5	7.0	9.5	8.0	8.5	---	---	---
27	6.5	5.5	6.0	7.0	6.5	7.0	10.5	8.0	9.0	---	---	---
28	6.5	5.5	6.0	7.5	6.5	7.0	11.0	8.5	9.5	---	---	---
29	---	---	---	7.0	6.5	6.5	12.5	10.0	11.0	---	---	---
30	---	---	---	7.0	6.5	7.0	11.0	9.5	10.0	---	---	---
31	---	---	---	7.0	6.5	7.0	---	---	---	---	---	---
MONTH	7.0	3.0	5.0	8.5	5.0	7.0	12.5	6.0	8.5	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1				---	---	---	12.5	11.5	12.0	12.5	12.0	12.5
2				---	---	---	13.0	11.5	12.5	13.0	12.0	12.5
3				---	---	---	13.0	12.0	12.5	13.0	11.5	12.5
4				---	---	---	13.5	11.5	12.5	13.0	11.5	12.5
5				---	---	---	13.5	11.5	12.5	13.0	11.5	12.5
6				---	---	---	13.5	11.5	12.5	13.0	12.5	12.5
7				---	---	---	14.0	11.5	12.5	12.5	12.5	12.5
8				---	---	---	14.0	12.0	12.5	12.5	12.0	12.5
9				---	---	---	13.5	11.5	12.5	14.0	11.0	12.0
10				---	---	---	13.5	11.5	12.5	12.5	11.5	12.0
11				---	---	---	13.5	11.5	12.5	12.0	11.0	11.5
12				---	---	---	13.5	11.5	12.5	11.5	11.0	11.5
13				---	---	---	13.5	12.0	12.5	11.5	11.0	11.0
14				---	---	---	13.0	11.5	12.5	11.5	10.5	11.0
15				---	---	---	13.0	12.0	12.5	11.0	10.5	11.0
16				---	---	---	13.0	11.5	12.5	11.0	10.5	11.0
17				---	---	---	13.0	11.5	12.0	11.0	10.5	10.5
18				---	---	---	13.0	11.5	12.5	11.0	10.5	10.5
19				13.5	11.5	12.5	13.5	11.5	12.5	11.0	10.5	10.5
20				12.5	11.5	12.0	13.0	12.0	12.0	10.5	10.5	10.5
21				13.0	11.5	12.0	12.5	12.0	12.0	10.5	10.5	10.5
22				13.0	11.5	12.5	13.0	12.0	12.5	11.0	10.0	10.5
23				13.0	11.0	12.0	14.0	13.0	13.0	10.5	10.0	10.5
24				13.5	11.0	12.0	13.5	12.5	13.0	10.5	10.0	10.5
25				13.5	11.0	12.0	14.0	12.5	13.0	10.5	10.0	10.5
26				12.0	11.5	12.0	14.0	12.0	13.0	10.5	10.0	10.0
27				13.0	11.5	12.0	14.0	12.5	13.0	10.5	10.0	10.5
28				13.0	11.5	12.5	14.0	12.0	13.0	10.5	10.0	10.5
29				12.5	11.5	12.0	13.0	12.0	12.5	10.5	10.0	10.0
30				13.0	11.5	12.0	13.0	12.0	12.5	10.5	10.0	10.0
31				13.0	11.5	12.0	13.0	12.5	12.5	---	---	---
MONTH				---	---	---	14.0	11.5	12.5	14.0	10.0	11.0

SOUTH SANTIAM RIVER BASIN

143

14187500 SOUTH SANTIAM RIVER AT WATERLOO, OR

LOCATION.--Lat 44°29'55", long 122°49'20", in SW 1/4 NW 1/4 sec.28, T.12 S., R.1 W., Linn County, Hydrologic Unit 17090006, on left bank 0.1 mi downstream from highway bridge at Waterloo, 2.1 mi upstream from Hamilton Creek, and at mile 23.3.

DRAINAGE AREA.--640 mi².

PERIOD OF RECORD.--July 1905 to March 1907, October 1910 to December 1911 (gage heights only January to December 1911), July 1923 to current year. Monthly discharge only for some periods, published in WSP 1318. Published as South Fork of Santiam River at Waterloo 1905-07, 1910-11.

REVISED RECORDS.--WSP 1248: 1907, 1924-30, 1932.

GAGE.--Water-stage recorder. Datum of gage is 370.39 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 31, 1911, nonrecording gage at site 0.5 mi downstream at datum about 5.0 ft lower. July 1, 1923, to Nov. 12, 1934, nonrecording gage, at present site and datum.

REMARKS.--Records excellent. Flow regulated since October 1966 by Green Peter Lake (station 14186100) and since December 1966 by Foster Lake (station 14186600). No diversion upstream from station.

AVERAGE DISCHARGE.--67 years (water years 1906, 1924-89), 2,935 ft³/s, 2,126,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 95,200 ft³/s Dec. 22, 1964, gage height, 24.50 ft; minimum discharge, 61 ft³/s Oct. 12, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,300 ft³/s Jan. 10, gage height, 10.01 ft; minimum discharge, 373 ft³/s July 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1070	e1400	7270	2850	4430	1200	6670	1170	1730	679	567	766
2	1070	e2300	6810	2720	6410	1320	6540	1160	1630	629	543	706
3	1090	e3200	6620	4080	6070	1210	6480	1080	1710	620	535	705
4	1200	e3800	6430	4410	5890	1160	5520	950	1590	616	522	688
5	1190	e3800	6210	4470	5860	1510	4590	1050	1390	611	516	920
6	1120	e4100	4490	4420	5640	6920	5260	925	1370	611	515	1420
7	1100	e3800	4040	4350	5540	5340	6630	1150	1050	601	507	1430
8	1100	e3900	4100	4400	5570	3670	7200	1120	867	600	509	1440
9	1080	5190	3990	8250	5530	3310	6860	899	858	600	510	1430
10	1080	5470	3980	15100	4910	3660	6720	951	849	600	514	1450
11	1060	6160	3950	12800	1440	4070	5130	927	840	598	513	1450
12	1040	6410	3920	9920	1040	4330	4460	897	831	593	507	1440
13	1100	6820	3930	7790	1030	5050	3910	883	835	502	506	1440
14	1100	6020	3900	7260	1010	4720	3980	852	866	590	503	1430
15	1270	6160	3890	7000	998	4780	4020	807	1030	587	505	1430
16	1400	6610	3870	7460	968	5820	4020	793	1170	600	510	1440
17	1560	7770	3640	7440	1890	5880	3590	819	985	618	503	1430
18	2200	6930	3520	7500	2960	6590	2830	828	948	603	502	1440
19	2180	6250	3790	7350	3190	6560	2410	817	807	592	497	1420
20	2270	7120	2990	7020	2980	5300	2240	793	771	590	491	1430
21	2270	8510	3050	7410	2460	4790	2790	786	767	589	491	1430
22	1770	13800	3900	7510	2100	4600	2370	781	757	586	560	1430
23	1560	14100	4150	6940	2300	6360	2070	811	751	580	787	1390
24	1540	13100	4080	6760	2590	4900	1640	991	757	582	848	1360
25	1480	13300	3780	4200	1990	5060	1260	959	743	571	717	1390
26	1400	12400	2760	3010	1650	8140	1380	905	741	571	697	1420
27	1270	8570	2250	2740	1430	6770	1270	2220	727	576	687	1420
28	e1400	13400	1890	2710	1240	7640	1260	3500	728	568	673	1410
29	e1500	12600	1650	2370	---	8060	1200	3050	746	567	685	1420
30	e1450	9730	2770	2260	---	7320	1180	3160	767	570	753	1440
31	e1400	---	3480	3370	---	7430	---	2500	---	575	829	---
TOTAL	43320	222720	125100	185870	89116	153470	115480	38534	29611	18375	18002	39415
MEAN	1397	7424	4035	5996	3183	4951	3849	1243	987	593	581	1314
MAX	2270	14100	7270	15100	6410	8140	7200	3500	1730	679	848	1450
MIN	1040	1400	1650	2260	968	1160	1180	781	727	502	491	688
AC-FT	85930	441800	248100	368700	176800	304400	229100	76430	58730	36450	35710	78180

CAL YR 1988 TOTAL 1029051 MEAN 2812 MAX 14100 MIN 595 AC-FT 2041000
WTR YR 1989 TOTAL 1079013 MEAN 2956 MAX 15100 MIN 491 AC-FT 2140000

e Estimated

14189000 SANTIAM RIVER AT JEFFERSON. OR

LOCATION.--Lat 44°42'55", long 122°00'40", in SE 1/4 sec.11, T.10 S., R.3 W., Marion County, Hydrologic Unit 17090005, on right bank 350 ft upstream from Southern Pacific railroad bridge at Jefferson, 2.1 mi downstream from confluence of North and South Santiam Rivers, and at mile 9.62.

DRAINAGE AREA.--1,790 mi², approximately.

PERIOD OF RECORD.--October 1905 to June 1906 (gage heights and discharge measurements only), October 1907 to September 1916, October 1939 to current year. Gage-height records collected at same site since 1907 are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 904: Drainage area. WSP 1094: 1908, 1910, 1912, 1943. WSP 1248: 1911, 1915-16(M).
WSP 1935: 1909.

GAGE.--Water-stage recorder. Datum of gage is 199.63 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 22, 1940, nonrecording gages at sites within 350 ft downstream at datum 3.00 ft higher.

REMARKS.--No estimated daily discharges. Records excellent. Flow regulated since 1953 by Detroit Lake (station 14180500), since 1966 by Green Peter Lake (station 14186100) and by Foster Lake (station 14186600). Salem Canal diverts from North Santiam River at Stayton for irrigation and power; most of this water reaches Willamette River by way of Mill Creek at Salem. Stayton Canal diverts from North Santiam River at Stayton for irrigation of lands near town of West Stayton; some return flow reaches North Santiam River upstream from station. Albany power canal diverts from South Santiam River at Lebanon; return flow reaches Willamette River at Albany.

AVERAGE DISCHARGE.--59 years (water years 1908-16, 1940-89), 7.754 ft³/s, 5,618,000 acre-ft/vr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 197,000 ft³/s Dec. 22, 1964, gage height, 24.22 ft; minimum discharge observed, 260 ft³/s Aug. 15-22, Aug. 24 to Sept. 2, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood stage of 25.0 ft was reached in December 1861, and 23.4 ft in February 1890 (information from Corps of Engineers). On Nov. 21, 1921, the stage reached 19.5 ft at gage on railroad bridge 350 ft downstream, corresponding gage height at present site and datum, 24.4 ft, from curve of relation, discharge, 202,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 51,800 ft³/s Jan. 10, gage height, 15.31 ft; minimum discharge, 952 ft³/s July 13, 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3070	3320	17200	7420	8810	4370	14200	4930	4720	2020	1280	1640
2	3010	3740	16000	6910	12800	5000	12100	4430	4240	1950	1340	1550
3	3070	5200	15200	9320	12900	4520	12000	4300	4300	1860	1570	1520
4	3220	7550	14600	10200	12500	4190	11200	4070	4400	1740	1390	1490
5	3340	7760	13900	10700	12400	5520	11400	4170	4300	1620	1270	1450
6	3310	9320	11800	10300	12100	18700	11300	4180	4570	1520	1200	2140
7	3230	8430	11200	9830	11800	16000	13500	4190	4190	1380	1160	2220
8	3220	7700	10100	9640	10800	11200	13600	4590	3790	1320	1110	2300
9	3180	8720	9470	16400	9670	9250	12800	4540	3750	1340	1100	2490
10	3220	9460	9190	44000	8960	10000	12400	5020	3400	1360	1120	2520
11	3240	11200	8850	30400	4920	9950	11200	5220	2880	1320	1100	2540
12	3280	11000	8590	23400	3680	10300	10300	4680	2790	1260	1090	2510
13	3380	12100	8510	17900	3590	14300	9640	4010	2680	1210	1090	2510
14	3370	10600	8360	15600	3440	13300	9610	3690	2650	1130	1080	2520
15	3410	10500	8090	14400	3250	12300	9550	3430	3070	1180	1030	2550
16	3660	11800	7890	15200	3630	14000	9260	2880	3270	1270	1020	2580
17	3660	14000	7710	15600	8090	13500	8860	2790	3160	1440	1010	2600
18	4210	13300	7490	15600	9750	13500	7860	3230	3040	1410	1030	2820
19	4320	12500	7850	14500	9440	13300	7640	3560	2770	1300	1020	3540
20	4400	14200	7320	14000	8530	11200	7420	3480	2520	1200	1040	3970
21	4530	17100	7690	15000	7420	12200	7770	3340	2510	1220	1060	4140
22	4250	27900	8950	15500	7530	11700	7230	3100	2310	1220	1250	4180
23	3880	32800	10000	14100	8530	11400	6750	2830	2090	1210	2130	4160
24	3870	30800	10400	12900	7780	10400	6520	3390	1950	1170	2390	4210
25	3850	32400	9950	10500	6560	13000	5500	4570	1770	1130	1970	4230
26	3790	30000	7300	8020	5650	15700	5310	4600	1720	1110	1790	4400
27	3630	21800	6010	7090	5090	13900	5890	5810	1680	1150	1680	4370
28	3670	34300	5080	6670	4640	16100	5650	7960	1650	1140	1580	4420
29	3650	27200	4550	6220	---	16800	5380	7270	1720	1130	1470	4330
30	3420	22100	6620	6020	---	15500	5340	7400	2010	1180	1610	4290
31	3330	---	8820	7450	---	15100	---	6320	---	1210	1690	---
TOTAL	110670	468800	294690	420790	224260	366200	277180	137980	89900	41700	41670	90190
MEAN	3570	15630	9506	13570	8009	11810	9239	4451	2997	1345	1344	3006
MAX	4530	34300	17200	44000	12900	18700	14200	7960	4720	2020	2390	4420
MIN	3010	3320	4550	6020	3250	4190	5310	2790	1650	1110	1010	1450
AC-FT	219500	929900	584500	834600	444800	726400	549800	273700	178300	82710	82650	178900
CAL YR 1988	TOTAL 2571060		MEAN 7025	MAX 35000	MIN 1070		AC-FT 5100000					
WTR YR 1989	TOTAL 2564030		MEAN 7025	MAX 44000	MIN 1010		AC-FT 5086000					

SANTIAM RIVER BASIN

145

14190500 LUCKIAMUTE RIVER NEAR SUVER, OR

LOCATION.--Lat 44°47'00", long 123°14'00", in SW 1/4 SW 1/4 sec.18, T.9 S., R.4 W., Polk County, Hydrologic Unit 17090003, on right bank 10 ft upstream from highway bridge at Helmick State Park, 3.0 mi northwest of Suver, 4.7 mi downstream from Little Luckiamute River, and at mile 13.5.

DRAINAGE AREA.--240 mi².

PERIOD OF RECORD.--August 1905 to October 1911, July 1940 to current year.

REVISED RECORDS.--WSP 1044: Drainage area. WSP 1094: 1945-46. WSP 1248: 1905-11.

GAGE.--Water-stage recorder. Datum of gage is 171.92 ft above National Geodetic Vertical Datum of 1929. Aug. 18, 1905, to Oct. 31, 1911, nonrecording gage at present site at different datum, Aug. 20 to Oct. 15, 1940, nonrecording gage at present site and datum.

REMARKS.--Records good. Some diurnal fluctuation during periods of low flow caused by millpond upstream from station. A few small diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--55 years, 896 ft³/s, 50.70 in/yr, 649,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,900 ft³/s Dec. 22, 1964, gage height, 34.52 ft; minimum discharge, 0.65 ft³/s Aug. 13, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,600 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 11	0100	*5,340	*25.18				
Minimum discharge, 19 ft ³ /s Sept. 17.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	37	1650	3100	760	924	1560	291	179	115	60	46
2	32	49	1310	2170	721	978	1660	278	169	105	99	43
3	31	342	1090	1730	664	864	1630	266	158	102	126	41
4	30	390	923	1490	e640	782	1520	263	149	89	87	41
5	32	351	820	1550	e610	1300	1540	254	140	84	74	37
6	36	410	881	1390	e570	3030	1380	243	134	74	65	35
7	35	436	858	1240	e530	2670	1230	233	130	69	62	33
8	34	314	746	1160	e500	2030	1110	222	129	66	50	32
9	34	381	678	1770	e480	1720	997	214	127	65	48	30
10	34	514	628	4390	483	1830	899	212	121	72	46	28
11	33	602	579	4840	513	1930	816	205	118	64	46	30
12	33	521	535	3270	568	2030	750	201	116	64	43	25
13	35	536	506	2460	593	2800	694	195	109	57	43	24
14	36	443	473	2470	572	3130	644	187	113	58	47	23
15	44	441	440	2830	545	3050	600	181	121	58	40	22
16	78	752	414	3730	642	3290	564	171	112	60	40	21
17	71	1150	391	3990	2590	3230	526	167	104	79	42	22
18	55	889	372	3460	3550	3290	496	193	107	88	41	26
19	47	665	413	2700	3460	2840	471	210	102	71	40	24
20	44	709	422	2130	2680	2240	450	181	116	60	40	24
21	45	1050	616	1890	2050	2000	430	169	114	57	42	27
22	43	2150	1030	1850	2030	1750	409	165	99	56	44	26
23	41	2890	1460	1530	2050	1510	413	169	90	57	81	24
24	40	2640	1830	1340	1760	1360	415	261	87	56	76	24
25	38	3420	1680	1180	1500	1420	398	349	79	49	59	26
26	38	3400	1310	1060	1300	1350	362	263	79	44	54	25
27	38	2610	1100	967	1130	1450	341	235	71	45	49	33
28	37	3760	959	876	1020	1850	326	238	72	49	48	38
29	35	3330	905	803	---	2010	311	222	78	46	45	36
30	35	2250	2430	746	---	1860	296	205	108	47	46	35
31	35	---	3790	747	---	1720	---	192	---	53	47	---
TOTAL	1236	37432	31239	64859	34511	62238	23238	6835	3431	2059	1730	901
MEAN	39.9	1248	1008	2092	1233	2008	775	220	114	66.4	55.8	30.0
MAX	78	3760	3790	4840	3550	3290	1660	349	179	115	126	46
MIN	30	37	372	746	480	782	296	165	71	44	40	21
AC-FT	2450	74250	61960	128600	68450	123400	46090	13560	6810	4080	3430	1790
CFSM	.17	5.20	4.20	8.72	5.14	8.37	3.23	.92	.48	.28	.23	.13
IN.	.19	5.80	4.84	10.05	5.35	9.65	3.60	1.06	.53	.32	.27	.14

CAL YR 1988 TOTAL 245763 MEAN 671 MAX 10900 MIN 21 AC-FT 487500 CFSM 2.80 IN. 38.09
WTR YR 1989 TOTAL 269709 MEAN 739 MAX 4840 MIN 21 AC-FT 535000 CFSM 3.08 IN. 41.80

e Estimated

WILLAMETTE RIVER BASIN

14191000 WILLAMETTE RIVER AT SALEM, OR

LOCATION.--Lat 44°56'40", long 123°02'30", in SE 1/4 SW 1/4 sec. 22, T.7 S., R.3 W., Marion County, Hydrologic Unit 17090007, on right bank 300 ft upstream from Center Street Bridge in Salem and at mile 84.16.

DRAINAGE AREA.--7,280 mi², approximately.

PERIOD OF RECORD.--October 1909 to December 1916, January 1923 to current year. Monthly discharge only January 1923 to September 1927, published in WSP 1318. Gage-height records collected at about the same site since 1892 are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 1318: 1915(M).

GAGE.--Water-stage recorder. Datum of gage is 106.14 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1909, to Dec. 31, 1916, nonrecording gage at site 0.5 mi upstream at datum 8.00 ft higher. Jan. 1, 1923, to Nov. 26, 1934, nonrecording gage at Center Street Bridge at datum 8.00 ft higher. Nov. 27, 1934, to Sept. 30, 1962, water-stage recorder at present site at datum 8.00 ft higher.

REMARKS.--Records excellent. Flow regulated by 12 reservoirs upstream from station (see elsewhere in this report). Many small diversions for irrigation upstream from station; part of flow of Salem Canal, which diverts water from North Santiam River, returns to Willamette River downstream from station, through Mill Creek at Salem.

AVERAGE DISCHARGE.--73 years, 23,520 ft³/s, 43.87 in/yr, 17,040,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 348,000 ft³/s Jan. 8, 1923, gage height, 38.3 ft, present datum; minimum discharge, 2,470 ft³/s Aug. 27, 1940, gage height, 3.55 ft, present datum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 500,000 ft³/s Dec. 4, 1861, gage height, about 47 ft present datum, from rating curve extended above 250,000 ft³/s in 1916. Floods of Jan. 16, 1881, and Feb. 5, 1890, reached stages of 44.3 ft, discharge, 428,000 ft³/s, and 45.1 ft, discharge, 448,000 ft³/s, respectively, from floodmarks and information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 92,400 ft³/s Jan. 12, gage height, 21.44 ft; minimum discharge, 5,920 ft³/s July 14, gage height, 4.74 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9430	10900	60400	35700	24100	16600	50100	14400	17800	7100	6660	7960
2	9240	11100	49500	31100	27900	e16600	46200	13500	15100	7070	6940	8160
3	9250	12500	43600	28600	32800	e17500	44500	12500	13700	6900	7120	8090
4	9420	16200	38800	31800	31800	e15500	41400	12100	13300	6660	7060	8060
5	10000	19300	34000	35100	29900	e22000	38400	11900	13100	6500	6700	7990
6	10200	20600	e29700	36900	27700	e38000	35600	11900	13200	6440	6540	8180
7	10200	22000	e27100	35000	24900	e50100	36300	12400	13600	6320	6520	8910
8	10100	20500	e26000	31700	23100	46400	35500	13400	13000	6250	6360	9210
9	10200	20600	e24500	34500	20800	37900	34300	13600	12600	6220	6330	9580
10	10300	21900	e23100	66300	20400	36100	32400	14300	12400	6230	6350	9790
11	10400	24200	e21800	88000	17800	37300	30800	15300	11300	6220	6370	9720
12	10400	24500	e21100	91100	14500	37900	28400	15600	10700	6140	6400	9260
13	10600	26000	e20500	79800	14300	42900	26800	14700	9650	6100	6480	8540
14	10700	26600	e19700	69300	14100	49200	26000	13200	8770	5980	6590	8490
15	10700	24700	e18900	63200	13300	47600	25700	12500	8690	6000	6560	8460
16	10900	25800	19000	59400	12600	50800	25200	11500	9330	6140	6550	8480
17	11000	29800	18000	58300	19900	56800	24500	10500	9870	6520	6570	8500
18	11200	35700	17200	54200	31900	55200	23100	10200	9740	6820	6540	8750
19	12000	35500	17100	48700	34800	53800	22600	10400	9540	6630	6640	e9800
20	12400	33600	17400	44800	33500	50000	22000	11000	8690	6440	6720	e11000
21	12900	35000	17400	43500	29000	46300	21900	11100	8260	6320	6790	11300
22	13200	45400	21600	47100	26700	45700	21700	10900	8020	6310	6960	11400
23	12900	69500	28900	46400	29200	44300	20600	10500	7490	6250	7650	11400
24	12900	80200	35000	41200	29400	43400	19700	10500	7180	6200	8760	11000
25	13000	88100	37600	36800	26900	40800	17900	12300	6910	6070	8000	10900
26	12900	84700	32500	31100	23700	46000	16100	14200	6780	5990	7460	11100
27	12800	72000	25700	27300	20800	44100	16900	14700	6650	5990	7340	11300
28	12300	67400	21900	24400	18700	43900	16900	19200	6560	6120	7410	10900
29	11900	75400	19200	22300	---	49200	16400	21700	6550	6160	7420	10600
30	11400	72000	21200	20900	---	51100	15100	22400	6780	6310	7470	11000
31	11200	---	32300	20700	---	51500	---	20800	---	6500	7560	---
TOTAL	346040	1151700	840700	1385200	674500	1284500	833000	423200	305260	196900	214820	287830
MEAN	11160	38390	27120	44680	24090	41440	27770	13650	10180	6352	6930	9594
MAX	13200	88100	60400	91100	34800	56800	50100	22400	17800	7100	8760	11400
MIN	9240	10900	17100	20700	12600	15500	15100	10200	6550	5980	6330	7960
AC-FT	686400	2284000	1668000	2748000	1338000	2548000	1652000	839400	605500	390600	426100	570900
CFSM	1.53	5.47	3.73	6.14	3.31	5.69	3.81	1.88	1.40	.87	.95	1.32
IN.	1.77	5.89	4.30	7.08	3.45	6.56	4.26	2.16	1.56	1.01	1.10	1.47

CAL YR 1988 TOTAL 7560700 MEAN 20660 MAX 106000 MIN 6120 AC-FT 15000000 CFSM 2.84 IN. 38.63
WTR YR 1989 TOTAL 7943650 MEAN 21760 MAX 91100 MIN 5980 AC-FT 15760000 CFSM 2.99 IN. 40.59

e Estimated

YAMHILL RIVER BASIN

147

14192500 SOUTH YAMHILL RIVER NEAR WILLAMINA, OR

LOCATION.--Lat 45°02'50", long 123°30'10", in NE 1/4 SE 1/4 sec.14, T.6 S., R.7 W., Polk County, Hydrologic Unit 17090008, on left bank 2.3 mi southwest of Willamina, 2.8 mi upstream from Willamina Creek, and at mile 45.5.

DRAINAGE AREA.--133 mi².

PERIOD OF RECORD.--May 1934 to current year.

REVISED RECORDS.--WSP 814: Drainage area. WSP 1318: 1934.

GAGE.--Water-stage recorder. Datum of gage is 235.55 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for estimated daily discharges, which are fair. Slight regulation occasionally at low flows by millpond upstream. No diversion upstream from station.

AVERAGE DISCHARGE.--55 years, 615 ft³/s, 62.79 in/yr, 445,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,600 ft³/s Dec. 22, 1964, gage height, 17.07 ft; minimum discharge, 2.6 ft³/s Oct. 11, 1952.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,700 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 9	2200	*6,110	*8.85	No other peak greater than base discharge.			
Minimum discharge, 5.5 ft ³ /s Sept. 13.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	25	944	1560	519	702	1000	149	101	78	23	14
2	14	164	765	1280	473	735	1310	139	91	79	61	13
3	13	372	637	1070	e405	614	1350	132	83	65	50	14
4	14	358	549	956	e364	565	1250	128	77	52	37	12
5	16	294	504	884	e327	1720	1170	122	70	46	29	11
6	17	657	585	835	e292	2770	1000	115	68	40	23	10
7	15	361	612	772	e267	2150	881	111	66	35	19	9.4
8	16	425	516	809	e249	1620	763	104	63	33	17	8.6
9	16	405	473	2750	e243	1500	662	100	60	33	16	8.1
10	15	799	438	4310	e269	1680	579	104	58	34	16	7.2
11	14	661	394	2570	326	1860	513	103	55	31	15	7.0
12	14	691	368	1780	339	2330	460	98	54	28	14	6.1
13	15	543	360	1800	344	2450	416	93	57	27	13	5.6
14	18	425	326	1610	344	2070	378	88	60	28	13	6.3
15	47	553	301	2450	340	1860	346	85	60	26	11	6.8
16	64	976	289	2780	666	1800	320	81	52	31	11	7.0
17	48	1080	274	2410	2500	1820	297	86	48	57	11	7.6
18	36	832	255	1780	2500	1950	280	159	49	45	12	7.7
19	30	667	372	1370	2030	1550	265	134	54	35	11	7.8
20	32	805	383	1090	1620	1300	256	102	78	28	11	7.9
21	29	1590	673	1090	1350	1250	239	90	61	26	12	7.3
22	27	2620	1060	944	1680	1140	236	86	48	26	21	7.0
23	29	2720	1150	808	1650	986	233	93	43	23	38	6.5
24	25	2220	1140	716	1330	942	209	258	38	22	26	6.4
25	23	2900	946	641	1170	1040	194	216	32	19	20	6.8
26	23	2250	802	579	998	959	182	163	33	18	16	8.7
27	21	2160	707	544	877	1120	173	170	33	19	14	11
28	20	2250	623	487	769	1540	164	159	33	18	14	13
29	20	1610	949	448	---	1350	155	138	44	17	13	11
30	20	1210	2540	423	---	1150	148	123	85	18	14	13
31	22	---	2060	534	---	1040	---	111	---	19	15	---
TOTAL	729	32623	21995	42080	24241	45563	15429	3840	1754	1056	616	267.8
MEAN	23.5	1087	710	1357	866	1470	514	124	58.5	34.1	19.9	8.93
MAX	64	2900	2540	4310	2500	2770	1350	258	101	79	61	14
MIN	13	25	255	423	243	565	148	81	32	17	11	5.6
AC-FT	1450	64710	43630	83470	48080	90370	30600	7620	3480	2090	1220	531
CFSM	.18	8.18	5.33	10.2	6.51	11.1	3.87	.93	.44	.26	.15	.07
IN.	.20	9.12	6.15	11.77	6.78	12.74	4.32	1.07	.49	.30	.17	.07

CAL YR 1988 TOTAL 179054.7 MEAN 489 MAX 8380 MIN 7.0 AC-FT 355200 CFSM 3.68 IN. 50.08
WTR YR 1989 TOTAL 190193.8 MEAN 521 MAX 4310 MIN 5.6 AC-FT 377200 CFSM 3.92 IN. 53.20

e Estimated

YAMHILL RIVER BASIN

14193000 WILLAMINA CREEK NEAR WILLAMINA, OR

LOCATION.--Lat 45°08'35", long 123°29'35", in NE 1/4 NW 1/4 sec.13, T.5 S., R.7 W., Yamhill County, Hydrologic Unit 17090008, on right bank 4.5 mi north of Willamina and at mile 6.2.

DRAINAGE AREA.--64.7 mi².

PERIOD OF RECORD.--June 1934 to current year.

REVISED RECORDS.--WSP 1738: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 315 ft above National Geodetic Vertical Datum of 1929 (plane-table survey). Prior to Oct. 1, 1939, water-stage recorder at site on left bank at datum 1.00 ft higher. Oct. 1, 1939, to Aug. 5, 1968, water-stage recorder at site on left bank at present datum.

REMARKS.--Records excellent except for estimated daily discharges, which are fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--55 years, 257 ft³/s, 53.94 in/yr, 186,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 ft³/s Dec. 22, 1964, gage height, 13.54 ft, from rating curve extended above 3,400 ft³/s on basis of slope-area measurement at gage height 11.65 ft; minimum discharge, 5.4 ft³/s July 15, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 31, 1931, reached a stage of about 12 ft, from information by local resident, discharge, 8,200 ft³/s, from rating curve extended above 3,400 ft³/s on basis of slope-area measurement at gage height 11.65 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 2,300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 9	2230	*2,060	*6.62				
Minimum discharge, 9.7 ft ³ /s Sept. 11.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	18	423	733	252	309	457	89	53	40	25	15
2	12	78	342	609	231	294	576	85	49	40	40	15
3	13	146	283	523	e204	259	628	83	47	35	27	14
4	14	135	242	476	e180	244	583	80	44	31	23	13
5	15	86	218	425	e163	515	535	77	42	28	21	12
6	14	165	232	372	e173	735	468	75	41	27	19	12
7	14	103	216	330	167	671	410	72	41	25	18	12
8	14	101	194	357	158	568	360	70	41	24	17	11
9	14	100	178	1020	152	530	320	69	39	25	16	11
10	13	281	165	1570	149	543	286	70	39	25	16	10
11	13	219	152	1070	148	591	256	69	38	25	15	10
12	13	204	143	803	146	724	235	65	37	23	15	10
13	14	167	142	764	142	786	215	64	39	22	15	10
14	16	134	130	664	137	749	197	61	41	22	15	10
15	36	179	122	939	132	747	183	59	40	22	14	10
16	29	337	116	1160	281	802	170	58	36	29	14	10
17	22	351	111	1120	788	757	159	65	36	35	15	11
18	18	265	109	912	941	778	150	79	35	27	14	11
19	19	223	133	746	826	673	143	67	40	24	14	11
20	18	290	141	627	684	600	136	61	43	22	14	11
21	17	727	221	644	595	572	130	57	36	22	15	11
22	17	870	346	571	637	511	131	57	33	21	18	10
23	16	892	397	485	617	448	124	63	31	20	19	9.9
24	15	763	420	422	546	410	119	120	29	19	17	9.9
25	15	834	358	371	481	388	112	89	27	19	16	10
26	15	770	305	333	413	358	106	73	26	18	15	11
27	14	851	272	302	367	420	102	70	27	20	14	14
28	14	933	242	273	328	554	98	65	28	18	14	12
29	14	718	460	251	---	514	94	61	36	18	13	11
30	14	543	1120	239	---	469	90	58	48	19	14	18
31	15	---	980	263	---	465	---	55	---	19	15	---
TOTAL	500	11483	8913	19374	10038	16984	7573	2186	1142	764	537	345.8
MEAN	16.1	383	288	625	358	548	252	70.5	38.1	24.6	17.3	11.5
MAX	36	933	1120	1570	941	802	628	120	53	40	40	18
MIN	12	16	109	239	132	244	90	55	26	18	13	9.9
AC-FT	992	22780	17680	38430	19910	33690	15020	4340	2270	1520	1070	686
CFSM	.25	5.92	4.44	9.66	5.54	8.47	3.90	1.09	.59	.38	.27	.18
IN.	.29	6.60	5.12	11.14	5.77	9.77	4.35	1.26	.66	.44	.31	.20

CAL YR 1988 TOTAL 71965 MEAN 197 MAX 3440 MIN 10 AC-FT 142700 CFSM 3.04 IN. 41.38
WTR YR 1989 TOTAL 79839.8 MEAN 219 MAX 1570 MIN 9.9 AC-FT 158400 CFSM 3.38 IN. 45.90

e Estimated

YAMHILL RIVER BASIN

149

14194000 SOUTH YAMHILL RIVER NEAR WHITESON, OR

LOCATION.--Lat 45°10'08", long 123°12'25", in NE 1/4 NW 1/4 sec.5, T.5 S., R.4 W., Yamhill County, Hydrologic Unit 17090008, near left bank on downstream side of Whiteson Bridge on State Highway 99W, 1.3 mi northwest of Whiteson, 1.4 mi downstream from Salt Creek, and at mile 16.71.

DRAINAGE AREA.--502 mi².

PERIOD OF RECORD.--July 1940 to current year.

GAGE.--Water-stage recorder. Datum of gage is 82.30 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 20, 1940, nonrecording gage at present site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Slight regulation during low-water periods by logpond upstream. Many small diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--49 years, 1,734 ft³/s, 46.91 in/yr, 1,256,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,200 ft³/s Dec. 23, 1964, gage height, 47.20 ft; minimum discharge, 2.7 ft³/s Sept. 14, 1989.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of December 1937 reached a stage of 46.9 ft, from Oregon State Highway Department bridge plans.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 13,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 11	0900	*10,600	*33.42				
Minimum discharge, 2.7 ft ³ /s Sept. 14.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	41	2980	6220	1440	1720	2590	365	227	166	63	35
2	35	48	2310	4600	1370	1770	2870	348	207	152	62	37
3	31	485	1860	3450	e1220	1580	3670	342	189	145	104	36
4	28	643	1540	2880	e1100	1390	3330	328	181	121	85	37
5	30	618	1330	2810	e1030	1840	3160	315	168	104	76	34
6	34	852	1310	2620	e970	5500	2750	295	151	94	69	28
7	37	951	1440	2390	e930	6330	2360	283	149	80	52	24
8	37	607	1290	2160	e885	5150	2060	267	147	80	43	18
9	35	772	1150	3040	e850	3880	1800	251	142	85	37	22
10	34	1110	1050	7940	e810	4050	1590	250	135	85	35	20
11	38	1670	961	10400	833	4470	1400	254	132	81	37	17
12	34	1210	875	8610	924	4780	1260	247	131	75	37	14
13	33	1250	824	5990	1020	5710	1150	237	130	73	36	11
14	34	928	776	5610	1030	5760	1030	226	138	67	30	3.6
15	37	802	710	5660	977	5120	941	212	143	66	24	6.9
16	69	1300	661	7040	1010	5320	873	204	138	68	25	14
17	89	2520	624	7510	3460	5580	812	200	126	82	24	15
18	72	2080	589	6400	5560	6240	759	249	125	106	25	14
19	61	1490	654	4780	5560	6000	715	317	124	85	28	16
20	54	1410	758	3580	4600	4650	678	258	131	74	33	17
21	55	2090	1160	3280	3600	3910	649	227	141	64	33	18
22	52	4390	2000	3470	3540	3430	612	217	121	58	32	16
23	48	6010	3130	3000	4220	2900	621	219	104	56	34	12
24	49	6020	3410	2520	3820	2510	579	310	102	51	57	9.9
25	45	6020	3260	2170	3130	2560	544	591	95	44	46	9.7
26	44	6400	2640	1900	2600	2510	504	401	85	43	41	16
27	46	5410	2120	1710	2210	2520	475	332	76	42	40	19
28	45	5790	1780	1540	1940	3260	449	334	79	44	34	24
29	41	5400	1640	1380	---	3510	425	298	91	46	31	32
30	41	4030	4410	1270	---	3200	393	269	124	46	32	36
31	40	---	6860	1320	---	2900	---	247	---	49	30	---
TOTAL	1370	72347	56102	127250	60639	120050	41049	8893	4032	2432	1335	612.1
MEAN	44.2	2412	1810	4105	2166	3873	1368	287	134	78.5	43.1	20.4
MAX	89	6400	6860	10400	5560	6330	3670	591	227	166	104	37
MIN	28	41	589	1270	810	1390	393	200	76	42	24	3.6
AC-FT	2720	143500	111300	252400	120300	238100	81420	17640	8000	4820	2650	1210
CFSM	.09	4.80	3.61	8.18	4.31	7.71	2.73	.57	.27	.16	.09	.04
IN.	.10	5.36	4.16	9.43	4.49	8.90	3.04	.66	.30	.18	.10	.05

CAL YR 1988 TOTAL 454552.2 MEAN 1242 MAX 23900 MIN 4.9 AC-FT 901600 CFSM 2.47 IN. 33.68
WTR YR 1989 TOTAL 496111.1 MEAN 1359 MAX 10400 MIN 3.6 AC-FT 984000 CFSM 2.71 IN. 36.76

e Estimated

YAMHILL RIVER BASIN

14194300 NORTH YAMHILL RIVER NEAR FAIRDALE, OR

LOCATION.--Lat 45°21'55", long 123°22'40", in SW 1/4 sec.25, T.2 S., R.6 W., Yamhill County, Hydrologic Unit 17090008, on right bank 0.4 mi downstream from small tributary, 1.3 mi upstream from Kutch Creek, 2.1 mi west of Fairdale, 9.5 mi west of Yamhill and at mile 28.4.

DRAINAGE AREA.--9.03 mi².

PERIOD OF RECORD.--October 1958 to March 1966, October 1967 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 560 ft, from topographic map.

REMARKS.--No estimated daily discharges. Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--29 years (water years 1959-65, 1968-89), 46.1 ft³/s, 69.33 in/yr, 33,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,330 ft³/s Dec. 22, 1964, gage height, 6.88 ft, from rating curve extended above 1,000 ft³/s; maximum gage height, 9.7 ft Dec. 23, 1964 (backwater from debris); minimum discharge, 1.9 ft³/s Oct. 1, 2, 1987, Sept. 23, 24, 1989.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 350 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 9	2200	*255	*3.68				

Minimum discharge, 1.9 ft³/s Sept. 23, 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	4.4	70	99	49	54	71	17	10	8.2	6.4	3.0
2	2.6	18	60	82	e40	50	72	17	9.8	7.9	7.0	3.2
3	2.8	17	53	77	e36	46	69	16	9.5	7.1	5.4	2.9
4	3.0	18	47	79	e33	44	67	15	9.1	6.5	5.0	2.7
5	3.0	14	44	74	e31	72	65	15	8.7	6.2	4.4	2.7
6	3.0	29	48	66	e30	102	61	14	8.5	5.9	4.1	2.6
7	3.0	17	47	59	31	97	58	13	8.5	5.6	3.9	2.5
8	3.0	20	44	63	30	81	54	13	8.3	5.7	3.7	2.5
9	2.7	24	40	144	28	75	50	13	8.2	5.8	3.6	2.4
10	2.5	55	37	201	27	85	47	13	8.0	5.7	3.6	2.3
11	2.6	42	33	137	26	101	44	13	7.7	5.5	3.5	2.2
12	2.8	44	31	108	25	115	41	12	7.7	5.1	3.4	2.2
13	3.1	35	30	100	24	116	38	12	7.9	5.2	3.4	2.2
14	4.0	29	27	84	23	109	36	12	8.1	5.1	3.4	2.2
15	7.8	34	25	104	22	103	33	11	7.7	5.0	3.3	2.2
16	5.2	52	23	144	37	113	32	11	7.3	7.1	3.4	2.2
17	4.4	56	22	160	100	113	30	13	7.2	6.4	3.4	2.3
18	3.9	47	22	146	127	126	28	15	7.0	5.5	3.2	2.4
19	3.9	44	26	127	110	110	27	13	8.6	5.1	3.2	2.4
20	3.7	73	25	110	92	95	26	12	8.7	5.0	3.3	2.4
21	3.5	113	31	105	84	87	24	11	7.3	4.9	3.5	2.2
22	3.6	154	48	93	102	78	24	11	6.7	4.6	4.8	2.1
23	3.3	154	53	79	109	69	23	15	6.4	4.4	4.0	2.1
24	3.2	108	49	69	96	65	22	24	6.0	4.3	3.6	2.1
25	3.0	95	42	62	81	63	21	16	5.9	4.1	3.4	2.2
26	2.9	101	37	56	69	61	20	14	6.0	4.3	3.2	3.5
27	2.8	116	33	53	62	72	19	14	6.1	4.3	3.1	3.3
28	2.8	152	30	48	57	90	19	13	6.4	4.1	3.0	2.7
29	2.9	118	63	45	---	89	18	13	8.7	4.2	2.9	2.6
30	3.0	89	165	46	---	82	17	12	8.9	4.3	3.0	3.6
31	3.0	---	134	52	---	74	---	11	---	4.3	3.1	---
TOTAL	103.7	1872.4	1439	2872	1581	2637	1156	424	234.9	167.4	118.2	75.9
MEAN	3.35	62.4	46.4	92.6	56.5	85.1	38.5	13.7	7.83	5.40	3.81	2.53
MAX	7.8	154	165	201	127	126	72	24	10	8.2	7.0	3.6
MIN	2.5	4.4	22	45	22	44	17	11	5.9	4.1	2.9	2.1
AC-FT	206	3710	2850	5700	3140	5230	2290	841	466	332	234	151
CFSM	.37	6.91	5.14	10.3	6.25	9.42	4.27	1.51	.87	.60	.42	.28
IN.	.43	7.71	5.93	11.83	6.51	10.86	4.76	1.75	.97	.69	.49	.31

CAL YR 1988 TOTAL 12308.9 MEAN 33.6 MAX 407 MIN 2.3 AC-FT 24410 CFSM 3.72 IN. 50.71
WTR YR 1989 TOTAL 12681.5 MEAN 34.7 MAX 201 MIN 2.1 AC-FT 25150 CFSM 3.85 IN. 52.24

e Estimated

YAMHILL RIVER BASIN

151

14195500 HASKINS CREEK RESERVOIR NEAR MCMINNVILLE, OR

LOCATION.--Lat 45°18'43", long 123°21'23", in SW 1/4 NW 1/4 sec.18, T.3 S., R.5 W., Yamhill County, Hydrologic Unit 17090008, on control tower 250 ft upstream from dam on Haskins Creek, 11 mi northwest of McMinnville, and at mile 5.1.

DRAINAGE AREA.--6.88 mi².

PERIOD OF RECORD.--October 1951 to current year.

REVISED RECORDS.--WSP 1738: Drainage area. WDR OR-79-1: 1978 (maximum contents).

GAGE.--Nonrecording gage. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by city of McMinnville). Prior to February 1981, at datum 20.0 ft lower.

REMARKS.--Reservoir is formed by earthfill dam equipped with five siphon spillways which act as overflow weirs until priming occurs, approximately 815.5 ft elevation. Capacity of reservoir is 733 acre-ft between elevations 741.5 ft, invert of outlet tunnel, and 815.0 ft, crest of siphon spillways. Dead storage negligible. Rated capacity of three siphons is 700 ft³/s each and remaining two siphons 350 ft³/s each. Water is used for municipal supply of city of McMinnville.

COOPERATION.--Elevations and capacity table furnished by city of McMinnville, Water and Light Department.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 748 acre-ft Nov. 17, 1954, elevation, 815.65 ft, present datum; no contents at times during winter months.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 733 acre-ft many days during the year, elevation, 815.0 ft, present datum; no contents Apr. 17-19.

MONTHEND ELEVATIONS AND CONTENTS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30.....	807.9	581	-
Oct. 31.....	812.5	677	+96
Nov. 30.....	815.0	733	+56
Dec. 31.....	815.0	733	0
CAL YR 1988.....	-	-	0
Jan. 31.....	815.0	733	0
Feb. 28.....	815.0	733	0
Mar. 31.....	805.6	536	-197
Apr. 30.....	787.8	269	-267
May 31.....	803.6	500	+231
June 30.....	807.4	571	+71
July 31.....	809.4	611	+40
Aug. 31.....	808.0	583	-28
Sept.30.....	808.0	583	0
WTR YR 1989.....	-	-	+2

YAMHILL RIVER BASIN

14196001 HASKINS CREEK BELOW RESERVOIR, NEAR MCMINNVILLE, OR

LOCATION.--Lat 45°18'39", long 123°21'06", in SE 1/4 NW 1/4 sec.18, T.3 S., R.5 W., Yamhill County, Hydrologic Unit 17090008, on right bank 800 ft downstream from Haskins Creek Reservoir, 11 mi northwest of McMinnville, and at mile 5.0.

DRAINAGE AREA.--6.90 mi².

PERIOD OF RECORD.--October 1951 to current year.

REVISED RECORDS.--WSP 1738: Drainage area. Maximum discharge for water year 1957, published in WSP 1518, has been found to be unreliable and should not be used.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 707 ft above National Geodetic Vertical Datum of 1929, topographic survey of 1955. Prior to Aug. 5, 1952, water-stage recorder at site 600 ft upstream at different datum.

REMARKS.--Records fair. All records given herein include flow in pipeline which diverts 600 ft upstream from station for municipal supply of McMinnville. Flow regulated by Haskins Creek Reservoir (station 14195500). Water from McGuire Lake (station 14302800) on the Nestucca River is diverted through a tunnel to Haskins Creek Reservoir to augment summer flows.

COOPERATION.--Meter readings for diversion and elevations of Haskins Creek Reservoir furnished by city of McMinnville.

AVERAGE DISCHARGE.--38 years, 31.5 ft³/s, 62.00 in/yr, 22,820 acre-ft/yr, adjusted for storage and diversion.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,030 ft³/s Dec. 23, 1964, gage height, 5.98 ft, from floodmark, from rating curve extended above 400 ft³/s on basis of slope-area measurement of peak flow; maximum daily discharge, 515 ft³/s Jan. 21, 1972; minimum daily, 0.10 ft³/s Oct. 27, 28, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 227 ft³/s Jan. 8; minimum daily, 4.8 ft³/s Sept. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.4	5.7	44	66	28	35	57	6.5	10	5.7	6.6	8.0
2	7.9	5.6	37	57	27	35	56	6.5	9.4	5.7	7.6	8.3
3	6.1	5.3	31	51	26	35	55	7.3	10	6.7	7.0	10
4	5.7	5.6	28	50	23	35	56	7.7	11	8.1	8.5	9.2
5	5.8	5.9	26	46	23	35	54	7.8	10	10	8.8	9.7
6	6.5	7.4	27	44	22	62	54	7.1	9.5	12	10	9.5
7	6.5	13	27	48	18	62	53	7.1	11	11	13	11
8	5.5	14	23	227	18	54	47	7.5	10	9.2	11	12
9	6.2	15	22	147	19	52	46	6.2	9.3	9.4	10	10
10	6.0	39	21	102	19	59	43	6.1	11	10	11	9.8
11	6.3	27	19	85	19	67	42	8.3	11	11	12	11
12	5.6	27	19	68	19	73	40	7.3	10	13	10	13
13	5.4	23	18	61	18	71	39	8.1	9.0	11	10	11
14	5.3	19	16	69	18	75	37	8.8	7.8	10	11	12
15	5.6	22	16	77	17	69	35	8.9	7.4	10	10	10
16	5.4	31	15	93	27	76	46	10	8.3	7.1	10	7.6
17	5.3	33	15	85	58	75	30	6.6	7.6	7.2	10	7.6
18	6.6	27	15	75	78	85	20	6.3	8.1	10	11	9.6
19	5.9	24	18	67	65	73	12	5.7	7.2	11	10	9.0
20	5.6	35	17	70	57	65	6.0	7.6	7.9	9.7	9.6	11
21	5.4	58	22	56	56	62	5.5	8.3	10	9.7	8.4	11
22	5.5	83	30	52	70	61	5.4	7.5	11	10	7.9	10
23	5.4	77	34	48	62	61	5.4	6.1	14	10	7.5	9.8
24	5.2	61	33	41	59	59	5.6	5.7	14	12	8.5	10
25	5.7	58	29	37	52	56	5.7	5.9	12	12	9.2	8.6
26	5.8	61	25	35	44	53	5.6	5.6	11	10	10	6.9
27	5.9	80	23	32	40	51	6.0	5.3	11	10	9.7	8.0
28	5.8	82	22	30	41	52	6.4	5.2	8.9	12	9.2	8.9
29	6.2	71	36	28	---	57	6.8	5.9	6.9	9.9	8.6	7.9
30	5.8	56	110	30	---	58	7.1	7.3	6.3	9.4	8.1	4.8
31	5.9	---	84	30	---	57	---	8.6	---	8.5	8.7	---
TOTAL	184.2	1071.5	902	2007	1023	1820	887.5	218.8	290.6	301.3	292.9	285.2
MEAN	5.94	35.7	29.1	64.7	36.5	58.7	29.6	7.06	9.69	9.72	9.45	9.51
MAX	8.4	83	110	227	78	85	57	10	14	13	13	13
MIN	5.2	5.3	15	28	17	35	5.4	5.2	6.3	5.7	6.6	4.8
AC-FT	365	2130	1790	3980	2030	3610	1760	434	576	598	581	566
MEAN†	3.74	36.8	29.1	64.7	36.6	55.5	25.0	10.8	6.62	4.94	3.84	2.82
CFSM†	0.54	5.33	4.22	9.38	5.30	8.04	3.62	1.57	0.96	0.72	0.56	0.41
IN.†	0.63	5.95	4.87	10.82	5.52	9.27	4.05	1.81	1.07	0.83	0.64	0.46
AC-FT†	230	2190	1790	3980	2030	3410	1490	665	394	304	236	168

CAL YR 1988 TOTAL 8878.2 MEAN 24.3 MAX 314 MIN 5.1 AC-FT 17610 MEAN† 22.6 CFSM† 3.28 IN.† 44.63 AC-FT† 16420
WTR YR 1989 TOTAL 9284.0 MEAN 25.4 MAX 227 MIN 4.8 AC-FT 18410 MEAN† 23.3 CFSM† 3.38 IN.† 45.88 AC-FT† 16880

† Adjusted for change in contents in Haskins Creek Reservoir and diversion from McGuire Lake.

MOLALLA-PUDDING RIVER BASIN

153

14198500 MOLALLA RIVER ABOVE PINE CREEK, NEAR WILHOIT, OR

LOCATION.--Lat 45°00'35", long 122°28'45", in NE 1/4 NE 1/4 sec.31, T.6 S., R.3 E., Clackamas County, Hydrologic Unit 17090009, on right bank 0.5 mi upstream from Pine Creek, 5 mi southeast of Wilhoit, and at mile 32.5.

DRAINAGE AREA.--97.0 mi², at cableway 0.2 mi downstream.

PERIOD OF RECORD.--October 1935 to current year.

REVISED RECORDS.--WSP 1738: Drainage area. WDR OR-75-1: 1967(M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 791.35 ft above National Geodetic Vertical Datum of 1929 (Bureau of Public Roads bench mark). Oct. 1, 1935, to Sept. 30, 1945, and Oct. 1, 1945, to Feb. 9, 1961, water-stage recorder at site 0.3 mi downstream at datums 8.42 ft and 10.44 ft lower, respectively. Feb. 10, 1961, to July 21, 1966, water-stage recorder at site 0.2 mi downstream at datum 5.99 ft lower.

REMARKS.--Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--54 years, 537 ft³/s, 75.18 in/yr, 389,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,300 ft³/s Dec. 22, 1964, gage height, 16.3 ft, from floodmark, site and datum then in use, from rating curve extended above 5,200 ft³/s; minimum discharge, 17 ft³/s Oct. 10-14, 21, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,600 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	2030	4,490	7.88	Jan. 9	2200	*5,580	*8.57
Mar. 5	2330	4,260	7.73				

Minimum discharge, 24 ft³/s Oct. 11-13, Oct. 27 to Nov. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	25	795	574	657	370	940	368	279	99	55	47
2	33	125	733	586	511	359	983	335	251	90	84	54
3	32	373	657	816	409	316	843	311	234	82	80	48
4	32	530	588	931	365	294	833	304	217	78	65	43
5	32	334	548	846	354	1160	1080	324	193	74	58	42
6	32	783	960	652	319	3290	1130	332	179	71	52	39
7	31	396	1030	531	295	2070	1160	307	166	68	47	37
8	30	399	764	499	e273	1290	1020	281	155	65	45	36
9	28	435	665	2340	252	1080	833	267	147	64	45	34
10	26	858	584	3090	241	1230	766	266	139	65	43	31
11	25	767	500	1480	234	1330	727	248	130	66	41	31
12	24	886	441	992	231	1490	723	219	124	61	40	29
13	25	711	454	820	215	1810	756	197	121	58	41	29
14	28	510	400	667	205	1310	794	183	131	58	38	28
15	31	550	348	678	195	1130	748	174	165	58	38	28
16	31	1010	310	1040	299	1150	626	166	135	61	37	28
17	30	938	284	1500	777	1030	549	171	121	85	36	28
18	27	648	262	1260	785	1250	533	185	112	72	36	29
19	27	513	309	1060	808	1050	617	177	109	64	35	29
20	27	721	336	936	691	851	648	164	135	59	35	29
21	27	1870	381	914	640	1210	605	155	120	59	37	28
22	27	3570	440	804	871	1080	494	150	108	55	78	27
23	27	2680	427	661	948	854	437	165	101	52	150	25
24	27	1470	389	565	736	837	431	273	93	48	119	25
25	26	1180	334	491	593	1860	416	404	88	47	90	25
26	25	970	290	445	499	1540	454	366	83	45	73	28
27	25	1470	266	446	442	1370	415	579	82	47	64	31
28	24	2320	244	417	397	1390	377	592	82	47	58	29
29	24	1330	270	390	---	1210	360	459	86	43	53	26
30	24	931	910	440	---	1010	364	373	114	44	53	40
31	24	---	769	763	---	1030	---	315	---	48	51	---
TOTAL	867	29303	15688	27634	13242	37251	20662	8810	4200	1933	1777	983
MEAN	28.0	977	506	891	473	1202	689	284	140	62.4	57.3	32.8
MAX	36	3570	1030	3090	948	3290	1160	592	279	99	150	54
MIN	24	25	244	390	195	294	360	150	82	43	35	25
AC-FT	1720	58120	31120	54810	26270	73890	40980	17470	8330	3830	3520	1950
CFSM	.29	10.1	5.22	9.19	4.88	12.4	7.10	2.93	1.44	.64	.59	.34
IN.	.33	11.24	6.02	10.60	5.08	14.29	7.92	3.38	1.61	.74	.68	.38

CAL YR 1988 TOTAL 171773 MEAN 469 MAX 4750 MIN 22 AC-FT 340700 CFSM 4.84 IN. 65.88
WTR YR 1989 TOTAL 162350 MEAN 445 MAX 3570 MIN 24 AC-FT 322000 CFSM 4.59 IN. 62.26

e Estimated

TUALATIN RIVER BASIN

14202965 HENRY HAGG LAKE NEAR GASTON, OR

LOCATION.--Lat 45°28'25", long 123°11'51", in SE 1/4 NE 1/4 sec.20, T.1 S., R.4 W., Washington County, Hydrologic Unit 17090010, at left end of Scoggins Dam on Scoggins Creek, 3.8 mi northwest of Gaston, and at mile 4.9.

DRAINAGE AREA.--38.7 mi².

PERIOD OF RECORD.--January 1975 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation).

REMARKS.--Reservoir is formed by earthfill dam with gated concrete spillway and a gated outlet tunnel. Storage began in January 1975. Total capacity at elevation 305.7 ft, maximum water-surface elevation, is 63,360 acre-ft, of which 56,160 acre-ft is active storage above elevation 239.3 ft, proposed minimum pool. Reservoir is used for irrigation, flood control, and recreation. Figures given herein represent active storage.

COOPERATION.--Monthend elevations and contents furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 53,730 acre-ft Apr. 30, 1988, elevation, 303.58 ft; minimum contents observed since first filling, 808 acre-ft Oct. 31, 1975, elevation, 237.21 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 53,710 acre-ft Apr. 30, elevation, 303.56 ft; minimum contents observed, 20,370 acre-ft Oct. 31, elevation, 268.92 ft.

MONTHEND ELEVATION AND CONTENTS AT 0800, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30.....	274.78	25,220	-
Oct. 31.....	268.92	20,370	-4,850
Nov. 30.....	273.73	24,320	+3,950
Dec. 31.....	279.75	29,580	+5,260
CAL YR 1988.....	-	-	+1,910
Jan. 31.....	287.44	36,800	+7,220
Feb. 28.....	296.45	45,920	+9,120
Mar. 31.....	301.77	51,700	+5,780
Apr. 30.....	303.56	53,710	+2,010
May 31.....	303.55	53,690	-20
June 30.....	299.76	49,480	-4,210
July 31.....	290.78	40,090	-9,390
Aug. 31.....	280.32	30,100	-9,990
Sept.30.....	270.24	21,430	-8,670
WTR YR 1989.....	-	-	-3,790

TUALATIN RIVER BASIN

155

14202980 SCOGGINS CREEK BELOW HENRY HAGG LAKE, NEAR GASTON, OR

LOCATION.--Lat 45°28'10", long 123°11'56", in SE 1/4 NE 1/4 sec.20, T.1 S., R.4 W., Washington County, Hydrologic Unit 17090010, on left bank 600 ft downstream from Scoggins Dam, 800 ft upstream from small left bank tributary, 3.7 mi northwest of Gaston, and at mile 4.8.

DRAINAGE AREA.--38.8 mi².

PERIOD OF RECORD.--January 1975 to current year.

GAGE.--Water-stage recorder. Datum of gage is 187.48 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow completely regulated by Henry Hagg Lake since January 1975. Discharge not adjusted for storage or release from Henry Hagg Lake as evaporation from reservoir at times exceeds natural flow.

AVERAGE DISCHARGE.--14 years, 104 ft³/s, 75,350 acre-ft.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,250 ft³/s Dec. 16, 1977, gage height, 13.50 ft; minimum discharge, 1.4 ft³/s Nov. 16, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 407 ft³/s Mar. 13, gage height, 7.86 ft; minimum discharge, 4.9 ft³/s Apr. 27, 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	92	154	28	18	20	157	48	34	138	169	115
2	75	82	154	28	18	20	157	48	40	138	153	115
3	71	74	154	31	18	20	280	48	47	126	143	115
4	64	52	154	34	18	20	346	49	47	116	143	115
5	62	27	154	34	18	20	252	49	55	116	143	115
6	62	26	71	34	18	20	199	49	59	116	143	126
7	62	26	26	34	18	20	198	49	53	129	143	132
8	62	26	26	34	18	85	198	54	69	137	143	146
9	62	27	26	107	18	143	198	33	73	137	158	155
10	62	27	26	311	18	186	121	14	73	144	161	155
11	62	27	26	399	18	203	36	11	72	150	186	155
12	76	27	26	277	18	203	15	15	72	164	202	152
13	90	27	27	195	18	322	15	17	78	170	201	150
14	90	27	27	195	18	332	55	17	81	169	200	150
15	90	27	26	197	18	209	75	17	67	169	200	153
16	89	27	26	198	19	279	75	17	59	170	199	155
17	92	27	26	197	19	352	38	17	59	154	188	154
18	93	27	26	197	19	352	20	17	59	144	180	154
19	93	27	26	196	19	349	26	23	59	143	179	154
20	93	27	27	199	19	347	34	26	69	143	179	154
21	93	28	27	198	19	243	36	26	83	143	179	154
22	93	28	27	198	19	175	36	44	94	142	179	154
23	92	107	27	150	19	175	36	47	106	142	158	153
24	92	157	27	120	19	175	34	47	114	153	146	153
25	92	156	27	120	19	175	28	57	114	178	146	153
26	92	155	27	83	19	175	16	30	114	201	146	152
27	92	155	27	61	20	175	6.8	16	125	199	146	152
28	95	155	27	61	20	144	7.3	16	162	198	138	151
29	97	155	27	61	---	119	12	16	169	198	133	151
30	97	155	28	33	---	119	35	26	148	197	128	150
31	96	---	28	18	---	142	---	32	---	180	120	---
TOTAL	2556	1980	1507	4028	519	5319	2742.1	975	2454	4804	5032	4343
MEAN	82.5	66.0	48.6	130	18.5	172	91.4	31.5	81.8	155	162	145
MAX	97	157	154	399	20	352	346	57	169	201	202	155
MIN	62	26	26	18	18	20	6.8	11	34	116	120	115
AC-FT	5070	3930	2990	7990	1030	10550	5440	1930	4870	9530	9980	8610

CAL YR 1988 TOTAL 28665 MEAN 78.3 MAX 486 MIN 13 AC-FT 56860
WTR YR 1989 TOTAL 36259.1 MEAN 99.3 MAX 399 MIN 6.8 AC-FT 71920

TUALATIN RIVER BASIN

14203500 TUALATIN RIVER NEAR DILLEY, OR

LOCATION.--Lat 45°28'30", long 123°07'23", in NE 1/4 NW 1/4 sec.24, T.1 S., R.4 W., Washington County, Hydrologic Unit 17090010, on left bank 5 ft upstream from highway bridge, 1.0 mi south of Dilley, 1.2 mi downstream from Scoggins Creek, and at mile 58.81.

DRAINAGE AREA.--125 mi².

PERIOD OF RECORD.--October 1939 to current year. Prior to October 1940 monthly discharge only, published in WSP 1318.

REVISED RECORDS.--WSP 1935: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 147.57 ft above National Geodetic Vertical Datum of 1929. Prior to June 16, 1950, nonrecording gage at several sites within 200 ft of present site at datum 4.00 ft higher. June 16, 1950, to Aug. 10, 1966, water-stage recorder at present site at datum 4.00 ft higher.

REMARKS.--No estimated daily discharges. Records good. Diurnal fluctuation caused by operation of millpond on Scoggins Creek upstream from station and regulation by Henry Hagg Lake since January 1975. Diversions upstream from station of approximately 3,000 acre-ft from J. W. Barney Reservoir on the Middle Fork of North Fork Trask River for municipal water supply and irrigation in Wapato Lake area.

AVERAGE DISCHARGE.--50 years, 391 ft³/s, 283,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,100 ft³/s Dec. 22, 1964, gage height, 19.34 ft, from rating curve extended above 6,000 ft³/s; minimum discharge, 0.08 ft³/s Sept. 3, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,280 ft³/s Mar. 18, gage height, 16.69 ft; minimum discharge, 61 ft³/s May 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91	113	580	672	254	309	580	125	72	173	182	132
2	90	122	511	550	231	290	593	125	70	173	191	130
3	88	190	460	478	230	264	640	125	79	167	174	131
4	81	141	419	443	331	243	727	124	76	147	166	130
5	79	84	393	423	321	304	727	123	78	143	162	126
6	80	106	364	380	197	530	638	120	85	141	160	124
7	80	103	291	328	168	616	578	116	79	142	156	137
8	80	92	255	313	159	576	528	112	97	151	152	147
9	80	112	225	427	154	580	484	110	108	151	156	162
10	83	190	204	981	150	634	427	79	107	156	168	162
11	80	211	186	1220	150	725	312	71	106	164	176	164
12	85	168	172	1050	151	748	241	69	104	171	197	163
13	108	171	164	835	151	798	218	70	103	180	198	161
14	109	134	154	789	150	878	220	69	115	179	199	162
15	125	127	145	797	145	830	239	67	111	177	198	164
16	131	178	139	892	167	905	229	62	92	186	198	166
17	126	275	133	971	349	1100	202	63	90	191	196	167
18	124	213	129	948	643	1240	163	81	90	171	188	170
19	121	166	140	871	789	1170	156	84	90	166	184	170
20	119	233	141	786	705	1010	160	81	105	162	182	169
21	116	358	175	779	587	914	161	74	112	158	186	167
22	116	555	234	764	589	755	156	83	122	159	188	165
23	116	755	325	694	653	670	153	103	124	157	182	164
24	116	804	390	569	629	613	155	124	131	161	163	162
25	117	787	388	500	545	598	139	134	132	175	160	160
26	114	713	339	439	471	568	129	108	133	202	159	162
27	113	666	297	369	409	573	115	78	129	201	156	170
28	114	799	259	320	359	617	100	74	162	203	152	167
29	117	786	260	293	---	615	99	70	185	203	143	165
30	115	679	580	265	---	611	106	69	187	204	144	170
31	116	---	784	254	---	587	---	75	---	198	142	---
TOTAL	3230	10031	9236	19400	9837	20871	9375	2868	3274	5312	5358	4689
MEAN	104	334	298	626	351	673	312	92.5	109	171	173	156
MAX	131	804	784	1220	789	1240	727	134	187	204	199	170
MIN	79	84	129	254	145	243	99	62	70	141	142	124
AC-FT	6410	19900	18320	38480	19510	41400	18600	5690	6490	10540	10630	9300

CAL YR 1988 TOTAL 92066 MEAN 252 MAX 3680 MIN 65 AC-FT 182600
WTR YR 1989 TOTAL 103481 MEAN 284 MAX 1240 MIN 62 AC-FT 205300

TUALATIN RIVER BASIN

157

14207000 OSWEGO CANAL NEAR LAKE OSWEGO, OR

LOCATION.--Lat 45°23'18", long 122°43'11", in NW 1/4 NW 1/4 sec.20, T.2 S., R.1 E., Clackamas County, Hydrologic Unit 17090010, on left bank 0.4 mi downstream from point of diversion on Tualatin River, 1.0 mi upstream from Lake Oswego, and 3.5 mi southwest of town of Lake Oswego.

PERIOD OF RECORD.--October 1928 to current year. October 1951 to September 1970, Oswego Canal records were not published separately, but were combined with records for Tualatin River at West Linn.

GAGE.--Water-stage recorder. Datum of gage is 96.50 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 15, 1928, nonrecording gage 800 ft upstream at different datum. Nov. 15, 1928, to June 29, 1939, nonrecording gage 900 ft downstream at datum about 1.0 ft higher.

REMARKS.--Records good for October to March, fair thereafter. Oswego Canal diverts water from Tualatin River in NW 1/4 sec.20, but diversion dam is in NE 1/4 sec.33, about 3 mi downstream. Water used for recreational facilities and development of power downstream from Lake Oswego and returned to Willamette River at that point.

AVERAGE DISCHARGE.--61 years, 68.4 ft³/s, 49,560 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 6,000 ft³/s Dec. 23, 1933; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 147 ft³/s Jan. 2, gage height, 5.76 ft; minimum discharge, 0.65 ft³/s June 16, 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	64	74	e140	5.1	52	27	13	26	29	62	54
2	57	63	71	e75	4.9	89	26	13	24	29	60	53
3	55	47	65	e5.5	5.8	84	26	13	23	29	63	56
4	57	47	59	5.7	6.0	80	26	13	22	28	63	59
5	60	53	63	5.5	5.9	87	26	12	23	26	61	57
6	59	54	66	5.5	6.1	84	26	18	28	25	60	55
7	58	47	64	5.4	6.3	56	25	23	25	24	59	53
8	57	46	63	5.4	6.3	55	24	23	25	21	60	52
9	55	44	58	6.0	5.8	54	23	23	11	21	53	54
10	54	50	54	6.1	6.4	53	22	22	1.2	20	50	58
11	54	58	50	5.8	6.5	53	20	21	.95	20	55	58
12	55	71	47	5.7	6.5	55	50	21	.75	23	57	58
13	56	62	44	6.2	6.4	57	66	20	.72	26	57	58
14	56	53	42	6.3	6.4	82	60	19	.73	45	57	58
15	59	68	41	6.3	6.2	103	33	19	.72	58	57	58
16	62	66	39	6.1	6.7	106	32	21	.68	70	56	58
17	63	78	36	6.4	7.8	110	30	23	.68	86	57	59
18	64	82	35	6.2	8.3	113	39	23	.73	80	57	61
19	62	71	21	6.0	8.0	112	55	24	.78	65	55	59
20	61	60	15	5.9	7.7	112	53	25	.77	56	56	62
21	60	60	48	6.4	7.2	114	51	24	10	55	58	56
22	58	69	54	6.3	7.7	98	50	24	17	53	60	52
23	56	89	65	6.1	7.2	82	48	25	19	58	58	51
24	56	111	95	5.8	7.0	80	46	32	21	29	56	50
25	56	125	125	5.7	7.1	71	46	37	15	1.0	60	50
26	57	106	128	5.6	6.9	53	37	36	15	36	60	51
27	55	83	116	5.3	6.8	50	15	36	15	63	60	53
28	51	80	104	5.3	6.5	49	14	33	15	64	59	54
29	51	77	92	5.3	---	38	14	31	18	65	58	54
30	52	76	91	5.3	---	28	13	29	24	65	57	57
31	58	---	115	5.4	---	27	---	28	---	65	55	---
TOTAL	1774	2060	2040	383.5	185.5	2287	1023	724	384.71	1335.0	1796	1668
MEAN	57.2	68.7	65.8	12.4	6.62	73.8	34.1	23.4	12.8	43.1	57.9	55.6
MAX	64	125	128	140	8.3	114	66	37	28	86	63	62
MIN	51	44	15	5.3	4.9	27	13	12	.68	1.0	50	50
AC-FT	3520	4090	4050	761	368	4540	2030	1440	763	2650	3560	3310

CAL YR 1988 TOTAL 23197 MEAN 63.4 MAX 128 MIN 15 AC-FT 46010
WTR YR 1989 TOTAL 15660.71 MEAN 42.9 MAX 140 MIN .68 AC-FT 31060

e Estimated

TUALATIN RIVER BASIN

14207500 TUALATIN RIVER AT WEST LINN, OR
(National stream quality accounting network station)

LOCATION.--Lat 45°21'03", long 122°40'30", in SW 1/4 sec.34, T.2 S., R.1 E., Clackamas County, Hydrologic Unit 17090010, on left bank 300 ft upstream from bridge on State Highway 212, 0.4 mi west of West Linn city limits, and at mile 1.8.

DRAINAGE AREA.--706 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1928 to current year. Prior to October 1960, published as "near Willamette."

REVISED RECORDS.--WSP 1014: 1943. WSP 1184: 1947. WSP 1248: 1941. WSP 1935: Drainage area. WDR OR-75-1: 1974(M). WDR OR-77-1: 1971-73, 1975, 1976(M).

GAGE.--Water-stage recorder. Datum of gage is 85.61 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to June 12, 1941, nonrecording gage at datum 1.02 ft higher.

REMARKS.--Water-discharge records good. October 1951 to September 1970, records published for this station included the daily flow in Oswego Canal, which diverts at point 5.0 mi upstream from station for development of power between outlet of Lake Oswego and Willamette River. Some regulation in low-water season by flashboards on crest of diversion dam for Oswego Canal and regulation by Henry Hag Lake since January 1975. Several diversions upstream from station for irrigation.

AVERAGE DISCHARGE.--61 years, 1,516 ft³/s, 29.16 in/yr, 1,098,000 acre-ft/yr, adjusted for diversion in Oswego Canal.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,300 ft³/s Dec. 23, 1933, gage height, 17.72 ft; minimum daily discharge, 0.20 ft³/s July 30 to Aug. 2, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,400 ft³/s Mar. 21, gage height, 8.14 ft; minimum discharge, 34 ft³/s July 13, 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	135	136	2610	2650	1470	2310	3100	585	340	263	241	132
2	118	262	2410	2960	1420	2120	3090	584	312	263	278	123
3	110	349	2090	3060	1320	1970	3090	567	284	247	286	114
4	104	351	1760	3020	1120	1790	3170	538	259	236	280	108
5	102	438	1490	2930	962	1990	3290	521	240	209	239	106
6	99	455	1340	2690	995	2910	3330	496	230	180	198	108
7	100	367	1240	2390	992	3570	3290	473	219	149	167	112
8	106	342	1150	2120	942	3540	3170	462	213	122	180	105
9	107	320	1040	2060	894	3420	2950	458	216	114	191	102
10	103	371	949	2590	854	3310	2660	441	233	125	138	103
11	105	482	873	3090	831	3270	2320	410	246	136	91	112
12	103	653	811	3240	813	3380	1970	375	247	137	97	117
13	99	717	752	3380	807	3670	1670	357	247	101	130	115
14	98	658	699	3570	806	3610	1480	340	261	40	137	111
15	106	595	660	3590	791	3580	1370	325	279	54	145	107
16	117	579	616	3570	848	3730	1280	318	285	63	143	109
17	137	731	574	3660	1150	4040	1200	308	271	90	144	113
18	146	966	541	3630	1980	4270	1110	320	241	169	166	117
19	148	967	540	3610	3020	4280	1010	342	227	193	163	130
20	140	791	583	3560	3390	4280	950	359	220	167	154	133
21	138	827	647	3660	3390	4370	914	341	204	148	150	131
22	141	1270	753	3750	3480	4300	879	323	192	137	160	135
23	138	2000	940	3690	3500	4180	842	351	175	125	189	135
24	135	2570	1490	3540	3450	3980	806	481	161	117	186	124
25	131	3070	2070	3300	3350	4070	779	615	147	127	164	133
26	135	3090	2270	2970	3200	3810	810	609	142	133	169	138
27	135	3040	2100	2580	2970	3510	801	590	142	123	158	157
28	123	2920	1810	2190	2670	3350	729	523	141	125	151	177
29	118	2770	1550	1880	---	3240	672	463	148	132	148	184
30	124	2710	1530	1670	---	3200	620	422	213	135	138	280
31	132	---	2080	1550	---	3160	---	374	---	165	133	---
TOTAL	3733	34797	39968	92150	51415	106210	53352	13671	6735	4525	5314	3871
MEAN	120	1160	1289	2973	1836	3426	1778	441	224	146	171	129
MAX	148	3090	2610	3750	3500	4370	3330	615	340	263	286	280
MIN	98	136	540	1550	791	1790	620	308	141	40	91	102
AC-FT	7400	69020	79280	182800	102000	210700	105800	27120	13360	8980	10540	7680
MEAN†	178	1229	1355	2986	1844	3500	1812	464	237	189	229	185
CFSM†	0.25	1.74	1.92	4.23	2.61	4.96	2.57	0.66	0.34	0.27	0.32	0.26
IN.†	0.29	1.94	2.21	4.88	2.72	5.72	2.86	0.76	0.38	0.31	0.37	0.29
AC-FT†	10920	73110	83340	183600	102400	215200	107800	28560	14120	11630	14100	10990

CAL YR 1988 TOTAL 341506 MEAN 933 MAX 7380 MIN 98 AC-FT 677400 MEAN† 996 CFSM† 1.41 IN.† 19.22 AC-FT† 723400
WTR YR 1989 TOTAL 415741 MEAN 1139 MAX 4370 MIN 40 AC-FT 824600 MEAN† 1182 CFSM† 1.67 IN.† 22.73 AC-FT† 855700

† Adjusted for diversion in Oswego Canal.

TUALATIN RIVER BASIN

159

14207500 TUALATIN RIVER AT WEST LINN, OR--Continued
(National stream quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1975 to September 1981.

WATER TEMPERATURE: October 1975 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS NONCARB (MG/L AS CACO3)
DEC 13...	1145	750	132	7.4	8.5	6.1	9.4	79	26	67	43	2
MAR 16...	1125	3720	99	7.3	8.0	17	10.4	89	K2	K57	34	5
JUN 21...	1315	207	223	7.5	19.0	3.7	6.1	65	K81	360	58	2
AUG 23...	1245	188	202	7.4	19.5	3.6	5.7	62	360	320	51	3

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WATER DIS IT FIELD (MG/L AS CACO3)	BICAR- BONATE WATER DIS IT FIELD (MG/L AS HCO3)	CAR- BONATE WATER DIS IT FIELD (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
DEC 13...	11	3.8	8.8	30	0.6	1.6	40	49	0	9.9	8.3	0.1
MAR 16...	8.7	2.9	5.6	26	0.4	1.1	29	35	0	6.2	4.8	0.1
JUN 21...	15	5.0	17	37	1	3.0	53	64	0	18	13	0.2
AUG 23...	13	4.5	17	40	1	3.5	47	57	0	17	13	0.2

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS TOTAL (MG/L AS P)
DEC 13...	21	104	100	211	0.14	0.73	2.0	1.3	0.34	0.39	0.45
MAR 16...	19	66	75	663	0.09	0.22	1.8	0.5	0.10	0.25	--
JUN 21...	24	142	141	79.4	0.19	1.2	2.4	1.9	0.06	0.07	0.09
AUG 23...	21	123	128	62.4	0.17	0.57	1.8	1.4	0.22	0.26	0.34

K - Results based on colony count outside acceptable range (non-ideal colony count).

TUALATIN RIVER BASIN

14207500 TUALATIN RIVER AT WEST LINN, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
DEC 13...	20	<1	14	<0.5	<1	<1	<3	9	130	<5	<4	60
MAR 16...	70	<1	15	<0.5	<1	1	<3	2	150	<5	<4	26
JUN 21...	<10	1	20	<0.5	4	1	<3	5	17	2	11	10
AUG 23...	20	<1	15	<0.5	<1	<1	<3	4	63	<1	<4	51
DATE	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	
DEC 13...	<0.1	<10	1	<1	<1	58	<6	4	7	14	--	
MAR 16...	<0.1	<10	<1	<1	<1	53	<6	34	34	341	96	
JUN 21...	<0.1	<10	3	<1	<1	74	<6	12	63	35	90	
AUG 23...	<0.1	<10	<1	<1	<1	64	<6	25	10	5.1	95	

161

LOCATION.--Lat 45°20'55", long 122°37'08", in SW 1/4 SW 1/4 sec.31, T.2 S., R.2 E., Clackamas County, Hydrologic Unit 17090007, on right bank 0.2 mi above Willamette Falls, 0.6 mi downstream from Tualatin River, and at mile 26.8.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 60.70 ft Jan. 13; minimum, 53.03 ft July 6.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55.04	55.48	59.12	57.28	55.67	55.46	58.24	55.17	55.08	53.19	55.56	54.87
2	54.95	55.48	58.29	57.13	55.83	55.28	58.07	55.07	54.72	53.26	55.64	54.92
3	54.92	55.58	57.72	56.75	55.83	55.36	57.90	54.96	54.43	53.26	55.65	54.92
4	54.94	55.94	57.30	56.71	56.04	55.23	57.82	54.87	54.27	53.17	55.68	54.90
5	54.95	56.36	56.96	56.95	56.28	55.22	57.61	54.81	54.23	53.10	55.63	54.92
6	55.04	56.53	56.63	57.14	56.11	56.74	57.38	54.79	54.21	53.29	55.61	54.88
7	55.08	56.67	56.37	57.06	55.88	58.48	57.22	54.79	54.24	53.89	55.63	54.98
8	55.07	56.60	56.27	56.79	55.69	58.58	57.15	54.88	54.21	54.11	55.64	55.11
9	55.08	56.50	56.11	56.76	55.46	57.96	57.01	54.93	54.15	54.35	55.60	55.15
10	55.09	56.72	55.90	58.35	55.27	57.50	56.82	54.97	54.11	54.38	55.55	55.20
11	55.09	56.76	55.71	60.00	55.17	57.53	56.62	55.06	54.05	54.35	55.54	55.22
12	55.09	56.91	55.55	60.56	54.77	57.61	56.39	55.13	53.90	54.44	55.54	55.19
13	55.10	56.90	55.45	60.53	54.58	57.91	56.20	55.09	53.81	54.41	55.57	55.06
14	55.14	57.00	55.38	59.95	54.61	58.37	56.06	54.96	53.63	54.10	55.59	54.97
15	55.15	56.90	55.25	59.43	54.51	58.46	55.97	54.82	53.56	53.76	55.56	54.97
16	55.17	56.88	55.12	59.12	54.40	58.43	55.91	54.72	53.64	53.62	55.51	55.00
17	55.20	57.15	54.99	59.02	54.90	58.86	55.83	54.56	53.73	54.72	55.49	55.05
18	55.21	57.46	54.85	58.85	56.62	59.04	55.72	54.48	53.76	55.52	55.32	55.09
19	55.29	57.56	54.79	58.45	57.41	58.92	55.58	54.49	53.72	55.59	54.63	55.12
20	55.41	57.37	54.83	58.02	57.40	58.66	55.69	54.54	53.67	55.54	54.46	55.33
21	55.47	57.58	54.87	57.76	57.07	58.34	55.52	54.58	53.54	55.52	54.55	55.44
22	55.57	58.12	55.17	57.88	56.76	58.14	55.49	54.57	53.53	55.48	54.60	55.47
23	55.54	59.03	55.90	57.97	56.83	57.96	55.41	54.31	53.45	55.46	54.70	55.45
24	55.55	59.85	56.61	57.69	56.93	57.84	55.49	53.95	53.32	55.48	54.97	55.39
25	55.53	60.26	57.09	57.29	56.72	57.69	55.66	54.11	53.22	55.48	55.10	55.35
26	55.56	60.38	56.98	56.85	56.36	57.88	55.45	54.42	53.18	55.47	54.94	55.34
27	55.57	60.16	56.40	56.43	56.04	57.98	55.41	54.56	53.18	55.44	54.83	55.38
28	55.50	59.62	55.92	56.08	55.72	57.86	55.43	54.84	53.14	55.50	54.80	55.41
29	55.45	59.76	55.55	55.85	---	58.10	55.41	55.22	53.15	55.50	54.77	55.36
30	55.40	59.68	55.56	55.62	---	58.30	55.31	55.36	53.17	55.48	54.77	55.38
31	55.32	---	56.58	55.53	---	58.31	---	55.34	---	55.52	54.77	---
MEAN	55.24	57.57	56.10	57.74	55.89	57.68	56.33	54.79	53.80	54.59	55.23	55.16
MAX	55.57	60.38	59.12	60.56	57.41	59.04	58.24	55.36	55.08	55.59	55.68	55.47
MIN	54.92	55.48	54.79	55.53	54.40	55.22	55.31	53.95	53.14	53.10	54.46	54.87
CAL YR 1988	MEAN	55.68	MAX	62.52	MIN	53.28						
WTR YR 1989	MEAN	55.84	MAX	60.56	MIN	53.10						

WILLAMETTE RIVER BASIN

14207770 WILLAMETTE RIVER BELOW FALLS, AT OREGON CITY, OR

LOCATION.--Lat 45°21'28", long 122°36'35", in NE 1/4 NW 1/4 sec.31, T.2 S., R.2 E., Clackamas County, Hydrologic Unit 17090007, on right bank 0.5 mi below Willamette Falls, 1.4 mi upstream from Clackamas River, and at mile 26.2.

DRAINAGE AREA.--10,000 mi², approximately.

PERIOD OF RECORD.--November 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Oregon State Highway Division bench mark).

REMARKS.--Flow regulated by many reservoirs upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 32.18 ft Feb. 21, 1982; minimum, 1.80 ft Aug. 11, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 20.55 ft Jan. 13; minimum, 1.87 ft Aug. 11.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	6.61	3.78	4.83	6.03	3.77	5.18	16.65	15.05	15.84	11.94	11.15	11.55
2	5.91	3.38	4.43	6.23	3.81	5.13	15.05	13.14	14.14	11.22	10.28	10.88
3	5.65	2.89	4.03	6.88	4.38	5.56	13.15	11.72	12.46	11.02	10.16	10.49
4	5.56	2.86	4.01	7.07	4.67	5.77	11.69	10.53	11.23	11.24	10.17	10.62
5	5.35	2.79	4.06	7.71	5.26	6.29	11.13	10.00	10.48	12.08	10.67	11.36
6	5.66	2.65	4.21	8.50	6.11	7.12	11.08	9.99	10.40	12.42	11.39	11.84
7	6.10	3.22	4.61	8.79	6.55	7.40	10.73	9.69	10.13	12.54	11.73	12.01
8	6.10	3.20	4.51	9.00	6.92	7.69	10.63	9.55	9.90	12.43	11.32	11.74
9	5.93	2.92	4.31	8.79	6.61	7.39	10.39	9.18	9.60	14.58	11.45	12.35
10	6.66	3.17	4.66	9.95	6.81	7.91	9.87	8.48	8.98	18.84	14.74	17.10
11	6.99	3.68	5.04	9.77	7.58	8.36	9.92	7.91	8.63	20.24	18.82	19.61
12	7.46	3.95	5.31	10.03	7.90	8.71	9.59	8.08	8.70	20.51	20.13	20.35
13	7.48	4.42	5.66	9.78	7.94	8.63	8.86	7.79	8.31	20.55	19.46	20.24
14	6.92	3.89	5.13	9.66	8.16	8.74	8.39	7.13	7.79	19.46	17.23	18.24
15	7.04	3.71	5.00	9.20	7.80	8.37	8.43	7.26	7.90	17.26	16.69	16.97
16	6.57	3.72	4.85	9.28	7.68	8.36	8.43	7.22	7.75	16.88	16.24	16.59
17	6.19	3.51	4.54	9.75	8.63	9.19	8.02	6.09	6.85	16.57	16.05	16.30
18	6.31	3.32	4.53	10.48	9.41	9.87	8.43	6.12	6.96	16.01	15.35	15.82
19	6.21	3.97	4.91	10.93	9.66	10.16	9.28	6.58	7.65	15.32	14.45	15.03
20	6.08	3.42	4.81	10.81	9.35	9.93	9.55	7.07	7.93	14.38	13.45	13.98
21	6.62	3.71	5.14	11.69	9.41	10.39	10.21	7.33	8.42	13.83	13.11	13.39
22	7.01	3.88	5.28	15.48	11.28	13.30	11.01	7.91	9.07	14.02	13.17	13.54
23	7.29	4.13	5.54	17.49	15.51	16.69	11.11	8.94	9.92	13.81	13.32	13.54
24	7.73	4.40	5.77	18.46	17.28	17.83	12.10	10.14	11.00	13.46	12.56	12.98
25	8.22	4.70	6.04	19.27	18.28	18.78	11.94	11.16	11.46	---	---	---
26	8.04	4.64	5.94	19.20	18.86	19.00	11.28	10.11	10.71	---	---	---
27	8.45	4.75	6.16	18.88	17.77	18.24	10.03	9.23	9.62	---	---	---
28	8.18	5.14	6.32	17.88	17.49	17.69	9.52	8.55	8.99	---	---	---
29	7.03	4.35	5.64	18.01	17.69	17.85	8.91	7.95	8.38	---	---	---
30	6.75	4.03	5.11	17.69	16.62	17.14	10.22	8.03	9.17	---	---	---
31	6.44	3.78	5.07	---	---	---	11.70	10.28	11.08	---	---	---
MONTH	8.45	2.65	5.01	19.27	3.77	10.76	16.65	6.09	9.66	---	---	---

WILLAMETTE RIVER BASIN

163

14207770 WILLAMETTE RIVER BELOW FALLS, AT OREGON CITY, OR--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	14.62	13.93	14.38	9.26	8.39	8.84
2	---	---	---	---	---	---	14.25	13.37	13.92	10.02	8.66	9.61
3	---	---	---	---	---	---	13.87	13.32	13.55	10.63	9.59	10.17
4	---	---	---	---	---	---	13.80	13.02	13.42	11.67	10.21	11.14
5	---	---	---	---	---	---	13.63	12.82	13.17	12.19	10.72	11.22
6	---	---	---	---	---	---	13.34	12.14	12.64	11.71	9.78	10.61
7	---	---	---	---	---	---	13.05	11.95	12.35	11.21	9.14	9.97
8	---	---	---	---	---	---	13.20	12.16	12.54	10.56	9.14	9.75
9	---	---	---	---	---	---	12.72	11.56	12.02	11.21	10.06	10.49
10	---	---	---	---	---	---	12.47	11.42	11.85	11.05	10.27	10.61
11	---	---	---	---	---	---	11.89	11.05	11.46	11.16	10.64	10.90
12	---	---	---	---	---	---	11.21	9.96	10.60	11.30	10.90	11.11
13	---	---	---	15.12	14.31	14.78	10.22	9.43	9.86	11.25	10.12	10.88
14	---	---	---	15.39	14.95	15.19	9.94	9.18	9.59	10.42	8.56	9.65
15	---	---	---	15.49	14.88	15.28	9.86	8.99	9.55	8.99	7.78	8.33
16	---	---	---	15.31	14.92	15.11	9.71	9.03	9.39	9.35	8.44	8.92
17	---	---	---	15.95	15.31	15.71	10.29	9.23	9.92	9.71	8.64	9.22
18	---	---	---	16.39	15.79	16.13	10.63	9.84	10.18	10.02	8.82	9.41
19	---	---	---	15.89	15.32	15.64	10.71	9.77	10.31	9.87	8.49	9.12
20	---	---	---	15.36	14.65	15.04	11.14	10.24	10.73	10.08	8.86	9.53
21	---	---	---	14.92	14.33	14.59	11.27	10.42	10.82	9.84	8.11	8.91
22	---	---	---	14.59	14.02	14.31	11.16	10.27	10.69	9.56	8.28	8.88
23	---	---	---	14.33	13.69	13.97	10.91	9.39	10.13	9.95	8.47	9.18
24	---	---	---	13.98	13.27	13.59	10.35	9.31	9.85	9.70	8.23	8.96
25	---	---	---	13.71	13.09	13.39	10.84	9.82	10.26	9.02	7.71	8.39
26	---	---	---	14.10	13.41	13.72	10.74	9.95	10.26	9.42	8.39	8.86
27	---	---	---	14.16	13.46	13.75	10.19	9.28	9.78	9.54	8.40	9.09
28	---	---	---	14.16	13.52	13.79	10.23	9.39	9.76	9.20	8.34	8.72
29	---	---	---	14.46	13.82	14.17	10.53	9.60	10.21	9.46	8.75	9.05
30	---	---	---	14.59	14.32	14.46	10.18	8.45	9.53	9.99	8.94	9.31
31	---	---	---	14.75	14.40	14.59	---	---	---	10.19	8.78	9.31
MONTH	---	---	---	---	---	---	14.62	8.45	11.09	12.19	7.71	9.62
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	10.52	8.95	9.50	8.11	4.59	5.93	7.40	3.46	---	7.26	3.91	---
2	10.56	8.92	9.62	7.92	4.26	5.84	7.52	3.59	5.40	6.88	3.75	5.40
3	10.93	8.38	9.53	7.75	4.16	---	---	3.75	---	6.21	3.56	4.86
4	9.92	7.76	8.59	7.48	3.56	5.28	---	2.84	---	5.97	2.55	4.48
5	9.82	7.75	8.90	7.40	3.96	---	5.82	2.63	4.20	6.27	2.87	4.77
6	10.23	8.35	9.21	7.35	4.11	5.37	5.70	2.34	---	6.25	3.32	---
7	9.46	8.02	8.69	6.82	4.15	5.19	6.08	2.82	4.15	6.37	3.38	4.26
8	9.41	8.29	8.75	6.21	4.47	5.15	5.75	2.74	4.05	6.02	3.75	4.48
9	9.73	9.03	9.31	5.39	2.67	4.12	5.35	2.08	3.40	5.77	3.22	4.16
10	9.64	7.64	8.50	5.55	2.98	4.00	5.19	2.10	3.13	5.87	3.17	4.15
11	8.31	6.14	7.03	5.55	2.43	3.67	5.76	1.87	3.22	6.10	3.15	---
12	8.13	6.77	7.20	5.85	2.95	3.85	5.78	2.41	3.70	5.71	2.47	4.18
13	8.61	7.63	8.20	5.99	2.93	4.20	5.84	2.24	3.81	5.95	2.69	4.60
14	8.43	6.79	7.37	6.11	3.62	4.59	5.95	2.26	4.18	6.63	3.22	4.93
15	8.29	6.51	7.21	6.42	3.48	4.81	6.66	3.11	4.66	7.30	3.70	5.36
16	7.93	5.78	6.63	---	---	---	6.48	2.46	4.24	7.24	3.79	5.44
17	8.09	5.99	6.88	6.64	3.22	4.77	6.22	2.60	4.38	7.34	3.77	5.40
18	8.27	5.58	6.64	7.08	2.55	---	6.15	2.97	4.48	7.49	3.75	5.33
19	7.99	4.82	6.12	7.00	3.84	---	6.07	2.54	4.30	7.26	3.90	5.25
20	8.07	5.39	6.42	7.33	3.31	5.02	6.04	2.50	4.22	6.75	3.71	4.89
21	8.22	5.81	6.78	7.37	3.10	5.09	6.58	2.54	4.21	6.69	3.50	4.66
22	7.94	5.11	6.29	7.01	3.72	4.95	7.18	3.00	4.63	6.56	3.85	4.80
23	7.13	4.80	5.93	6.10	2.39	---	6.75	3.16	4.64	6.31	3.53	4.71
24	7.02	4.32	5.69	6.03	2.20	3.96	6.27	3.48	---	6.40	3.27	4.68
25	6.81	3.49	5.05	6.14	2.10	4.08	---	3.03	---	6.73	3.57	4.93
26	6.79	3.54	4.85	6.56	2.97	4.64	6.28	2.67	4.21	6.44	3.51	4.89
27	7.10	3.40	4.66	6.59	3.29	4.42	6.25	2.55	---	6.71	3.68	5.08
28	7.18	3.89	5.06	6.53	2.82	4.25	6.16	2.18	4.08	6.84	3.95	5.21
29	7.64	4.29	5.45	6.31	2.59	4.20	---	3.22	---	7.26	4.20	5.56
30	7.88	4.39	5.66	6.10	2.45	4.21	6.32	---	---	7.20	4.32	5.59
31	---	---	---	6.22	3.01	4.61	6.34	---	---	---	---	---
MONTH	10.93	3.40	7.19	---	---	---	---	---	---	7.49	2.47	---

CLACKAMAS RIVER BASIN

14208600 TIMOTHY LAKE NEAR GOVERNMENT CAMP, OR

LOCATION.--Lat 45°06'50", long 121°48'35", in NE 1/4 sec.27, T.5 S., R.8 E., Clackamas County, Hydrologic Unit 17090011, Mount Hood National Forest, in intake structure 350 ft upstream from dam on Oak Grove Fork, 0.4 mi upstream from Anvil Creek, 14 mi south of Government Camp, and at mile 15.8.

DRAINAGE AREA.--53.8 mi².

PERIOD OF RECORD.--May 1956 to current year. Prior to October 1957, published as Timothy Meadows Reservoir.

GAGE.--Nonrecording gage. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Portland General Electric Co.).

REMARKS.--Reservoir is formed by earthfill dam with concrete spillway built by Portland General Electric Co. Usable storage began May 28, 1956. Capacity, 65,710 acre-ft at elevation 3,190 ft, normal maximum operating level. Usable capacity increased in 1966 water year to 64,450 acre-ft between elevations 3,125.0 ft, invert of outlet pipe, and 3,192.0 ft, top of radial gates. Storage of 4,060 acre-ft below elevation 3,125.0 ft not normally available for release. Water is used for power generation. Figures given herein represent total contents.

COOPERATION.--Elevations and capacity table furnished by Portland General Electric Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 68,800 acre-ft Oct. 3, 1967, elevation, 3,192.2 ft; minimum contents observed, 16,010 acre-ft Feb. 24, 1957, elevation, 3,144.5 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 65,710 acre-ft Aug. 22, elevation, 3,190.00 ft; minimum contents observed, 46,890 acre-ft Jan. 9, elevation, 3,175.27 ft.

MONTHEND ELEVATION AND CONTENTS AT 0800, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30.....	3,188.50	63,660	-
Oct. 31.....	3,184.78	58,740	-4,920
Nov. 30.....	3,183.26	56,780	-1,960
Dec. 31.....	3,177.15	49,160	-7,620
CAL YR 1988.....	-	-	+780
Jan. 31.....	3,176.96	48,930	-230
Feb. 28.....	3,177.48	49,570	+640
Mar. 31.....	3,181.48	54,520	+4,950
Apr. 30.....	3,189.22	64,640	+10,120
May 31.....	3,189.24	64,670	+30
June 30.....	3,189.61	65,180	+510
July 31.....	3,189.29	64,740	-440
Aug. 31.....	3,189.27	64,710	-30
Sept.30.....	3,186.28	60,710	-4,000
WTR YR 1989.....	-	-	-2,950

CLACKAMAS RIVER BASIN

165

14208700 OAK GROVE FORK NEAR GOVERNMENT CAMP, OR

LOCATION.--Lat 45°06'50", long 121°48'50", in NE 1/4 sec.27, T.5 S., R.8 E., Clackamas County, Hydrologic Unit 17090011, Mount Hood National Forest, on right bank 0.1 mi upstream from Anvil Creek, 0.3 mi downstream from Timothy Lake, 14 mi south of Government Camp, and at mile 15.5.

DRAINAGE AREA.--54.4 mi².

PERIOD OF RECORD.--July 1956 to current year.

GAGE.--Water-stage recorder and artificial control. Datum of gage is 3,041.83 ft above National Geodetic Vertical Datum of 1929 (Portland General Electric Co. bench mark).

REMARKS.--No estimated daily discharges. Records excellent. Flow regulated since 1956 by Timothy Lake (station 14208600). No diversion upstream from station.

AVERAGE DISCHARGE.--33 years, 131 ft³/s, 32.70 in/yr, 94,910 acre-ft/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,110 ft³/s Dec. 24, 1964, gage height, 3.93 ft, from rating curve extended above 290 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 3.7 ft³/s Sept. 23, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 402 ft³/s Nov. 15, gage height, 2.58 ft; minimum discharge, 35 ft³/s May 31, June 1-6, 9-15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	120	122	248	304	174	42	161	205	36	65	38	118
2	126	116	255	284	221	42	162	205	36	64	39	125
3	128	94	294	250	234	42	162	204	36	64	38	125
4	127	93	295	255	234	42	168	204	36	79	39	124
5	127	120	296	262	234	42	132	160	36	79	39	125
6	128	99	243	272	234	43	102	137	89	80	38	125
7	122	103	202	287	234	43	57	137	120	80	38	125
8	132	107	237	281	234	43	41	137	252	80	38	125
9	124	102	206	132	236	43	42	138	176	80	38	124
10	117	90	210	43	124	43	41	148	35	79	39	124
11	117	81	225	41	43	44	41	168	35	79	39	122
12	117	81	220	60	43	44	40	179	35	79	39	122
13	117	81	159	95	43	38	40	203	35	80	39	122
14	117	81	194	133	43	81	40	219	36	80	38	122
15	122	347	226	141	43	112	39	164	174	80	39	122
16	120	357	243	125	43	122	39	140	299	80	40	122
17	120	349	260	128	43	144	39	146	273	79	40	122
18	120	365	270	121	43	155	38	172	275	79	39	122
19	120	380	265	122	43	152	39	163	132	79	39	122
20	120	344	266	158	43	152	39	147	39	79	74	122
21	249	208	288	129	42	124	39	141	39	79	58	122
22	384	60	287	166	43	87	39	176	39	79	83	122
23	384	54	307	189	42	124	38	183	39	79	105	122
24	134	162	304	206	42	134	84	186	39	79	120	122
25	119	224	323	227	42	122	100	186	38	78	120	122
26	118	268	332	232	42	113	56	189	38	79	120	122
27	119	173	335	208	42	114	151	194	39	79	119	122
28	119	40	345	38	42	114	241	194	39	78	117	122
29	119	95	320	38	---	114	239	194	40	79	118	122
30	119	215	231	91	---	143	205	109	56	52	118	122
31	122	---	295	158	---	147	---	37	---	38	130	---
TOTAL	4427	5011	8181	5176	2926	2805	2654	5165	2591	2343	2018	3680
MEAN	143	167	264	167	104	90.5	88.5	167	86.4	75.6	65.1	123
MAX	384	380	345	304	236	155	241	219	299	80	130	125
MIN	117	40	159	38	42	38	38	37	35	38	38	118
AC-FT	8780	9940	16230	10270	5800	5560	5260	10240	5140	4650	4000	7300
MEAN†	62.8	134	140	163	116	171	258	167	95.0	68.5	64.6	55.5
CFSM†	1.15	2.46	2.57	3.00	2.13	3.14	4.74	3.07	1.75	1.26	1.19	1.02
IN.†	1.33	2.75	2.97	3.46	2.22	3.62	5.30	3.54	1.95	1.45	1.37	1.14
AC-FT†	3860	7980	8610	10040	6440	10510	15380	10270	5650	4210	3970	3300

CAL YR 1988 TOTAL 46228 MEAN 126 MAX 415 MIN 35 AC-FT 91690 MEAN† 127 CFSM† 2.33 IN.† 31.88 AC-FT† 92470
WTR YR 1989 TOTAL 46977 MEAN 129 MAX 384 MIN 35 AC-FT 93180 MEAN† 125 CFSM† 2.30 IN.† 31.11 AC-FT† 90230

† Adjusted for change in contents in Timothy Lake.

CLACKAMAS RIVER BASIN

14209000 OAK GROVE FORK ABOVE POWERPLANT INTAKE, OR

LOCATION.--Lat 45°04'20", long 121°57'00", on line between secs.3 and 4, T.6 S., R.7 E., Clackamas County, Hydrologic Unit 17090011, Mount Hood National Forest, on right bank 0.2 mi upstream from Spring Creek, 0.7 mi upstream from Kink Creek, 1.0 mi upstream from Portland General Electric Co. diversion dam, 24 mi southeast of Estacada, and at mile 6.1.

DRAINAGE AREA.--126 mi².

PERIOD OF RECORD.--May 1909 to current year. Monthly discharge only for some periods, published in WSP 1318. Published as both Oak Grove Fork of Clackamas River at proposed intake, near Cazadero, and Oak Grove Fork of Clackamas River at intake, near Cazadero, May 1909 to September 1910, as Oak Grove Fork of Clackamas River at intake, near Cazadero, October 1910 to September 1921, and as Oak Grove Fork at Portland General Electric Power Co. intake, October 1921 to September 1929.

REVISED RECORDS.--WSP 1248: 1909, 1910(M), 1916, 1918, 1923, 1932. WSP 1935: 1914, 1921.

GAGE.--Water-stage recorder. Datum of gage is 2,052.31 ft above National Geodetic Vertical Datum of 1929. May 21, 1909, to Nov. 17, 1911, nonrecording gage and Mar. 26, 1912, to Sept. 30, 1923, water-stage recorder, at various sites 0.7 mi downstream, below Kink Creek, at different datum.

REMARKS.--Records excellent except for estimated daily discharges, which are good. Flow regulated since 1956 by Timothy Lake (station 14208600). No diversion upstream from station.

AVERAGE DISCHARGE.--80 years, 498 ft³/s, 360,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,000 ft³/s Jan. 7, 1923, gage height, 5.45 ft, site and datum then in use, from rating curve extended above 2,300 ft³/s on basis of peak discharge for other stations in Clackamas River basin; minimum discharge, 207 ft³/s Sept. 25, 26, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,110 ft³/s Jan. 9, gage height, 3.24 ft; minimum discharge, 245 ft³/s Aug. 15-20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	293	337	564	562	515	307	590	734	324	307	255	337
2	300	354	553	561	517	304	602	706	324	306	261	346
3	301	345	571	554	522	299	578	689	321	302	255	346
4	302	348	564	557	e562	297	583	683	318	311	255	346
5	301	359	566	557	e555	346	588	666	313	313	254	346
6	299	386	560	555	e542	502	610	646	349	313	250	346
7	294	334	553	556	e535	475	627	641	368	313	250	346
8	295	348	566	567	e542	437	630	625	505	313	250	346
9	296	343	561	700	e535	443	615	625	461	313	250	346
10	283	371	560	805	e477	491	608	615	295	313	250	346
11	281	344	562	589	e324	501	610	604	290	313	250	344
12	281	362	564	518	e302	527	630	589	286	313	250	340
13	281	340	557	532	e302	562	652	589	286	313	250	340
14	281	327	553	526	e297	547	680	595	286	313	250	340
15	298	515	559	529	e297	568	698	541	394	313	248	340
16	286	578	558	550	311	571	683	494	548	314	245	340
17	283	573	559	549	330	573	665	491	534	317	245	340
18	281	569	561	546	328	604	666	520	528	313	245	340
19	282	578	562	544	315	588	738	499	423	313	245	340
20	281	579	554	556	310	568	797	473	302	313	277	340
21	374	565	564	534	307	622	747	461	296	312	273	340
22	561	626	558	551	314	579	673	472	291	307	309	340
23	556	586	564	547	321	581	619	495	289	307	325	340
24	378	563	560	549	318	590	625	509	284	307	340	340
25	333	558	562	551	313	608	670	509	281	307	340	340
26	331	561	563	549	308	595	695	492	277	307	340	340
27	329	574	564	531	307	582	691	515	276	307	340	340
28	329	557	562	363	307	590	749	506	276	307	340	339
29	329	486	576	340	---	577	738	496	276	306	340	335
30	329	564	556	376	---	576	706	431	292	278	340	352
31	334	---	561	528	---	585	---	329	---	255	352	---
TOTAL	9982	13930	17397	16832	10913	15995	19763	17240	10293	9539	8674	10261
MEAN	322	464	561	543	390	516	659	556	343	308	280	342
MAX	561	626	576	805	562	622	797	734	548	317	352	352
MIN	281	327	553	340	297	297	578	329	276	255	245	335
AC-FT	19800	27630	34510	33390	21650	31730	39200	34200	20420	18920	17200	20350

CAL YR 1988 TOTAL 157644 MEAN 431 MAX 862 MIN 208 AC-FT 312700
WTR YR 1989 TOTAL 160819 MEAN 441 MAX 805 MIN 245 AC-FT 319000

e Estimated

CLACKAMAS RIVER BASIN

167

14209500 CLACKAMAS RIVER ABOVE THREE LYNX CREEK, OR

LOCATION.--Lat 45°07'30", long 122°04'20", in NE1/4 sec.21, T.5 S., R.6 E., Clackamas County, Hydrologic Unit 17090011, Mount Hood National Forest, on right bank 0.1 mi upstream from Three Lynx Creek, 0.25 mi downstream from powerplant, 17 mi southeast of Estacada, and at mile 47.8.

DRAINAGE AREA.--479 mi².

PERIOD OF RECORD.--April 1909 to December 1913, October 1921 to current year. Prior to October 1911 (monthly discharge only), published in WSP 1318.

REVISED RECORDS.--WSP 1148: Drainage area. WSP 1248: 1910(M), 1912, 1948-50(M).

GAGE.--Water-stage recorder. Datum of gage is 1,091.69 ft above National Geodetic Vertical Datum of 1929 (levels by Portland General Electric Co.). Apr. 23, 1909, to Jan. 4, 1914, nonrecording gage at about same site and datum. Nov. 1, 1921, to Dec. 27, 1924, water-stage recorder at present site at datum 0.91 ft higher.

REMARKS.--Records excellent. Minor regulation since May 1956 by Timothy Lake (station 14208600).

AVERAGE DISCHARGE.--72 years, 1,984 ft³/s, 56.25 in/yr, 1,437,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 68,200 ft³/s Dec. 22, 1964, gage height, 21.7 ft, from floodmark, from rating curve extended above 34,100 ft³/s on basis of slope-area measurement at gage height 15.06 ft; minimum recorded discharge, 261 ft³/s Oct. 7, 1987; minimum daily, 410 ft³/s Sept. 4, 1986.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 8,100 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	2130	*12,900	*8.65	Jan. 10	0100	12,200	8.42

Minimum daily discharge, 559 ft³/s Oct. 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	656	626	2580	1870	2240	1380	2850	2790	1550	845	637	698
2	654	755	2310	1810	1970	1370	3000	2660	1610	831	673	705
3	652	1320	2150	1980	1740	1270	2820	2540	1640	805	639	699
4	652	1680	2020	2170	1720	1210	2650	2520	1600	802	616	697
5	648	1220	1940	2190	1700	1970	3000	2780	1550	802	620	673
6	652	2110	2540	2030	1580	6490	3480	2960	1440	790	630	679
7	644	1490	3390	1880	1480	4910	4050	2920	1460	776	632	677
8	628	1350	2900	1830	1460	3570	4120	2760	1500	772	628	675
9	641	1370	2720	4320	1440	3230	3690	2670	1370	768	668	668
10	628	2190	2690	8130	1340	3950	3460	2600	1140	772	636	666
11	625	2320	2490	4320	1190	3880	3350	2370	1120	768	618	661
12	624	2560	2370	3200	1160	3970	3460	2120	1110	753	614	659
13	631	2240	2550	2780	1110	4350	3640	1960	1080	742	613	657
14	593	1720	2350	2450	1090	3600	3940	1880	1090	740	607	656
15	652	1770	2100	2350	1060	3270	4100	1790	1260	734	609	655
16	645	2220	1920	2710	1160	3150	3770	1740	1270	748	605	654
17	696	2340	1790	3010	1470	2970	3520	1780	1220	768	607	655
18	e609	2000	1700	3000	1560	3220	3460	1830	1180	740	604	660
19	e559	1780	1720	2880	1530	3030	4000	1710	1070	732	596	655
20	642	2060	1670	2660	1510	2760	4260	1590	1000	720	636	651
21	697	4010	1670	2640	1530	3230	3920	1550	946	713	632	653
22	857	9380	1670	2530	1740	3290	3270	1530	911	711	773	641
23	848	7850	1620	2300	2060	2960	2850	1580	886	704	843	646
24	682	4280	1580	2140	1860	2800	2780	1730	863	698	788	641
25	e613	3310	1500	2000	1670	3450	2820	1820	849	694	749	644
26	638	2870	1430	1890	1550	3490	2990	1750	827	694	734	651
27	601	3210	1390	1800	1500	3310	2760	1940	822	689	715	652
28	603	5780	1350	1550	1410	3350	2670	2050	812	683	704	643
29	604	3770	1420	1500	---	3210	2560	1890	822	685	700	640
30	602	3020	2220	1630	---	2930	2630	1650	882	712	706	693
31	604	---	2130	2180	---	2940	---	1510	---	669	699	---
TOTAL	20080	82601	63880	79730	42830	98510	99870	64970	34880	23060	20531	19904
MEAN	648	2753	2061	2572	1530	3178	3329	2096	1163	744	662	663
MAX	857	9380	3390	8130	2240	6490	4260	2960	1640	845	843	705
MIN	559	626	1350	1500	1060	1210	2560	1510	812	669	596	640
AC-FT	39830	163800	126700	158100	84950	195400	198100	128900	69180	45740	40720	39480
CFSM	1.35	5.75	4.30	5.37	3.19	6.63	6.95	4.38	2.43	1.55	1.38	1.39
IN.	1.56	6.41	4.96	6.19	3.33	7.65	7.76	5.05	2.71	1.79	1.59	1.55

CAL YR 1988 TOTAL 676372 MEAN 1848 MAX 9380 MIN 559 AC-FT 1342000 CFSM 3.86 IN. 52.53
WTR YR 1989 TOTAL 650846 MEAN 1783 MAX 9380 MIN 559 AC-FT 1291000 CFSM 3.72 IN. 50.55

e Estimated

CLACKAMAS RIVER BASIN

14210000 CLACKAMAS RIVER AT ESTACADA, OR

LOCATION.--Lat 45°18'00", long 122°21'10", in NE 1/4 sec.19, T.3 S., R.4 E., Clackamas County, Hydrologic Unit 17090011, on left bank 0.2 mi downstream from River Mill Dam, 1.5 mi northwest of Estacada, and at mile 23.1.

DRAINAGE AREA.--671 mi².

PERIOD OF RECORD.--April 1908 to current year. Monthly discharge only April 1908, published in WSP 1318. Published as "near Cazadero" January 1909 to September 1957.

REVISED RECORDS.--WSP 1248: 1908-9, 1910(M), 1916, 1917(M), 1922(M), 1923. WSP 1288: Drainage area (former site). WSP 1638: 1919(M).

GAGE.--Water-stage recorder. Datum of gage is 296.93 ft above National Geodetic Vertical Datum of 1929 (levels by Portland General Electric Co.). See WSP 1738 for history of changes prior to Oct. 1, 1957. Oct. 1, 1957, to Feb. 16, 1965, water-stage recorder at same site at datum 2.00 ft higher.

REMARKS.--Records good except for estimated daily discharges, which are fair. Large diurnal fluctuations and some regulation caused by powerplants at River Mill Dam and, since 1958, North Fork Dam. Minor regulation since 1956 by Timothy Lake (station 14208600). Two small diversions upstream from station for Oregon City and Estacada municipal water supply.

AVERAGE DISCHARGE.--81 years, 2,745 ft³/s, 55.55 in/yr, 1,989,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 86,900 ft³/s Dec. 22, 1964, gage height, 18.36 ft; minimum discharge, 50 ft³/s Mar. 10, 1961, from rating curve extended below 260 ft³/s; minimum daily, 285 ft³/s Oct. 4, 5, 1958, caused by filling of North Fork dam forebay.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 15,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	2230	18,700	8.28	Jan. 10	0200	*22,900	*9.23

Minimum discharge recorded, 594 ft³/s Oct. 4, 14, 15, 28, 29, but may have been less during period of estimated record.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	754	687	3580	2710	3320	2070	4100	3430	2150	1110	752	798
2	745	872	3160	2760	3000	2060	4160	3350	2200	1060	791	808
3	717	1610	2980	3100	2460	1920	4160	3170	2180	1010	795	799
4	e735	2260	2790	3390	2280	1870	4060	3090	2150	974	782	808
5	727	1620	2650	3390	2460	2720	4310	3400	2050	1010	768	780
6	722	2920	3250	3030	2420	9470	4420	3580	1920	962	699	743
7	739	2040	4560	2760	2200	7990	5650	3570	1920	956	741	752
8	719	1730	3920	2750	2000	5690	5830	3360	1930	921	736	748
9	746	1820	3690	7490	2030	4750	5100	3210	1850	939	744	751
10	874	2590	3510	14900	1900	5770	4610	3290	1550	954	775	754
11	707	3280	3270	7400	1630	5750	4370	2970	1470	929	729	749
12	642	3110	3020	5220	1660	5860	4510	2690	1480	929	703	710
13	662	3020	3300	4280	1540	6690	4780	2500	1540	888	713	689
14	e686	2280	3080	3650	1490	5540	5250	2390	1400	895	728	727
15	e613	2210	2680	3380	1440	4850	5500	2320	1510	875	688	749
16	704	2600	2490	3870	1700	4680	4930	2240	1690	905	677	761
17	731	3090	2350	4310	2690	4360	4510	2270	1580	961	712	724
18	727	2690	2220	4400	3100	4610	4320	2370	1470	914	692	733
19	659	2360	2290	4270	2820	4300	5100	2240	1450	869	689	752
20	664	2840	2210	3830	2650	3800	5620	2080	1370	874	730	720
21	760	4470	2320	3930	2540	4610	5280	2020	1310	831	775	726
22	943	12500	2340	3650	2800	4930	4260	1960	1150	850	942	735
23	937	11700	2320	3290	3230	4310	3600	2040	1200	818	1230	711
24	820	6450	2220	2930	2950	3990	3380	2280	1120	786	1010	692
25	694	5150	2100	2790	2600	4880	3480	2470	1080	818	903	724
26	675	4330	1940	2610	2390	5210	4200	2400	1070	811	947	712
27	705	4570	1860	2540	2260	4660	3540	2820	1040	836	923	728
28	e683	9370	1800	2290	2150	4780	3250	2950	1020	827	880	739
29	e644	6140	2030	2180	---	4640	3250	2680	1040	818	754	724
30	674	4560	3480	2320	---	4230	3320	2430	1140	808	697	858
31	678	---	3210	3260	---	4240	---	2170	---	837	717	---
TOTAL	22486	114869	86620	122680	65710	145230	132850	83740	46030	27975	24422	22404
MEAN	725	3829	2794	3957	2347	4685	4428	2701	1534	902	788	747
MAX	943	12500	4560	14900	3320	9470	5830	3580	2200	1110	1230	858
MIN	613	687	1800	2180	1440	1870	3250	1960	1020	786	677	689
AC-FT	44600	227800	171800	243300	130300	288100	263500	166100	91300	55490	48440	44440
CFSM	1.08	5.71	4.16	5.90	3.50	6.98	6.60	4.03	2.29	1.34	1.17	1.11
IN.	1.25	6.37	4.80	6.80	3.64	8.05	7.37	4.64	2.55	1.55	1.35	1.24

CAL YR 1988 TOTAL 938187 MEAN 2563 MAX 13500 MIN 613 AC-FT 1861000 CFSM 3.82 IN. 52.01
WTR YR 1989 TOTAL 895016 MEAN 2452 MAX 14900 MIN 613 AC-FT 1775000 CFSM 3.65 IN. 49.62

e Estimated

CLACKAMAS RIVER BASIN

169

14211000 CLACKAMAS RIVER NEAR CLACKAMAS, OR

LOCATION.--Lat 45°23'36", long 122°31'54", in NE 1/4 SW 1/4 sec.14, T.2 S., R.2 E., Clackamas County, Hydrologic Unit 17090011, on left bank 0.8 mi upstream from Johnson Creek, 2.1 mi southeast of Clackamas, and at mile 4.8.

DRAINAGE.--930 mi³ at gage, 936 mi³ at Gladstone Bridge 3.6 mi downstream, where high-flow discharge measurements were made.

PERIOD OF RECORD.--September 1911 to April 1912 published as "at Park Place" (daily discharge), October 1962 to September 1983 (daily discharge), May 1988 to current year (gage height).

GAGE.--Water-stage recorder. Datum of gage is 50.68 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Sept. 15, 1911, to Apr. 22, 1912, nonrecording gage at site 3.6 mi downstream at different datum. Oct. 1, 1962, to Sept. 10, 1969, water-stage recorder at site 300 ft downstream at present datum.

REMARKS.--Diurnal fluctuations and some regulation by powerplants and several storage dams upstream, operated by Portland General Electric Co. Small diversions upstream from station for Estacada municipal water supply. All records given herein are for gage site.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 27.0 ft Dec. 22, 1964, from floodmarks; minimum gage height recorded since May 1988, 1.50 ft Oct. 29, 1988.

EXTREMES FOR CURRENT PERIOD.--Maximum gage height recorded, 12.23 ft June 10; minimum recorded, 1.50 ft Oct. 29.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.83	1.74	4.92	4.21	---	3.65	5.20	4.40	3.64	2.48	2.04	1.92
2	1.87	1.98	4.53	4.22	---	3.90	5.26	4.37	3.55	2.39	2.09	2.01
3	1.83	2.67	4.34	4.53	---	3.65	5.23	4.23	3.45	2.35	2.11	2.00
4	1.84	3.35	4.15	4.78	---	3.56	5.21	4.14	3.42	2.29	2.04	1.99
5	1.84	3.01	4.00	4.93	---	4.15	5.27	4.35	3.33	2.31	2.03	1.95
6	1.81	3.90	4.28	4.66	---	7.61	5.30	4.50	3.26	2.26	1.94	1.91
7	1.82	3.54	5.19	4.38	3.67	7.44	5.65	4.47	3.20	2.24	1.95	1.89
8	1.82	2.99	4.94	4.20	3.47	6.39	5.79	4.39	3.19	2.22	1.96	1.90
9	1.75	3.04	4.70	6.16	3.44	5.82	5.44	4.22	3.18	2.23	1.96	1.87
10	2.00	3.41	4.61	10.26	3.38	6.10	5.19	4.33	2.94	2.29	2.03	1.87
11	1.86	4.23	4.41	7.27	3.15	6.01	5.04	4.10	2.84	2.25	1.94	1.86
12	1.65	4.14	4.20	6.12	3.17	6.20	5.05	3.87	2.83	2.26	1.90	1.82
13	1.59	4.25	4.33	5.70	3.10	6.80	5.16	3.67	2.85	2.19	1.91	1.71
14	1.79	3.63	4.23	5.32	3.03	6.22	5.31	3.57	2.84	2.15	1.88	1.82
15	1.60	3.39	3.92	4.99	2.98	5.86	5.43	3.54	2.88	2.12	1.76	1.82
16	1.72	3.77	3.70	5.15	3.20	5.77	5.21	3.44	3.07	2.18	1.78	1.89
17	1.77	4.49	3.61	5.36	4.73	5.64	5.00	3.44	2.93	2.31	1.77	1.84
18	1.79	4.24	3.50	5.38	5.49	5.54	4.87	3.56	2.86	2.23	1.80	1.83
19	1.74	3.84	3.54	5.28	5.01	5.35	5.15	3.50	2.82	2.15	1.81	1.87
20	1.66	4.13	3.55	5.03	4.66	5.01	5.43	3.34	2.78	2.11	1.83	1.84
21	1.77	4.85	3.66	5.12	4.40	5.33	5.38	3.25	2.71	2.08	1.93	1.80
22	2.01	8.13	3.75	5.09	4.50	5.56	4.93	3.25	2.55	2.07	2.24	1.86
23	2.09	8.61	3.79	4.81	4.81	5.27	4.55	3.44	2.58	2.08	2.65	1.76
24	2.06	6.58	3.89	4.49	4.61	5.07	4.31	3.69	2.46	1.98	2.38	1.75
25	1.76	6.23	3.82	4.27	4.27	5.62	4.47	3.91	2.43	2.04	2.22	1.81
26	1.63	5.65	3.60	4.11	4.01	5.85	5.09	3.80	2.41	2.06	2.23	1.83
27	1.72	5.40	3.46	4.03	3.84	5.57	4.73	4.20	2.36	2.14	2.19	1.82
28	1.70	7.65	3.35	3.81	3.71	5.59	4.39	4.50	2.33	2.14	2.12	1.83
29	1.61	6.35	3.37	3.69	---	5.57	4.35	4.13	2.38	2.09	2.02	1.87
30	1.70	5.51	4.56	3.75	---	5.35	4.36	3.93	2.45	2.07	1.81	2.01
31	1.65	---	4.60	4.46	---	5.32	---	3.67	---	2.13	1.87	---
MEAN	1.78	4.49	4.08	5.02	---	5.51	5.06	3.91	2.88	2.19	2.01	1.86
MAX	2.09	8.61	5.19	10.26	---	7.61	5.79	4.50	3.64	2.48	2.65	2.01
MIN	1.59	1.74	3.35	3.69	---	3.56	4.31	3.25	2.33	1.98	1.76	1.71

LOWER WILLAMETTE RIVER BASIN

14211500 JOHNSON CREEK AT SYCAMORE, OR

LOCATION.--Lat 45°28'40", long 122°30'24", in lot 2, SW 1/4 sec.13, T.1 S., R.2 E., Multnomah County, Hydrologic Unit 17090012, on right bank 0.3 mi southwest of Sycamore station, 2.5 mi east of city limits of Portland, and at mile 10.2.

DRAINAGE AREA.--26.5 mi².

PERIOD OF RECORD.--July 1940 to current year.

REVISED RECORDS.--WSP 1318: 1941(M). WDR OR-75-1: 1974. WDR OR-77-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 228.47 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except for those below 10 ft³/s, which are poor. Slight diurnal fluctuation at low flow caused by recreational ponds upstream. Small diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--49 years, 53.9 ft³/s, 27.62 in/yr, 39,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,620 ft³/s Dec. 22, 1964, gage height, 14.68 ft; minimum discharge, 0.08 ft³/s Aug. 21, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 9	2130	537	8.12	Mar. 5	2130	*610	*8.57
Feb. 17	2130	526	7.87				

Minimum discharge, 0.29 ft³/s Sept. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.81	2.4	45	47	40	57	83	22	12	3.3	3.3	1.2
2	1.7	10	35	71	33	103	136	19	10	2.9	7.3	5.6
3	.61	8.7	28	77	e30	78	122	16	8.7	2.8	3.7	8.8
4	.78	12	23	95	e27	71	128	14	7.7	2.6	2.6	1.9
5	1.1	22	20	143	e25	308	110	13	6.9	2.5	2.4	1.7
6	1.2	33	38	99	e24	417	82	11	6.3	2.4	1.9	1.3
7	1.2	8.2	29	71	25	234	63	10	5.7	2.2	1.6	1.3
8	1.0	11	41	84	23	138	50	9.1	5.8	2.0	1.6	1.2
9	.92	10	28	281	20	129	41	9.1	5.6	2.2	1.4	1.6
10	.80	36	24	362	17	108	34	9.4	5.2	2.5	1.5	9.4
11	.71	19	20	183	17	94	29	8.2	4.9	2.4	1.5	.46
12	.76	32	18	118	17	195	26	7.3	4.3	2.3	1.4	.41
13	.81	23	16	208	17	289	23	6.8	4.1	2.1	2.3	.39
14	1.0	22	14	188	16	176	21	6.7	9.6	2.0	1.1	.40
15	1.0	34	13	136	15	152	19	6.2	13	1.9	1.2	2.5
16	.93	63	12	106	102	171	16	5.8	6.8	10	1.2	.42
17	1.0	88	11	144	354	186	15	8.7	5.1	8.3	1.1	.47
18	.74	43	11	93	399	166	13	10	4.6	3.2	1.1	.61
19	1.3	32	13	72	240	107	19	6.9	11	2.5	.94	.62
20	1.2	29	29	57	150	87	15	5.6	11	2.3	1.1	.50
21	.92	82	53	112	104	103	14	5.0	5.7	2.1	1.3	.61
22	3.1	226	91	132	129	71	16	5.1	4.8	2.1	5.2	.55
23	6.5	170	75	95	104	59	17	9.3	4.2	1.9	8.2	.74
24	.62	209	178	72	89	72	13	26	3.8	1.7	3.3	.49
25	.77	283	126	56	69	227	84	28	3.5	1.7	2.1	.80
26	.89	125	74	47	56	174	163	12	3.2	1.7	3.4	2.9
27	1.4	152	53	42	48	129	67	62	3.2	2.4	2.4	1.3
28	2.0	159	39	35	42	128	46	40	3.1	2.1	1.4	.73
29	2.1	85	36	31	---	105	35	24	3.4	2.1	1.2	.75
30	4.8	60	63	29	---	90	27	19	4.5	2.1	1.3	17
31	.77	---	61	42	---	83	---	15	---	2.1	1.1	---
TOTAL	43.44	2089.3	1317	3328	2232	4507	1527	450.2	187.7	84.4	71.14	66.65
MEAN	1.40	69.6	42.5	107	79.7	145	50.9	14.5	6.26	2.72	2.29	2.22
MAX	6.5	283	178	362	399	417	163	62	13	10	8.2	17
MIN	.61	2.4	11	29	15	57	13	5.0	3.1	1.7	.94	.39
AC-FT	86	4140	2610	6600	4430	8940	3030	893	372	167	141	132
CFSM	.05	2.63	1.60	4.05	3.01	5.49	1.92	.55	.24	.10	.09	.08
IN.	.06	2.93	1.85	4.67	3.13	6.33	2.14	.63	.26	.12	.10	.09

CAL YR 1988 TOTAL 146097.38 MEAN 44.0 MAX 623 MIN .50 AC-FT 31930 CFSM 1.66 IN. 22.60
WTR YR 1989 TOTAL 15903.83 MEAN 43.6 MAX 417 MIN .39 AC-FT 31550 CFSM 1.64 IN. 22.33

e Estimated

LOWER WILLAMETTE RIVER BASIN

171

14211550 JOHNSON CREEK AT MILWAUKIE, OR

LOCATION.--Lat 45°27'11", long 122°38'31", in NE 1/4 SE 1/4 sec.26, T.1 S., R.1 E., Clackamas County, Hydrologic Unit 17090012, on right bank 0.9 mi downstream from Highway 99E crossing, in the city limits of Milwaukie, and at mile 0.7.

DRAINAGE AREA.--51.8 mi².

PERIOD OF RECORD.--April to September 1989.

GAGE.--Water-stage recorder. Datum of gage is 25 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Record good. Slight diurnal fluctuation at low flow caused by recreational ponds upstream. Small diversions for irrigation upstream from station.

EXTREMES FOR APR. 21, 1989 TO SEPT. 30, 1989.--Maximum discharge, 361 ft³/s Apr. 26, gage height, 26.62 ft; minimum discharge, 15 ft³/s several days in August and September.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	39	28	19	22	16
2	---	---	---	---	---	---	---	34	26	19	28	18
3	---	---	---	---	---	---	---	32	24	18	21	28
4	---	---	---	---	---	---	---	31	23	17	20	19
5	---	---	---	---	---	---	---	31	22	17	19	17
6	---	---	---	---	---	---	---	28	21	17	18	16
7	---	---	---	---	---	---	---	26	20	17	17	17
8	---	---	---	---	---	---	---	25	20	17	17	17
9	---	---	---	---	---	---	---	25	20	17	17	16
10	---	---	---	---	---	---	---	24	19	18	16	26
11	---	---	---	---	---	---	---	22	19	18	16	18
12	---	---	---	---	---	---	---	21	18	18	16	16
13	---	---	---	---	---	---	---	20	18	18	16	15
14	---	---	---	---	---	---	---	21	26	18	17	15
15	---	---	---	---	---	---	---	20	31	17	15	16
16	---	---	---	---	---	---	---	20	23	27	15	18
17	---	---	---	---	---	---	---	23	21	30	16	17
18	---	---	---	---	---	---	---	27	20	20	16	16
19	---	---	---	---	---	---	---	24	22	19	16	15
20	---	---	---	---	---	---	---	20	33	17	16	16
21	---	---	---	---	---	---	---	20	21	17	16	16
22	---	---	---	---	---	---	---	36	22	20	31	15
23	---	---	---	---	---	---	---	36	30	19	16	28
24	---	---	---	---	---	---	---	29	46	19	21	16
25	---	---	---	---	---	---	---	62	51	18	19	16
26	---	---	---	---	---	---	---	218	30	17	16	20
27	---	---	---	---	---	---	---	94	75	17	18	19
28	---	---	---	---	---	---	---	68	69	17	18	17
29	---	---	---	---	---	---	---	53	42	19	17	16
30	---	---	---	---	---	---	---	44	36	19	17	43
31	---	---	---	---	---	---	---	31	---	20	17	---
TOTAL	---	---	---	---	---	---	---	965	640	566	575	546
MEAN	---	---	---	---	---	---	---	31.1	21.3	18.3	18.5	18.2
MAX	---	---	---	---	---	---	---	75	33	30	31	43
MIN	---	---	---	---	---	---	---	20	17	16	15	15
AC-FT	---	---	---	---	---	---	---	1910	1270	1120	1140	1080

LOWER WILLAMETTE RIVER BASIN

14211720 WILLAMETTE RIVER AT PORTLAND, OR
(National stream quality accounting network station)

LOCATION.--Lat 45°31'07", long 122°40'00", in NW 1/4 NE 1/4 sec.3, T.1 S., R.1 E., Multnomah County, Hydrologic Unit 17090012, in pier at east end of drawspan, on upstream side of Morrison Bridge, in Portland, and at mile 12.8.

DRAINAGE AREA.--11,100 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1972 to current year. Gage-height records collected in this vicinity since 1879 are in reports of the National Weather Service.

GAGE.--Acoustic velocity meter (AVM) with water-stage and velocity-index recorder. Datum of gage is 1.55 ft above National Geodetic Vertical Datum of 1929 (levels by National Weather Service).

REMARKS.--Water-discharge records fair except for estimated daily discharges below 50,000 ft³/s, which are poor. Flow regulated by many reservoirs upstream. Many diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--17 years, 32,730 ft³/s, 23,710,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 283,000 ft³/s Jan. 18, 1974; maximum gage height, 23.84 ft Jan. 18, 1974; minimum daily discharge, 4,200 ft³/s July 10, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods of June 7, 1894, and June 1, 1948, reached stages of 33.0 ft and 30.0 ft, respectively, from information by National Weather Service.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 112,000 ft³/s Jan. 12; maximum gage height, 10.76 ft Jan. 13; minimum daily discharge, 6,890 ft³/s July 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10400	12200	81300	e57100	31100	29000	e67400	21900	e21400	e8810	e7870	e8880
2	10600	13000	68400	e50100	e38000	27700	e64100	20000	e18600	e8730	e8230	e9050
3	10300	15800	59300	e46400	e41400	28300	e63800	19100	e17000	e8510	e8510	e8960
4	11400	19400	51800	e48500	e39800	28000	e60200	e17800	e16600	e8210	e8380	e8910
5	12200	21600	44900	e51400	e37400	27900	e57400	e17500	e16200	e7980	e7940	e8840
6	11900	25000	42000	e52200	e35000	e70700	e53900	e18400	e16300	e7850	e7530	e9030
7	11700	26000	41300	e48200	e31400	e82100	e56700	e18800	e16600	e7650	e7580	e9740
8	12300	25000	38900	e43900	31500	e72900	e54900	e18700	e16100	e7510	e7430	e10000
9	11200	24100	37200	e57000	28300	e59900	e50900	e18900	e15600	e7480	e7410	e10300
10	11100	25300	35200	86500	27400	e59900	e48000	e19600	e14500	e7510	e7330	e10500
11	11200	29700	31200	106000	26700	e62000	45500	e20600	e13500	e7520	e7250	e10500
12	11000	31000	30700	e112000	22600	e63600	42900	e19800	e12900	e7420	e7130	e10100
13	12200	31600	30300	e111000	20400	e71400	40000	e18800	e11800	e7100	e7440	e9180
14	12200	31900	28500	102000	20600	e75500	38600	e17400	e10700	e7050	e7530	e9270
15	11500	30700	26800	88300	19500	e72400	38000	e16600	e11000	e6890	e7350	e9240
16	12300	30800	26600	84300	19600	e76200	35900	e15600	e11600	e7260	e7330	e9280
17	12500	36300	25200	83300	25300	e82000	33900	e14500	e12100	e7720	e7510	e9310
18	11500	41600	23100	80200	47700	e83800	33200	e14400	e11800	e8190	e7370	e9560
19	13000	42800	22000	73600	56500	e80400	32100	e14800	e11600	e7800	e7440	e10000
20	14500	40500	23100	66200	54700	e73800	32200	e14600	e10500	e7570	e7670	e11500
21	15200	41300	23000	62100	49300	e70400	32300	e14600	e10100	e7400	e7740	e12100
22	14800	59900	26100	64400	44900	e68600	31000	e14200	e9750	e7330	e8160	e12200
23	14400	85400	33700	64700	47100	e64400	30500	e13900	e9150	e7250	e9250	e12200
24	13800	94900	43100	59100	47900	e62200	26700	e15200	e8540	e7180	e10100	e11600
25	13600	104000	49700	53900	45700	e62300	26900	e17900	e8230	e7060	e9240	e11700
26	14000	106000	47200	46700	40800	e66400	25900	e19300	e8060	e6980	e8690	e11900
27	13600	101000	38300	42200	35200	e63900	25600	e20800	e7930	e6960	e8540	e12100
28	13800	96900	33400	37800	31600	e64800	23900	e25200	e7850	e7100	e8370	e11800
29	14200	97600	29300	33100	---	e70200	24600	e26600	e7900	e7150	e8360	e11500
30	13000	93600	30900	30100	---	e69900	24500	e27100	e8570	e7300	e8230	e12100
31	12300	---	44200	30700	---	e69600	---	e24700	---	e7560	e8460	---
TOTAL	387700	1434900	1166700	1973000	997400	1960200	1221500	577300	372480	234030	247370	311350
MEAN	12510	47830	37640	63650	35620	63230	40720	18620	12420	7549	7980	10380
MAX	15200	106000	81300	112000	56500	83800	67400	27100	21400	8810	10100	12200
MIN	10300	12200	22000	30100	19500	27700	23900	13900	7850	6890	7130	8840
AC-FT	769000	2846000	2314000	3913000	1978000	3888000	2423000	1145000	738800	464200	490700	617600

CAL YR 1988 TOTAL 10642220 MEAN 29080 MAX 170000 MIN 6980 AC-FT 21110000
WTR YR 1989 TOTAL 10883930 MEAN 29820 MAX 112000 MIN 6890 AC-FT 21590000

e Estimated

LOWER WILLAMETTE RIVER BASIN

173

14211720 WILLAMETTE RIVER AT PORTLAND, OR--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: December 1975 to September 1981.

WATER TEMPERATURE: November 1975 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS NONCARB (MG/L AS CACO3)
NOV												
30...	1130	93600	54	7.0	8.0	15	13.7	114	--	180	20	0
JAN												
31...	1115	30700	80	7.4	6.5	7.2	12.4	100	130	260	26	1
MAR												
20...	1035	E73800	64	7.6	8.5	--	12.7	108	260	180	--	--
MAY												
31...	1145	E24700	60	7.6	13.5	4.4	11.8	113	40	--	21	0
JUL												
31...	1245	E7560	94	7.4	21.0	2.8	7.9	89	56	K34	29	0
SEP												
06...	1040	E9030	85	7.5	18.5	1.9	8.2	87	20	K11	25	0

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WATER DIS IT FIELD (MG/L AS CACO3)	BICAR- BONATE WATER DIS IT FIELD (MG/L AS HCO3)	CAR- BONATE WATER DIS IT FIELD (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
NOV												
30...	5.1	1.7	3.8	28	0.4	0.8	24	30	0	5.8	2.8	0.1
JAN												
31...	6.8	2.3	4.8	27	0.4	0.9	24	30	0	6.0	4.2	0.1
MAR												
20...	--	--	--	--	--	--	20	24	0	--	--	--
MAY												
31...	5.4	1.8	4.3	27	0.4	3.5	21	25	0	2.0	3.3	<0.1
JUL												
31...	7.8	2.4	7.9	36	0.7	1.1	29	35	0	5.0	7.6	0.1
SEP												
06...	6.4	2.1	7.3	38	0.7	1.0	28	34	0	5.0	5.3	0.1

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS TOTAL (MG/L AS P)
NOVXS											
30...	14	44	52	11100	0.06	0.01	0.78	0.3	0.03	0.03	0.08
JAN											
31...	17	61	61	5060	0.08	0.07	0.87	0.3	0.04	0.05	0.05
MAR											
20...	--	--	--	--	--	0.04	0.59	0.3	0.07	0.04	0.10
MAY											
31...	15	48	50	E3200	E0.06	0.05	0.24	<0.2	0.05	0.07	0.07
JUL											
31...	18	72	70	E1470	E0.10	0.05	0.36	0.4	0.08	0.11	0.11
SEP											
06...	17	62	64	E1510	E0.08	0.06	0.34	0.2	0.10	0.09	0.10

E - Estimated value.

K - Results based on colony count outside acceptable range (non-ideal colony count).

LOWER WILLAMETTE RIVER BASIN

14211720 WILLAMETTE RIVER AT PORTLAND, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
NOV 30...	60	<1	6	<0.5	<1	<1	<3	6	83	<5	<4	9
JAN 31...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 20...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 31...	100	<1	5	<0.5	<1	<1	<3	3	140	<1	<4	16
JUL 31...	50	<1	6	<0.5	<1	<1	<3	5	98	1	<4	15
SEP 06...	10	<1	4	<0.5	<1	1	<3	4	47	<1	<4	10

DATE	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 30...	<0.1	<10	5	<1	<1	33	<6	7	42	10600	94
JAN 31...	--	--	--	--	--	--	--	--	--	--	--
MAR 20...	--	--	--	--	--	--	--	--	42	E8370	98
MAY 31...	<0.1	<10	1	<1	<1	32	<6	5	8	E534	92
JUL 31...	<0.1	<10	1	<1	<1	46	<6	6	8	E163	98
SEP 06...	<0.1	<10	1	<1	<1	38	<6	25	7	E171	98

DATE	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)
NOV 30...	--	--	--	--	--	--	--	--
JAN 31...	--	--	--	--	--	--	--	--
MAR 20...	<0.4	0.6	0.7	0.6	0.6	0.6	0.03	<0.01
MAY 31...	--	--	--	--	--	--	--	--
JUL 31...	--	--	--	--	--	--	--	--
SEP 06...	--	--	--	--	--	--	--	--

E - Estimated value.

175

LOCATION.--Lat 46°06'13", long 122°53'30", in NE 1/4 SE 1/4 sec.11, T.7 N., R.2 W., Cowlitz County, Hydrologic Unit 17080005, near left bank on downstream side of railroad bridge, 0.3 mi downstream from Coweman River, 3.2 mi southeast of Longview City Hall, and at mile 1.0.

PERIOD OF RECORD.--May 1984 to current year (gage heights only). Maximum and minimum gage heights only
October 1985 to September 1986.

REMARKS.--Flow regulated by many reservoirs upstream.

EXTREMES FOR CURRENT YEAR.--Maximum gage height recorded, 9.68 ft May 5; minimum recorded, 0.66 ft Sept. 12.

[illegible]

COWLITZ RIVER BASIN

14245150 COWLITZ RIVER AT LONGVIEW, WA--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	7.23	4.78	7.02	4.28	7.87	4.29	7.32	2.61	---	---	---	---
2	7.49	4.61	7.51	4.81	8.22	4.55	7.14	2.34	---	---	---	---
3	7.42	4.61	8.28	5.20	8.65	4.78	7.11	2.33	---	---	---	---
4	7.63	4.62	9.08	6.00	8.36	3.98	6.84	2.03	---	---	---	---
5	8.28	4.79	9.68	6.14	8.18	4.18	6.37	1.89	---	---	---	---
6	8.62	5.06	9.59	5.79	8.36	4.61	6.14	1.96	---	---	---	---
7	8.56	4.68	9.11	5.14	7.67	4.12	5.90	1.97	---	---	---	---
8	8.44	4.66	8.57	4.83	7.12	4.17	5.27	1.71	---	---	4.96	1.49
9	8.33	4.35	8.52	5.48	6.92	4.54	4.79	1.36	---	---	4.79	1.35
10	8.40	4.75	8.13	5.48	6.42	3.78	4.89	1.62	---	---	5.04	.92
11	7.58	4.39	7.57	5.62	5.93	3.06	4.65	1.40	---	---	4.99	.86
12	6.61	3.77	7.44	5.73	6.34	3.49	5.24	1.60	---	---	5.16	.66
13	5.82	3.42	7.44	5.50	6.64	4.11	5.38	1.96	---	---	5.38	.75
14	5.69	3.43	7.25	4.73	6.73	3.86	5.44	1.92	---	---	5.79	1.22
15	5.84	3.45	6.81	4.01	6.81	3.57	5.72	1.90	---	---	6.25	1.65
16	5.95	3.60	6.82	4.51	6.69	3.08	6.09	1.72	---	---	6.50	1.91
17	6.44	4.10	7.31	4.72	6.74	3.16	6.26	1.57	---	---	6.81	1.90
18	7.14	4.56	7.79	4.91	7.10	3.01	6.25	1.51	---	---	6.73	1.89
19	7.50	4.71	7.74	4.58	7.14	2.67	6.27	1.58	---	---	6.50	1.92
20	7.98	5.10	7.66	4.79	6.97	2.75	6.16	1.90	---	---	5.89	1.64
21	8.19	5.18	7.76	4.39	7.02	2.88	6.18	1.91	---	---	5.51	1.21
22	8.25	5.13	7.69	4.28	6.77	2.67	5.84	1.71	---	---	5.54	1.32
23	8.18	4.73	8.18	4.69	6.22	2.46	5.21	1.34	---	---	5.34	1.26
24	7.75	4.58	7.97	4.52	5.83	2.22	5.34	1.31	---	---	5.51	1.06
25	8.07	5.17	7.29	3.91	5.77	1.95	5.63	1.53	---	---	5.58	1.48
26	7.94	5.18	6.90	4.18	5.89	2.02	5.78	1.82	---	---	5.45	1.28
27	7.27	4.62	6.93	4.31	6.06	1.97	5.78	1.86	---	---	5.53	1.33
28	6.73	4.56	6.71	3.75	6.60	2.36	5.70	1.56	---	---	5.49	1.38
29	7.00	4.83	7.07	3.82	6.63	2.46	5.80	1.44	---	---	6.23	1.94
30	6.91	4.59	7.19	4.00	7.05	2.59	---	---	---	---	6.24	2.09
31	---	---	7.56	4.09	---	---	---	---	---	---	---	---
MONTH	8.62	3.42	9.68	3.75	8.65	1.95	---	---	---	---	---	---

LOWER COLUMBIA RIVER BASIN

177

14245300 COLUMBIA RIVER AT LONGVIEW, WA

LOCATION.--Lat 46°06'22", long 122°57'14", in SE 1/4 NE 1/4 sec.8, T.7 N., R.2 W., Cowlitz County, Hydrologic Unit 17080003, on right bank, at the Port of Longview, 2,000 ft upstream from Longview Bridge, 2.1 mi downstream from Cowlitz River and at mile 66.2.

DRAINAGE AREA.--256,700 mi², approximately.

PERIOD OF RECORD.--November 1983 to current year (gage heights only). Gage-height records collected at site on opposite bank, at different datum, published as "at Rainier" (station 14245295) November 1971 to May 1981. Maximum and minimum gage heights only October 1985 to September 1987.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Reference to Columbia River Datum in WDR-OR-84-2, WDR-OR-85-2, WDR-WA-84-1, and WDR-WA-85-1 is incorrect.

REMARKS.--Flow regulated by many reservoirs upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 16.52 ft Jan. 19, 1974; minimum recorded, 0.15 ft Aug. 22, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum recorded gage height, 9.50 ft Jan. 9; minimum recorded, 0.24 ft Sept. 12.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	5.58	1.01	5.04	1.53	---	---	6.23	2.86	6.91	3.54	5.39	1.73
2	4.97	1.04	5.55	1.51	---	---	6.15	2.23	6.04	2.99	5.90	2.10
3	4.57	.73	5.71	2.26	---	---	6.67	2.88	5.72	2.53	5.59	1.94
4	4.41	.61	5.47	1.74	---	---	6.95	2.69	6.71	1.89	5.91	1.48
5	4.42	.48	5.88	1.50	---	---	7.46	3.09	6.29	1.48	6.71	2.06
6	4.51	.38	6.33	1.94	7.30	2.91	7.72	3.26	6.95	1.72	7.94	3.17
7	4.93	.77	6.36	2.05	6.96	2.55	7.93	3.36	7.58	2.59	8.05	3.67
8	4.89	.77	7.05	2.24	7.19	2.54	8.77	3.53	6.85	2.65	8.14	3.76
9	4.76	.55	6.76	1.97	7.34	2.40	9.50	4.13	6.60	2.36	8.47	3.58
10	5.51	.92	7.60	2.28	7.08	2.09	9.26	5.14	7.08	2.54	8.97	3.85
11	5.82	1.35	7.38	2.51	7.07	1.90	8.52	5.95	6.83	2.21	9.05	3.98
12	6.20	1.38	7.66	2.52	7.29	2.52	8.27	5.58	6.29	1.51	9.07	4.88
13	6.59	1.80	7.22	2.53	6.46	2.47	9.19	5.86	5.92	1.65	8.87	5.17
14	6.19	1.55	6.75	2.31	5.38	1.81	8.22	4.40	5.88	1.65	7.92	4.50
15	5.96	1.27	6.17	2.46	5.36	1.65	8.09	4.08	5.83	1.77	7.28	4.36
16	5.46	1.43	6.09	2.22	5.53	1.88	8.39	4.98	6.21	1.89	7.44	4.32
17	4.93	.89	6.13	2.45	5.72	1.42	8.02	4.42	7.03	2.98	6.99	3.78
18	5.03	.62	6.08	2.18	6.40	1.64	7.89	4.01	6.86	2.47	7.43	3.93
19	4.86	1.13	6.91	2.28	7.36	2.61	7.71	3.92	7.02	2.34	6.96	3.55
20	5.05	.58	7.40	2.66	7.87	2.89	7.89	3.63	6.90	2.45	7.01	3.79
21	5.32	.78	8.16	3.02	8.40	3.22	8.03	3.55	6.48	2.46	7.55	4.13
22	5.49	.78	9.83	4.54	9.04	3.62	7.78	3.38	6.99	2.48	7.48	4.12
23	6.00	1.07	9.88	5.58	8.37	3.45	7.20	3.27	6.89	2.88	7.56	4.09
24	6.54	1.47	---	---	8.39	3.40	6.93	3.29	6.76	2.81	7.64	4.02
25	6.96	1.66	---	---	7.45	3.03	6.59	3.43	6.70	2.55	7.96	4.14
26	6.87	1.67	---	---	6.26	2.40	6.29	3.13	5.96	1.78	7.81	4.01
27	7.03	1.49	---	---	6.22	1.81	6.28	2.88	5.48	1.60	7.97	3.92
28	6.95	1.95	---	---	5.82	2.34	5.60	2.02	5.58	2.01	7.65	4.25
29	6.07	1.88	---	---	6.10	2.29	5.25	1.49	---	---	7.16	3.99
30	5.62	1.11	---	---	7.14	3.30	5.46	1.80	---	---	6.44	3.66
31	5.28	1.12	---	---	6.93	3.86	6.02	2.46	---	---	6.57	3.80
MONTH	7.03	.38	---	---	---	---	9.50	1.49	7.58	1.48	9.07	1.48

LOWER COLUMBIA RIVER BASIN

14245300 COLUMBIA RIVER AT LONGVIEW, WA--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	6.87	3.89	---	---	---	---	7.34	2.01	6.46	1.30	5.85	1.23
2	7.21	3.60	---	---	---	---	7.18	1.70	6.68	1.45	5.77	1.29
3	7.10	3.64	---	---	---	---	7.13	1.70	6.14	.93	5.29	.88
4	---	---	---	---	---	---	6.86	1.35	5.54	.64	5.13	.85
5	---	---	---	---	---	---	6.38	1.22	5.01	.48	5.12	.87
6	---	---	---	---	---	---	6.09	1.35	4.80	.43	5.05	.98
7	---	---	---	---	---	---	5.85	1.38	5.06	.85	5.09	1.00
8	---	---	---	---	---	---	5.21	1.13	5.02	1.22	4.95	1.17
9	---	---	---	---	---	---	4.78	.71	4.56	1.04	4.80	1.02
10	---	---	---	---	---	---	4.90	1.04	4.42	.76	5.06	.56
11	---	---	---	---	---	---	4.69	.84	4.80	.35	5.00	.46
12	---	---	---	---	---	---	4.98	1.05	5.11	.65	5.19	.24
13	---	---	---	---	---	---	5.16	1.18	5.10	.44	5.43	.34
14	---	---	---	---	6.56	3.20	5.33	1.15	5.30	.37	5.84	.88
15	---	---	---	---	6.69	2.85	5.50	1.21	5.89	.75	6.29	1.29
16	---	---	---	---	6.59	2.34	5.87	.95	6.01	.53	6.54	1.58
17	---	---	---	---	6.67	2.42	6.09	.72	5.82	.41	6.86	1.58
18	---	---	---	---	7.04	2.31	6.30	.84	5.87	.54	6.77	1.58
19	---	---	---	---	7.07	1.93	6.30	.83	5.66	.66	6.54	1.56
20	---	---	---	---	6.94	1.93	6.19	1.24	5.75	.71	5.94	1.28
21	---	---	---	---	6.95	2.16	6.17	1.27	6.01	.94	5.56	.84
22	---	---	---	---	6.72	1.92	5.82	1.06	6.27	1.16	5.58	.93
23	---	---	---	---	6.13	1.65	5.23	.53	5.84	1.55	5.36	.92
24	---	---	---	---	5.82	1.48	5.36	.54	5.40	1.09	5.53	.72
25	---	---	---	---	5.77	1.22	5.58	.87	5.40	.63	5.59	1.14
26	---	---	---	---	5.88	1.37	5.80	1.21	5.34	.63	5.47	.94
27	---	---	---	---	6.06	1.34	5.79	1.26	5.39	.40	5.56	.94
28	---	---	---	---	6.64	1.74	5.74	.84	5.32	.25	5.48	1.03
29	---	---	---	---	6.64	1.85	5.84	.67	5.63	.70	6.23	1.66
30	---	---	---	---	6.98	1.95	5.85	.49	6.03	.90	6.27	1.68
31	---	---	---	---	---	---	5.93	.62	5.60	.66	---	---
MONTH	---	---	---	---	---	---	7.34	.49	6.68	.25	6.86	.24

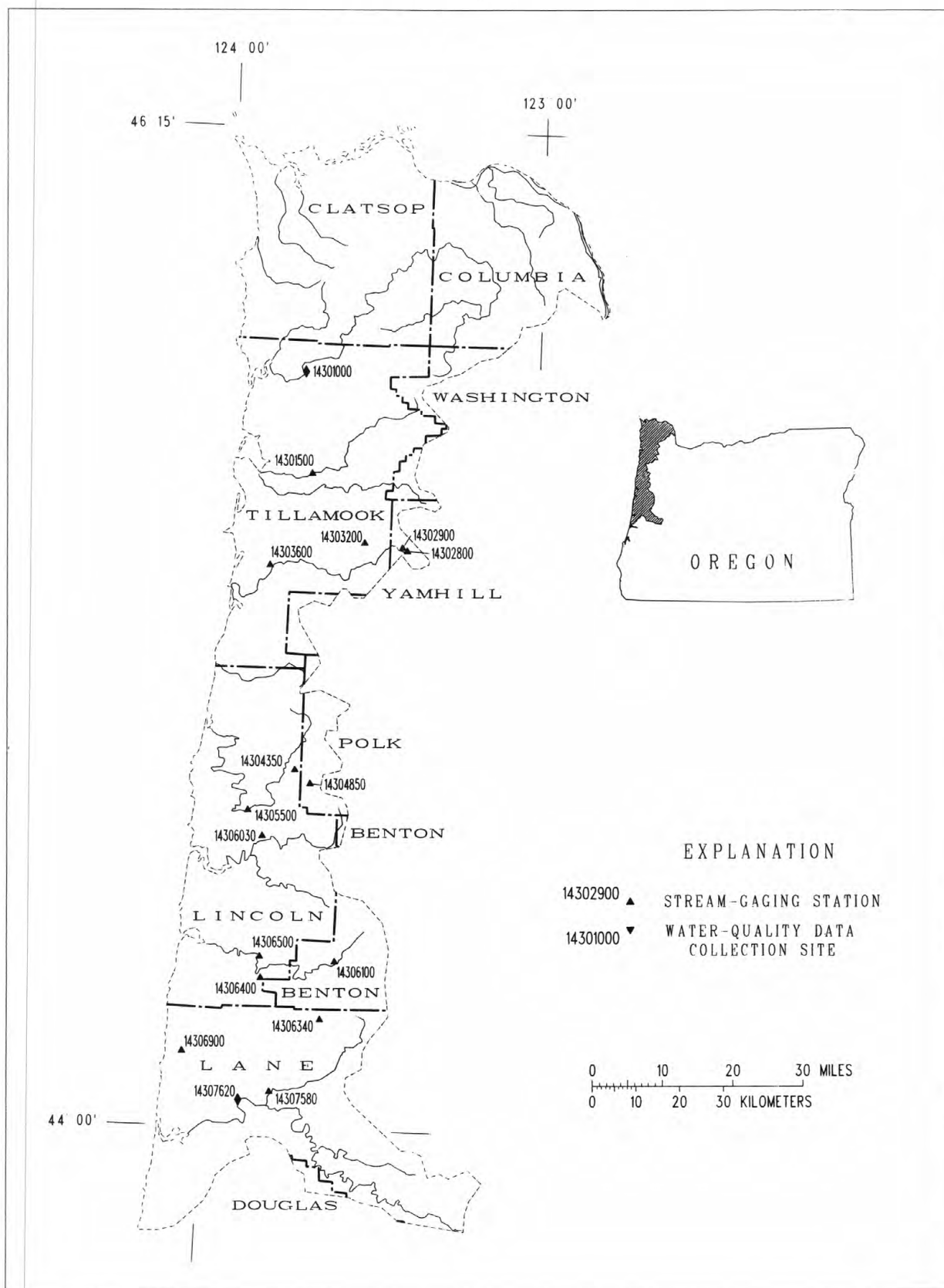


Figure 5.--Location of surface-water and water-quality stations in the Oregon Coastal Drainages north of the Siuslaw River basin.

PACIFIC SLOPE BASINS IN OREGON

NEHALEM RIVER BASIN

14301000 NEHALEM RIVER NEAR FOSS, OR
(National stream quality accounting network station)

LOCATION.--Lat 45°42'15", long 123°45'15", in NW 1/4 sec.35, T.3 N., R.9 W., Tillamook County, Hydrologic Unit 17100202, on right bank 0.2 mi upstream from Cook Creek, 2.2 mi northeast of Foss, and at mile 13.5.

DRAINAGE AREA.--667 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1939 to current year.

GAGE.--Water-stage recorder. Datum of gage is 32.60 ft above National Geodetic Vertical Datum of 1929 (State Highway Department bench mark). Prior to Nov. 11, 1939, nonrecording gage.

REMARKS.--No estimated daily discharges. Water-discharge records fair. No regulation. Several small diversions for irrigation and domestic use upstream from station.

AVERAGE DISCHARGE.--50 years, 2,675 ft³/s, 54.46 in/yr, 1,938,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 46,900 ft³/s Jan. 20, 1972, gage height, 23.11 ft; minimum discharge, 34 ft³/s Aug. 29-31, 1967.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 19,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 10	unknown	a*14,400	unknown				
Minimum discharge, 56 ft ³ /s Sept. 16-19, 24-26.							
a Estimated based on hydrologic comparison with nearby stations.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	182	186	5120	10100	2460	2920	4830	638	460	305	170	95
2	155	528	4050	7380	2290	2720	5690	617	426	335	236	99
3	137	2010	3240	5940	2100	2470	7150	595	397	335	294	108
4	128	1780	2650	5290	1670	2230	7090	572	371	297	291	100
5	125	1880	2310	4810	1590	3600	6630	554	343	263	246	94
6	122	4210	2350	4390	1560	6640	5920	536	322	235	198	89
7	120	2330	2410	3930	1480	6700	4970	523	307	211	170	84
8	125	2040	2200	3730	1390	6050	4150	498	294	196	149	81
9	124	1860	2010	7240	1330	5280	3490	481	284	187	136	75
10	118	2850	1830	e13400	1280	5430	2940	481	283	183	124	69
11	114	3030	1640	12800	1240	5980	2520	491	273	179	113	65
12	112	3330	1500	9990	1200	8480	2210	476	265	171	106	61
13	117	3090	1450	8600	1150	9140	1970	461	265	164	101	59
14	141	2490	1360	7970	1110	8650	1750	441	265	158	97	58
15	231	2330	1270	10100	1050	8330	1550	421	267	154	97	58
16	307	2380	1200	13300	1150	8050	1410	406	268	175	98	57
17	340	3060	1140	13400	4060	7900	1300	440	260	204	101	56
18	291	3170	1100	10800	6900	7580	1200	610	252	218	105	56
19	275	2760	1200	8620	6540	6920	1130	614	267	207	106	56
20	257	3330	1220	6900	5620	5890	1090	546	345	198	103	58
21	240	5810	1410	5740	4840	5320	1030	481	322	176	116	58
22	223	10000	1750	5130	5310	4880	994	444	295	160	141	58
23	212	11400	2730	4680	6230	4320	969	439	263	146	139	58
24	200	10100	3900	4140	5870	3860	913	513	231	136	142	57
25	190	9260	4130	3630	5180	3650	844	526	207	131	133	57
26	181	7990	3590	3160	4440	3490	800	517	190	125	146	61
27	173	7510	3000	2910	3830	4010	768	572	180	120	123	73
28	164	8150	2610	2620	3320	5420	733	603	179	120	110	75
29	157	7890	3660	2350	---	5620	699	586	193	116	102	76
30	156	6540	11400	2220	---	5440	665	544	248	114	98	80
31	156	---	12500	2490	---	5130	---	500	---	119	97	---
TOTAL	5573	133294	91930	207760	86190	172100	77405	16126	8522	5838	4388	2131
MEAN	180	4443	2965	6702	3078	5552	2580	520	284	188	142	71.0
MAX	340	11400	12500	13400	6900	9140	7150	638	460	335	294	108
MIN	112	186	1100	2220	1050	2230	665	406	179	114	97	56
AC-FT	11050	264400	182300	412100	171000	341400	153500	31990	16900	11580	8700	4230
CFSM	.27	6.66	4.45	10.0	4.62	8.32	3.87	.78	.43	.28	.21	.11
IN.	.31	7.43	5.13	11.59	4.81	9.60	4.32	.90	.48	.33	.24	.12

CAL YR 1988 TOTAL 765830 MEAN 2092 MAX 22100 MIN 66 AC-FT 1519000 CFSM 3.14 IN. 42.71
WTR YR 1989 TOTAL 811257 MEAN 2223 MAX 13400 MIN 56 AC-FT 1609000 CFSM 3.33 IN. 45.25

e Estimated

PACIFIC SLOPE BASINS IN OREGON

NEHALEM RIVER BASIN

14301000 NEHALEM RIVER NEAR FOSS, OR--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1975 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: August 1980 to September 1981.

WATER TEMPERATURE: December 1974 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS NONCARB (MG/L AS CACO3)
DEC 20...	1300	1220	64	7.0	4.5	3.0	13.3	105	28	21	20	3
FEB 22...	1500	5580	49	7.0	6.5	5.6	12.5	103	22	K20	14	1
JUN 06...	1205	322	71	8.0	18.5	0.4	9.4	100	K6	22	21	0
AUG 28...	1400	110	88	7.7	20.5	1.5	10.1	113	43	52	26	0
DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WATER DIS IT FIELD (MG/L AS CACO3)	BICAR- BONATE WATER DIS IT FIELD (MG/L AS HCO3)	CAR- BONATE WATER DIS IT FIELD (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
DEC 20...	5.5	1.4	5.4	36	0.6	0.9	16	19	0	6.0	7.6	0.1
FEB 22...	3.9	1.0	4.6	41	0.6	0.6	12	15	0	4.6	4.2	0.1
JUN 06...	6.1	1.5	6.2	38	0.6	0.7	23	28	0	4.0	5.0	0.1
AUG 28...	7.1	1.9	7.3	37	0.7	1.0	29	36	0	4.0	6.6	0.1
DATE	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS TOTAL (MG/L AS P)	
DEC 20...	15	50	55	165	0.07	0.02	0.64	<0.2	0.01	0.03	0.03	
FEB 22...	14	29	44	437	0.04	<0.01	0.60	0.3	0.01	0.02	0.04	
JUN 06...	14	47	53	40.9	0.06	0.01	0.23	<0.2	0.01	<0.01	0.02	
AUG 28...	15	65	62	19.3	0.09	0.01	0.19	0.3	<0.01	0.02	0.03	

K - Results based on colony count outside acceptable range (non-ideal colony count).

PACIFIC SLOPE BASINS IN OREGON

NEHALEM RIVER BASIN

14301000 NEHALEM RIVER NEAR FOSS, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
DEC 20...	80	1	5	<0.5	<1	2	<3	11	260	20	<4	7
FEB 22...	40	<1	4	<0.5	<1	1	<3	3	69	<5	<4	3
JUN 06...	20	<1	4	<0.5	<1	<1	<3	8	150	1	<4	3
AUG 28...	<10	<1	5	<0.5	<1	<1	<3	1	230	<1	<4	2
DATE	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	
DEC 20...	0.1	<10	3	<1	<1	34	<6	20	4	13	83	
FEB 22...	<0.1	<10	<1	<1	<1	27	<6	20	18	271	90	
JUN 06...	<0.1	<10	14	<1	<1	40	<6	5	3	2.6	76	
AUG 28...	0.1	<10	<1	<1	<1	49	<6	6	6	1.8	94	

WILSON RIVER BASIN

183

14301500 WILSON RIVER NEAR TILLAMOOK, OR

LOCATION.--Lat 45°29'05", long 123°41'20", in SW 1/4 SE 1/4 sec.8, T.1 S., R.8 W., Tillamook County, Hydrologic Unit 17100203, on right bank 0.2 mi upstream from Negro Jack Creek, 8.0 mi east of Tillamook, and at mile 11.4.

DRAINAGE AREA.--161 mi², at cableway, 2.0 mi downstream, where all discharge measurements are made.

PERIOD OF RECORD.--October 1914 to September 1915, August to November 1916, July 1931 to current year. Prior to January 1915 monthly discharge only, published in WSP 1318.

REVISED RECORDS.--WSP 1398: 1953. WSP 1738: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 71.89 ft above National Geodetic Vertical Datum of 1929. Dec. 18, 1914, to Nov. 4, 1916, nonrecording gage at site 2.8 mi downstream at different datum. July 30, 1931, to Sept. 30, 1938, nonrecording gage at site 2.82 mi downstream at datum 28.83 ft lower. Oct. 1, 1938, to Oct. 17, 1968, water-stage recorder at site 2.1 mi downstream at datum 29.76 ft lower.

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation. Small diversions for domestic use upstream from station.

AVERAGE DISCHARGE.--59 years (water years 1915, 1932-89), 1,177 ft³/s, 99.28 in/yr, 852,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,000 ft³/s Jan. 20, 1972, gage height, 16.91 ft; maximum gage height, 20.26 ft Dec. 22, 1964 (site and datum then in use); minimum discharge, 32 ft³/s Sept. 5, 1973, but may have been less for short period following a landslide Jan. 31, 1965.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in February 1916 reached a stage of 20.8 ft, from floodmark, site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 12,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 10	unknown	unknown	unknown				
Minimum discharge, 52 ft ³ /s Sept. 22-26.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	140	e2100	2810	1070	1100	2010	296	247	208	107	74
2	79	1050	e1700	2200	922	1020	2550	283	229	247	157	77
3	77	2420	1400	2110	794	889	2630	273	215	234	125	70
4	76	1760	1190	2240	736	821	2410	264	201	201	113	69
5	76	1420	e1100	1980	686	2190	2930	255	189	176	104	65
6	76	2470	e1500	1670	628	4140	2690	245	181	155	97	65
7	75	1590	e1600	1420	586	3020	2150	238	174	144	92	63
8	74	1460	e1400	1630	549	2260	1740	227	169	136	88	62
9	73	1410	1210	e5000	523	1890	1450	221	164	135	84	60
10	71	2520	1060	e10000	503	2060	1250	223	161	131	83	58
11	70	2410	937	e6000	493	2250	1100	225	154	125	81	57
12	70	2420	850	2810	476	3100	980	213	151	118	79	56
13	72	2080	805	2650	453	3410	885	205	152	114	78	55
14	109	1560	718	2310	432	3120	808	197	156	112	77	54
15	305	1630	651	3220	414	2960	738	190	150	108	76	54
16	295	2130	603	5810	695	3070	667	184	141	171	75	54
17	256	2410	563	6180	3730	2750	606	229	139	193	76	54
18	194	1960	547	4570	4870	2670	557	323	143	155	76	55
19	185	1650	649	3510	3200	2370	523	279	181	138	73	56
20	161	2180	673	2680	2490	2020	507	238	214	127	73	56
21	146	4030	851	2270	2140	1970	470	215	168	121	87	54
22	139	5660	1040	1940	2540	1890	463	206	147	117	110	53
23	127	5250	1270	1620	2850	e1750	445	219	135	110	98	52
24	118	3640	1260	1390	2310	e1500	421	380	127	106	88	52
25	111	3050	1110	1220	1890	e1550	390	378	120	102	83	52
26	106	2760	972	1090	1570	e1450	370	325	117	99	79	54
27	101	3560	876	1030	1350	e2100	354	363	114	100	76	56
28	97	4660	791	941	1190	3100	337	342	118	99	74	56
29	95	3390	e1930	864	---	2800	319	319	131	94	71	54
30	100	e2600	e6300	875	---	2390	306	291	164	94	71	60
31	99	---	4290	1140	---	2160	---	267	---	93	72	---
TOTAL	3717	75270	41946	85180	40090	69770	33056	8113	4852	4263	2723	1757
MEAN	120	2509	1353	2748	1432	2251	1102	262	162	138	87.8	58.6
MAX	305	5660	6300	10000	4870	4140	2930	380	247	247	157	77
MIN	70	140	547	864	414	821	306	184	114	93	71	52
AC-FT	7370	149300	83200	169000	79520	138400	65570	16090	9620	8460	5400	3490
CFSM	.74	15.6	8.40	17.1	8.89	14.0	6.84	1.63	1.00	.85	.55	.36
IN.	.86	17.39	9.69	19.68	9.26	16.12	7.64	1.87	1.12	.98	.63	.41
CAL YR 1988	TOTAL 351782	MEAN 961	MAX 13300	MIN 63	AC-FT 697800	CFSM 5.97	IN. 81.28					
WTR YR 1989	TOTAL 370737	MEAN 1016	MAX 10000	MIN 52	AC-FT 735400	CFSM 6.31	IN. 85.66					

e Estimated

NESTUCCA RIVER BASIN

14302800 MCGUIRE LAKE NEAR FAIRDALE, OR

LOCATION.--Lat 45°18'30", long 123°24'30", in NW 1/4 SE 1/4 sec.15, T.3 S., R.6 W., Yamhill County, Hydrologic Unit 17100203, on control tower in reservoir on Nestucca River, 0.3 mi upstream from Walker Creek, and 5.0 mi southwest of Fairdale.

DRAINAGE AREA.--2.85 mi².

PERIOD OF RECORD.--October 1970 to current year.

GAGE.--Nonrecording gage. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by earthfill dam with ungated spillway. Capacity of reservoir is 3,840 acre-ft between elevations 1,810.0 ft and 1,865.5 ft. Dead storage negligible. Under normal operation, reservoir is filled in the spring (April or May) and drained when fall rains start. There is no planned storage during winter months; however, during periods of heavy runoff, inflow may be greater than capacity of outlet tunnel and there may be temporary storage. Water is used during summer months for municipal supply of city of McMinnville.

COOPERATION.--Elevation and capacity table furnished by city of McMinnville, Water and Light Department.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 3,890 acre-ft Mar. 12 1972, Feb. 19, Mar. 28, 1974, elevation, 1,865.8 ft; no contents most of time during winter months.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 3,770 acre-ft Apr. 10 to June 8, elevation, 1,865.0 ft; no contents observed several days in December and January.

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30.....	1,857.6	2,800	-
Oct. 31.....	1,855.5	2,560	-240
Nov. 30.....	1,852.6	2,270	-290
Dec. 31.....	1,814.6	92	-2,178
CAL YR 1988.....	-	-	-3,598
Jan. 31.....	1,822.0	295	+203
Feb. 28.....	1,843.5	1,460	+1,165
Mar. 31.....	1,861.8	3,320	+1,860
Apr. 30.....	1,865.0	3,770	+450
May 31.....	1,865.0	3,770	0
June 30.....	1,863.6	3,570	-200
July 31.....	1,861.4	3,270	-300
Aug. 31.....	1,859.1	2,980	-290
Sept.30.....	1,854.3	2,440	-540
WTR YR 1989.....	-	-	-360

NESTUCCA RIVER BASIN

185

14302900 NESTUCCA RIVER NEAR FAIRDALE, OR

LOCATION.--Lat 45°18'40", long 123°25'05", in SW 1/4 NW 1/4 sec.15, T.3 S., R.6 W., Yamhill County, Hydrologic Unit 17100203, on right bank 100 ft upstream from former Meadow Lake, 0.4 mi downstream from Walker Creek, 5.3 mi southwest of Fairdale, and at mile 49.3.

DRAINAGE AREA.--6.18 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 1,778.99 ft above National Geodetic Vertical Datum of 1929 (levels by city of McMinnville).

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated since March 1969 by McGuire Lake about 1 mi upstream from gage (station 14302800); during winter months lake is empty except when inflow exceeds capacity of outlet tunnel.

AVERAGE DISCHARGE.--29 years (water years 1961-89), 31.6 ft³/s, 69.44 in/yr, 22,890 acre-ft/yr, adjusted for storage and diversion.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 876 ft³/s Dec. 22, 1964, gage height, 10.43 ft; minimum discharge, 0.41 ft³/s Sept. 11, 1986.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 237 ft³/s Jan. 9, gage height, 4.50 ft; minimum discharge, 0.68 ft³/s Oct. 11, Sept. 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.87	3.2	66	95	14	15	e30	8.8	6.4	3.2	2.2	1.2
2	.82	15	60	65	12	13	e31	8.4	5.8	3.1	3.1	.93
3	.82	13	55	58	e11	11	e30	8.1	5.4	2.6	2.0	1.0
4	.83	26	51	59	e10	11	e29	7.8	4.8	2.3	1.7	.99
5	.88	38	51	52	e9.2	35	e28	7.6	4.5	2.2	1.6	.98
6	.87	48	54	43	e8.6	51	e28	7.4	4.3	2.0	1.5	.93
7	.84	39	52	35	e8.2	43	e27	6.8	3.9	1.9	1.4	.94
8	.78	41	50	45	e7.5	32	e26	6.4	2.9	1.8	1.4	.94
9	.75	43	58	143	e7.2	30	e24	6.1	2.7	1.8	1.4	.90
10	.76	68	77	181	e7.1	34	e23	6.1	2.7	1.9	1.3	.84
11	.75	53	76	131	e6.8	e36	e22	6.1	2.5	1.7	1.3	.83
12	.84	53	75	97	e6.4	e46	e21	5.9	2.5	1.7	1.3	.83
13	.89	45	73	77	e5.8	e50	e20	5.8	2.6	1.6	1.3	.86
14	1.0	41	72	54	e5.4	e44	e19	5.4	2.8	1.6	1.3	.87
15	3.2	51	70	69	5.3	e38	e18	5.1	2.7	1.6	1.3	.86
16	2.1	78	68	112	16	e37	e18	5.1	2.5	2.4	2.1	.88
17	1.5	75	66	135	43	e35	e17	7.6	2.5	2.4	1.3	.96
18	1.3	65	64	117	56	e36	17	9.8	2.4	1.8	1.3	.88
19	1.3	60	64	92	47	e33	17	7.9	3.0	1.7	1.3	.90
20	2.2	69	63	72	37	e32	16	6.6	2.8	1.7	1.2	.94
21	3.0	103	63	75	33	e32	13	5.9	2.5	1.7	1.4	2.6
22	3.1	137	68	61	45	e31	14	5.9	2.3	1.5	1.5	6.4
23	3.0	125	64	49	45	e28	14	8.9	2.1	1.5	1.2	8.0
24	3.0	92	59	31	35	e27	13	19	2.0	1.5	1.1	7.9
25	3.0	81	53	18	29	e28	12	14	2.0	1.4	1.1	7.9
26	3.0	82	47	16	23	e26	11	11	2.0	1.5	1.1	8.7
27	2.9	98	38	14	19	e30	10	11	2.0	1.5	1.1	8.4
28	2.9	113	23	12	17	e41	9.6	11	2.2	1.4	1.0	8.0
29	2.9	93	68	11	---	e38	9.1	9.1	3.2	1.5	1.0	8.0
30	3.0	76	177	12	---	e34	8.8	8.1	3.4	1.5	1.1	8.6
31	3.0	---	133	17	---	e32	---	7.1	---	1.5	1.1	---
TOTAL	56.10	1924.2	2058	2048	569.5	1009	575.5	249.8	93.4	57.5	44.0	92.96
MEAN	1.81	64.1	66.4	66.1	20.3	32.5	19.2	8.06	3.11	1.85	1.42	3.10
MAX	3.2	137	177	181	56	51	31	19	6.4	3.2	3.1	8.7
MIN	.75	3.2	23	11	5.3	11	8.8	5.1	2.0	1.4	1.0	.83
AC-FT	111	3820	4080	4060	1130	2000	1140	495	185	114	87	184
MEAN†	1.66	59.3	30.9	69.3	41.4	62.8	26.7	8.05	4.00	2.41	1.85	0.70
CFSM†	0.27	9.60	5.00	11.2	6.70	10.2	4.32	1.30	0.65	0.39	0.30	0.11
IN.†	0.31	10.71	5.77	12.93	6.98	11.72	4.83	1.50	0.72	0.45	0.35	0.13
AC-FT†	102	3530	1900	4260	2300	3860	1590	495	238	148	114	42

CAL YR 1988 TOTAL 10076.13 MEAN 27.5 MAX 423 MIN .57 AC-FT 19990 MEAN† 24.2 CFSM† 3.92 IN.† 53.35 AC-FT† 17580
WTR YR 1989 TOTAL 8777.96 MEAN 24.0 MAX 181 MIN .75 AC-FT 17410 MEAN† 25.7 CFSM† 4.15 IN.† 56.38 AC-FT† 18580

e Estimated

† Adjusted for storage and diversion from McGuire Lake.

NESTUCCA RIVER BASIN

14303200 TUCCA CREEK NEAR BLAINE, OR

LOCATION.--Lat 45°19'28", long 123°32'43", in SE 1/4 NW 1/4 sec.9, T.3 S., R.7 W., Tillamook County, Hydrologic Unit 17100203, on right bank at road bridge, 80 ft upstream from mouth, and 8 mi northeast of Blaine.

DRAINAGE AREA.--3.09 mi².

PERIOD OF RECORD.--July 1983 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,400 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are fair.

AVERAGE DISCHARGE.--6 years, 15.0 ft³/s, 65.92 in/yr, 10,870 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 266 ft³/s Dec. 9, 1987, gage height, 3.66 ft; minimum discharge, 0.46 ft³/s Sept. 30, Oct. 1, 2, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 180 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 9	2230	*168	*3.03				

Minimum discharge, 1.1 ft³/s many days during September, but may have been less during period of missing record Sept. 1-19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	2.9	34	57	15	18	29	4.6	4.0	2.8	e3.4	e1.4
2	1.2	8.2	27	43	e13	16	28	4.5	3.8	2.7	e3.0	e1.3
3	1.3	8.6	21	39	e12	14	27	4.3	3.7	2.6	e2.5	e1.3
4	1.3	7.4	18	39	e11	13	27	4.2	3.5	2.3	e2.1	e1.2
5	1.3	7.5	16	36	e10	25	27	4.2	3.4	2.1	e1.9	e1.2
6	1.3	16	17	32	e9.5	42	25	4.0	3.2	2.0	e1.7	e1.2
7	1.3	12	16	27	9.7	44	23	3.9	3.2	e2.0	e1.6	e1.2
8	1.2	11	15	29	9.1	37	20	3.8	3.1	e1.9	e1.5	e1.1
9	1.2	10	14	88	8.5	32	18	3.7	3.0	e1.9	e1.4	e1.2
10	1.3	21	13	134	8.3	29	16	3.7	2.9	e2.0	e1.4	e1.2
11	1.3	24	12	80	7.9	29	14	3.7	2.8	e1.9	e1.4	e1.1
12	1.3	25	12	55	7.4	35	13	3.5	2.8	e1.8	e1.4	e1.1
13	1.3	22	11	46	6.9	45	12	3.4	2.9	e1.8	e1.3	e1.1
14	2.0	18	9.9	36	6.6	45	11	3.3	2.9	e1.7	e1.4	e1.1
15	5.9	19	9.0	51	6.2	44	9.7	3.2	2.8	e2.5	e1.3	e1.1
16	3.9	28	8.3	91	14	45	8.9	3.2	2.7	e3.5	e1.3	e1.1
17	2.9	34	7.7	104	45	43	8.2	4.0	2.7	e2.8	e1.4	e1.2
18	2.3	30	7.8	89	65	41	7.9	4.6	2.6	e2.5	e1.3	e1.2
19	2.3	27	9.0	71	53	38	7.4	3.9	3.1	e2.2	e1.3	e1.2
20	2.0	33	8.7	54	41	34	7.1	3.5	2.9	e2.0	e1.5	1.1
21	1.9	52	10	44	35	32	6.7	3.3	2.6	e2.0	e2.1	1.1
22	1.9	85	14	36	34	28	6.9	3.2	2.5	e1.9	e2.6	1.1
23	1.7	96	16	31	34	25	6.5	3.9	2.4	e1.7	e1.8	1.1
24	1.7	66	17	26	32	23	6.1	5.9	2.2	e1.7	e1.6	1.1
25	1.6	56	16	23	29	22	5.7	4.6	2.2	e1.6	e1.5	1.1
26	1.6	54	14	20	25	21	5.5	4.4	2.1	e1.7	e1.4	1.2
27	1.5	68	13	18	22	25	5.3	4.7	2.1	e1.8	e1.3	1.2
28	1.5	85	11	16	19	33	5.0	4.6	2.1	e1.7	e1.3	1.2
29	1.5	63	34	14	---	36	4.9	4.3	2.5	e1.8	e1.3	1.2
30	1.5	45	110	14	---	34	4.7	4.2	2.7	e1.8	e1.4	1.3
31	1.5	---	87	17	---	31	---	4.2	---	e2.4	e1.4	---
TOTAL	55.7	1034.6	628.4	1460	589.1	979	396.5	124.5	85.4	65.1	51.8	35.2
MEAN	1.80	34.5	20.3	47.1	21.0	31.6	13.2	4.02	2.85	2.10	1.67	1.17
MAX	5.9	96	110	134	65	45	29	5.9	4.0	3.5	3.4	1.4
MIN	1.2	2.9	7.7	14	6.2	13	4.7	3.2	2.1	1.6	1.3	1.1
AC-FT	110	2050	1250	2900	1170	1940	786	247	169	129	103	70
CFSM	.58	11.2	6.56	15.2	6.81	10.2	4.28	1.30	.92	.68	.54	.38
IN.	.67	12.46	7.57	17.58	7.09	11.79	4.77	1.50	1.03	.78	.62	.42

CAL YR 1988 TOTAL 5323.8 MEAN 14.5 MAX 159 MIN 1.2 AC-FT 10560 CFSM 4.71 IN. 64.09
WTR YR 1989 TOTAL 5505.3 MEAN 15.1 MAX 134 MIN 1.1 AC-FT 10920 CFSM 4.88 IN. 66.28

e Estimated

NESTUCCA RIVER BASIN

187

14303600 NESTUCCA RIVER NEAR BEAVER, OR

LOCATION.--Lat 45°16'00", long 123°50'45", in SE 1/4 NE 1/4 sec.36, T.3 S., R.10 W., Tillamook County, Hydrologic Unit 17100203, on right bank 150 ft upstream from Saling Creek, 1.2 mi southwest of Beaver, and at mile 13.5.

DRAINAGE AREA.--180 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 43 ft, from river-profile map.

REMARKS.--Records good. No regulation. Small diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--25 years, 1,048 ft³/s, 79.07 in/yr, 759,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,400 ft³/s Jan. 11, 1972, gage height, 22.0 ft, from floodmark; minimum discharge, 32 ft³/s Sept. 14, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 20, 1962, reached a stage of 23.4 ft, discharge, 32,500 ft³/s caused by failure of Meadow Lake Dam.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 8,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 10	0030	*8,310	*10.79	No other peak greater than base discharge.			
Minimum discharge, 51 ft ³ /s Sept. 22, 23, but may have been lower during period of estimated daily discharges, Oct. 1 to Nov. 4.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e77	e115	1970	2800	1040	1200	1620	311	253	202	126	82
2	e73	e700	1600	2370	946	1190	1700	298	235	207	219	85
3	e73	e1400	1330	2110	865	1040	1690	289	222	181	157	78
4	e73	e920	1130	2010	786	988	1630	278	211	153	129	75
5	e75	606	1020	1880	756	1950	1580	269	199	137	117	73
6	e68	1320	1150	1690	706	3020	1430	263	195	129	109	72
7	e66	919	1210	1510	664	2510	1290	257	187	122	101	70
8	e65	808	1050	1680	625	2110	1170	242	182	119	96	69
9	e64	689	960	4260	597	1870	1050	237	172	118	94	65
10	e63	1710	911	6840	586	1810	953	238	168	117	91	61
11	e61	1620	838	4470	583	1890	873	244	165	114	88	60
12	e60	1530	775	3300	561	2670	802	228	163	108	85	59
13	e59	1280	756	2970	540	3040	737	221	163	105	84	58
14	e72	1060	685	2610	514	2840	684	214	169	104	83	56
15	e250	1260	628	3950	489	2650	636	206	163	103	82	56
16	e240	1980	589	5070	1000	2610	593	200	152	175	80	57
17	e200	2320	558	4870	3240	2490	556	242	146	213	79	58
18	e170	1950	546	3980	3610	2590	526	343	145	157	80	57
19	e140	1640	746	3210	3040	2340	497	274	174	132	78	56
20	e125	1860	749	2670	2510	2080	489	230	207	122	80	57
21	e110	2800	1120	2420	2130	2030	460	213	163	117	94	56
22	e108	3930	1440	2160	2200	1790	460	207	142	112	148	54
23	e100	4270	1650	1860	2150	1590	445	235	134	106	132	53
24	e95	3760	1690	1630	1950	1480	419	468	126	104	106	59
25	e89	4060	1510	1420	1800	1470	391	380	123	100	95	60
26	e82	3490	1310	1270	1570	1420	374	316	122	99	91	63
27	e78	3450	1150	1180	1400	1660	358	399	120	103	87	71
28	e76	3680	1010	1060	1260	2210	343	358	122	98	84	67
29	e77	3000	1610	965	---	2160	330	327	136	94	81	63
30	e82	2430	3670	923	---	1930	318	297	202	95	82	75
31	e80	---	3510	1140	---	1740	---	271	---	94	82	---
TOTAL	3051	60557	38871	80278	38118	62368	24404	8555	5061	3940	3140	1925
MEAN	98.4	2019	1254	2590	1361	2012	813	276	169	127	101	64.2
MAX	250	4270	3670	6840	3610	3040	1700	468	253	213	219	85
MIN	59	115	546	923	489	988	318	200	120	94	78	53
AC-FT	6050	120100	77100	159200	75610	123700	48410	16970	10040	7810	6230	3820
CFSM	.55	11.2	6.97	14.4	7.56	11.2	4.52	1.53	.94	.71	.56	.36
IN.	.63	12.52	8.03	16.59	7.88	12.89	5.04	1.77	1.05	.81	.65	.40

CAL YR 1988	TOTAL 307126	MEAN 839	MAX 8240	MIN 56	AC-FT 609200	CFSM 4.66	IN. 63.47
WTR YR 1989	TOTAL 330268	MEAN 905	MAX 6840	MIN 53	AC-FT 655100	CFSM 5.03	IN. 68.26

e Estimated

SILETZ RIVER BASIN

14304350 SUNSHINE CREEK NEAR VALSETZ, OR

LOCATION.--Lat 44°48'34", long 123°44'34", in NW 1/4 NW 1/4 sec.12, T.9 S., R.9 W., Lincoln County, Hydrologic Unit 17100204, on right bank about 50 ft upstream from Deer Creek, and about 5 mi southwest of Valsetz.

DRAINAGE AREA.--6.7 mi².

PERIOD OF RECORD.--October 1972 to current year. Prior to October 1985, in reports of Oregon Water Resources Department.

GAGE.--Water-stage recorder. Elevation of gage is 600 ft, from topographic map.

REMARKS.--Records good Mar. 2 to Aug. 2; fair Jan. 1 to Mar. 1, Aug. 3 to Sept. 30; poor Oct. 1 to Dec. 31.

AVERAGE DISCHARGE.--17 years, 54.1 ft³/s, 109.65 in/yr, 39,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,760 ft³/s Nov. 25, 1977, gage height, 4.32 ft; minimum daily discharge, 0.45 ft³/s Oct. 26, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 560 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 9	1800	*1,160	*3.78	Feb. 17	0800	583	2.96
Jan. 15	1900	645	3.07				

Minimum daily discharge, 3.0 ft³/s Oct. 10, 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e3.8	e14	e140	143	31	44	100	12	16	10	20	e5.4
2	e3.6	e25	e90	110	29	45	113	12	15	10	35	e5.3
3	e3.5	e40	e70	92	e26	38	105	11	14	9.1	18	e5.2
4	e3.4	e40	e65	86	25	37	105	11	13	8.0	14	e5.2
5	e3.4	e50	e65	77	24	195	103	10	12	7.7	12	e5.1
6	e3.4	e80	e65	71	23	322	86	10	11	7.0	11	e5.0
7	e3.3	e100	e60	63	22	221	70	9.6	11	6.5	e10	e4.8
8	e3.2	e75	e50	132	21	135	58	9.2	10	6.5	e9.4	e4.6
9	e3.1	e65	e40	632	20	98	48	9.2	10	6.5	e9.0	e4.5
10	e3.0	e100	e35	635	e18	90	41	9.1	9.4	6.4	e8.2	e4.4
11	e3.0	e80	e34	271	e18	99	35	8.9	9.0	6.1	e7.6	e4.3
12	e3.3	e70	e33	156	e17	164	32	8.7	8.9	5.9	e7.2	e4.3
13	e4.0	e60	e30	158	e17	244	29	8.4	8.9	5.7	e6.6	e4.2
14	e10	e70	e29	157	19	208	26	8.0	9.8	5.6	e6.2	e4.2
15	e48	e100	e27	494	18	194	24	7.7	8.9	5.4	e6.0	4.1
16	e25	e180	26	547	167	207	22	7.6	8.1	13	e5.8	4.1
17	e23	e200	24	387	534	212	21	11	7.8	17	e5.6	4.5
18	e20	e120	24	247	368	198	20	16	7.8	12	e5.6	4.6
19	e18	e100	37	161	228	142	19	12	13	9.5	e5.6	4.5
20	e16	e150	44	115	159	104	19	10	12	8.4	e5.6	4.2
21	e16	e290	81	94	117	108	17	9.0	9.3	7.5	e8.4	4.0
22	e15	e270	115	76	123	88	19	8.8	8.1	7.1	e13	3.8
23	e14	e250	125	63	116	74	18	11	7.4	6.9	e11	3.6
24	e12	e350	116	54	93	72	16	38	6.8	6.5	e10	3.6
25	e11	e450	91	47	75	98	16	27	6.5	6.5	e9.0	3.7
26	e10	e300	73	42	61	105	15	22	6.6	6.5	e7.5	3.7
27	e10	e330	61	38	51	157	14	27	6.1	7.0	e6.6	3.8
28	e10	e300	52	34	44	257	13	27	6.3	7.4	e6.0	3.4
29	e10	e250	153	31	---	190	13	23	8.3	8.0	e5.5	3.2
30	e10	e170	318	30	---	135	12	20	12	8.2	e5.5	7.3
31	e10	---	235	36	---	104	---	18	---	8.9	e5.5	---
TOTAL	332.0	4679	2408	5279	2464	4385	1229	432.2	293.0	246.8	296.4	132.6
MEAN	10.7	156	77.7	170	88.0	141	41.0	13.9	9.77	7.96	9.56	4.42
MAX	48	450	318	635	534	322	113	38	16	17	35	7.3
MIN	3.0	14	24	30	17	37	12	7.6	6.1	5.4	5.5	3.2
AC-FT	659	9280	4780	10470	4890	8700	2440	857	581	490	588	263
CFSM	1.60	23.3	11.6	25.4	13.1	21.1	6.11	2.08	1.46	1.19	1.43	.66
IN.	1.84	25.98	13.37	29.31	13.68	24.35	6.82	2.40	1.63	1.37	1.65	.74

CAL YR 1988 TOTAL 18379.7 MEAN 50.2 MAX 708 MIN 1.9 AC-FT 36460 CFSM 7.50 IN. 102.05
WTR YR 1989 TOTAL 22177.0 MEAN 60.8 MAX 635 MIN 3.0 AC-FT 43990 CFSM 9.07 IN. 123.13

e Estimated

SILETZ RIVER BASIN

189

14304850 BIG ROCK CREEK NEAR VALSETZ, OR

LOCATION.--Lat 44°46'41", long 123°41'34", in SE 1/4 NW 1/4 sec.20, T.9 S., R.8 W., Polk County, Hydrologic Unit 17100204, on left bank about 0.2 mi downstream from access cable, and 4.7 mi southwest of Valsetz.

DRAINAGE AREA.--6.9 mi².

PERIOD OF RECORD.--October 1972 to September 1989 (discontinued). Prior to October 1985, in reports of Oregon Water Resource Department.

GAGE.--Water-stage recorder. Elevation of gage is 710 ft, from topographic map.

REMARKS.--Records poor. Water temperatures published February 1979 to September 1985.

AVERAGE DISCHARGE.--16 years (water years 1974-89), 45.1 ft³/s, 88.76 in/yr, 32,670 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,520 ft³/s Dec. 21, 1972, gage height, 5.55 ft; minimum daily discharge, 0.34 ft³/s Oct. 25-29, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 25	unknown	507	3.64	Jan. 9	unknown	*815	*4.25

Minimum daily discharge, 1.8 ft³/s Oct. 10-12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e2.3	e6.0	e90	e130	e39	e48	e94	12	12	e8.2	e6.8	e3.9
2	e2.2	e12	e64	e110	e35	e46	e92	11	11	e8.0	e15	e3.8
3	e2.1	e40	e45	e95	e32	e43	e90	11	10	e7.8	e11	e3.7
4	e2.0	e36	e41	e85	e30	e41	e88	11	9.4	e7.0	e8.2	e3.6
5	e2.0	e45	e44	e75	e29	e130	e76	9.8	9.2	e6.6	e7.2	e3.6
6	e2.0	e80	e46	e68	e27	e180	e72	9.2	9.2	e6.0	e6.4	e3.4
7	e2.0	e62	e44	e58	e26	e130	e62	9.0	8.9	e5.6	e5.8	e3.3
8	e2.0	e50	e40	e50	e25	e100	e54	8.5	8.2	e5.6	e5.4	e3.2
9	e1.9	e60	e37	e170	e24	e90	e48	8.2	8.0	e5.6	e5.0	e3.1
10	e1.8	e80	e32	e375	e24	e80	e45	8.1	7.6	e5.6	e4.8	e3.0
11	e1.8	e70	e29	e200	e23	e90	e39	7.9	7.4	e5.3	e4.6	e2.9
12	e1.8	e60	e26	e150	e23	e110	33	7.9	7.5	e5.0	e4.4	e2.8
13	e2.0	e54	e24	e130	e22	e140	30	7.5	7.7	e4.8	e4.3	e2.7
14	e3.5	e48	e22	e120	e22	e130	28	6.7	e8.5	e4.6	e4.2	e2.7
15	e15	e70	e20	e210	e22	e130	26	6.4	e8.0	e5.2	e4.2	e2.7
16	e9.0	e130	e19	e270	e100	e130	24	6.3	e7.8	e7.0	e4.1	e2.7
17	e5.5	e140	e18	e230	e280	e120	22	9.0	e7.4	e11	e4.0	e2.6
18	e4.4	e90	e22	e190	e200	e110	20	13	e7.2	e9.2	e3.9	e2.6
19	e4.7	e80	e30	e140	e150	e100	19	9.0	e8.0	e7.8	e3.9	e2.6
20	e4.3	e90	e40	e110	e120	e98	19	7.6	e10	e6.4	e3.9	e2.6
21	e3.8	e140	e55	e90	e110	e90	18	6.8	e9.2	e5.6	e4.1	e2.6
22	e3.8	e210	e70	e75	e110	e78	19	6.7	e7.8	e5.4	e7.0	e2.5
23	e3.5	e200	e100	e65	e100	e70	18	9.3	e7.0	e5.2	e8.2	e2.5
24	e3.3	e220	e90	e58	e90	e68	17	28	e6.6	e5.0	e6.6	e2.5
25	e3.3	e320	e65	e52	e76	e78	16	18	e6.2	e4.7	e5.3	e2.5
26	e3.2	e250	e50	e46	e64	e80	15	15	e6.0	e4.6	e4.9	e2.5
27	e3.2	e210	e43	e42	e54	e120	14	18	e5.8	e4.5	e4.5	e2.6
28	e3.1	e270	e50	e38	e50	e150	13	17	e6.2	e4.4	e4.3	e2.7
29	e3.0	e210	e100	e37	---	e130	13	15	e7.0	e4.3	e4.1	e3.1
30	e3.0	e120	e240	e35	---	e110	12	14	e8.4	e4.2	e4.0	e3.8
31	e3.0	---	e190	e40	---	e98	---	13	---	e4.2	e3.9	---
TOTAL	108.5	3453.0	1786	3544	1907	3118	1136	339.9	243.2	184.4	174.0	88.8
MEAN	3.50	115	57.6	114	68.1	101	37.9	11.0	8.11	5.95	5.61	2.96
MAX	15	320	240	375	280	180	94	28	12	11	15	3.9
MIN	1.8	6.0	18	35	22	41	12	6.3	5.8	4.2	3.9	2.5
AC-FT	215	6850	3540	7030	3780	6180	2250	674	482	366	345	176
CFSM	.51	16.7	8.35	16.6	9.87	14.6	5.49	1.59	1.17	.86	.81	.43
IN.	.58	18.62	9.63	19.11	10.28	16.81	6.12	1.83	1.31	.99	.94	.48

CAL YR 1988 TOTAL 15691.3 MEAN 42.9 MAX 649 MIN 1.6 AC-FT 31120 CFSM 6.21 IN. 84.60
WTR YR 1989 TOTAL 16082.8 MEAN 44.1 MAX 375 MIN 1.8 AC-FT 31900 CFSM 6.39 IN. 86.71

e Estimated

SILETZ RIVER BASIN

14305500 SILETZ RIVER AT SILETZ, OR

LOCATION.--Lat 44°42'55", long 123°53'10", in NW 1/4 SW 1/4 sec.11, T.10 S., R.10 W., Lincoln County, Hydrologic Unit 17100204, on right bank, 1.8 mi downstream from Baker Creek, 1.5 mi east of Siletz, and at mile 42.6.

DRAINAGE AREA.--202 mi².

PERIOD OF RECORD.--October 1905 to November 1911, January to May 1912, January to June 1924, November 1924 to current year. Prior to December 1905 monthly discharge only, published in WSP 1318.

REVISED RECORDS.--WSP 1935: 1943, 1947-49(M), 1953-58(M).

GAGE.--Water-stage recorder. Datum of gage is 102.32 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1905, to Sept 30, 1938, nonrecording gage at various sites within 2.5 mi downstream at different datums.

REMARKS.--Records good. Slight regulation from logponds. Small diversions upstream from station for irrigation.

AVERAGE DISCHARGE.--70 years (water years 1906-11, 1926-89), 1,540 ft³/s, 103.53 in/yr, 1,116,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD (1905-12, 1924-38).--Maximum discharge, 34,600 ft³/s Nov. 22, 1909, gage height, 24.6 ft, site and datum then in use; minimum observed discharge, 51 ft³/s Dec. 6, 7, 1929.

EXTREMES FOR PERIOD OF RECORD (1938-89).--Maximum discharge, 32,200 ft³/s Jan. 28, 1965, gage height, 27.32 ft, present site and datum; minimum discharge, 47 ft³/s Oct. 20, 21, 29, 1987.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 20, 1921, reached a stage of 31.6 ft, at site 2.5 mi downstream at different datum, from floodmark, discharge, 40,800 ft³/s, from rating curve extended above 17,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 14,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 9	2230	*15,400	*15.77	No other peak greater than base discharge.			
Minimum discharge, 72 ft ³ /s Sept. 23-26.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	118	138	2450	3910	1150	1350	2540	416	418	e258	e170	114
2	107	669	1950	3100	1060	1390	2790	392	382	e261	e425	114
3	103	1530	1590	2770	945	1200	2710	378	352	e240	e268	111
4	100	1290	1360	2640	870	1150	2600	376	326	e210	e217	107
5	100	1210	1320	2380	873	3260	2630	357	299	e190	e187	103
6	100	2650	1610	2110	793	6380	2260	345	289	e181	e172	100
7	97	1510	1650	1880	739	4850	1950	336	276	e170	e161	96
8	94	1400	1430	2220	703	3420	1690	320	267	e164	e153	94
9	91	1430	1270	7850	675	2800	1480	310	257	e164	e145	91
10	89	2350	1150	10800	664	2990	1310	309	e244	e164	e143	88
11	87	2000	1030	5980	682	3200	1180	309	e237	e156	e135	85
12	87	1980	942	4010	673	4170	1080	299	e233	e148	e130	81
13	87	1690	912	3620	661	5110	986	290	e233	e145	e126	79
14	138	1340	828	3300	642	4510	908	279	e247	e140	e123	79
15	422	1760	770	5920	618	4330	845	269	e237	e138	e119	77
16	384	3830	719	7910	1510	4480	783	261	e213	e203	e117	78
17	282	3940	678	7290	6170	4520	731	289	e203	e333	115	79
18	227	2740	652	5400	6040	4620	689	435	e203	e227	115	79
19	219	2190	877	4080	4570	3700	656	387	e268	e190	112	79
20	211	2280	899	3150	3520	2950	636	318	e309	e170	110	79
21	186	3940	1410	2680	2860	2950	603	289	e244	e158	117	79
22	179	6260	2100	2290	3230	2610	608	280	e210	e150	244	75
23	161	6420	2430	1920	3260	2240	603	315	e194	e145	239	72
24	148	5270	2510	1680	2670	2120	564	819	e178	e140	171	72
25	139	7790	2140	1480	2250	2560	525	714	e170	e133	149	72
26	132	5330	1750	1330	1870	2610	500	580	e167	e133	137	73
27	123	5910	1520	1230	1620	3160	476	646	e161	e135	131	77
28	117	7300	1350	1110	1430	4490	454	640	e167	e130	124	79
29	114	4730	2330	1030	---	3880	433	565	e203	e126	118	77
30	112	3260	6860	976	---	3170	417	508	e272	e123	117	108
31	114	---	5740	1190	---	2720	---	459	---	e123	117	---
TOTAL	4668	94137	54227	107236	52748	102890	35637	12490	7459	5348	4907	2597
MEAN	151	3138	1749	3459	1884	3319	1188	403	249	173	158	86.6
MAX	422	7790	6860	10800	6170	6380	2790	819	418	333	425	114
MIN	87	138	652	976	618	1150	417	261	161	123	110	72
AC-FT	9260	186700	107600	212700	104600	204100	70690	24770	14790	10610	9730	5150
CFSM	.75	15.5	8.66	17.1	9.33	16.4	5.88	1.99	1.23	.85	.78	.43
IN.	.86	17.34	9.99	19.75	9.71	18.95	6.56	2.30	1.37	.98	.90	.48

CAL YR 1988 TOTAL 458555 MEAN 1253 MAX 13500 MIN 63 AC-FT 909500 CFSM 6.20 IN. 84.45
WTR YR 1989 TOTAL 484344 MEAN 1327 MAX 10800 MIN 72 AC-FT 960700 CFSM 6.57 IN. 89.20

e Estimated

YAQUINA RIVER BASIN

191

14306030 YAQUINA RIVER NEAR CHITWOOD, OR

LOCATION.--Lat 44°39'29", long 123°50'15", in NE 1/4 SW 1/4 sec.31, T.10 S., R.9 W., Lincoln County, Hydrologic Unit 17100204, on left bank 200 ft below Thornton Creek and 1.1 mi west of Chitwood, and at mile 29.3.

DRAINAGE AREA.--71.0 mi².

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 28.43 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good except those below 5.0 ft³/s, which are poor. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--17 years, 251 ft³/s, 48.01 in/yr, 181,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,150 ft³/s Nov. 16, 1973, gage height, 14.43 ft; minimum discharge, 2.8 ft³/s Sept. 27, 1974.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 10	0700	*3,690	*10.93	No other peak greater than base discharge.			
Minimum discharge, 4.2 ft ³ /s Sept. 24, 25.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.8	10	438	934	203	270	454	70	45	30	30	14
2	7.0	20	334	700	194	307	453	65	42	29	58	13
3	6.7	64	269	553	178	289	526	64	39	26	35	13
4	6.7	59	221	473	160	282	511	65	37	23	26	11
5	7.8	49	199	435	174	438	454	60	35	21	22	11
6	8.0	108	197	415	163	881	399	57	36	20	19	10
7	7.9	64	203	416	154	747	351	55	35	20	17	9.3
8	7.9	65	186	452	139	597	314	53	34	19	16	9.0
9	7.9	89	170	1270	126	507	282	51	32	19	16	8.9
10	7.7	88	155	3120	123	485	255	51	31	19	15	8.1
11	7.3	87	139	1570	126	555	226	50	31	18	15	7.3
12	8.2	81	128	1000	132	739	204	47	31	18	14	6.9
13	8.2	81	124	851	140	1100	185	46	32	19	13	6.6
14	10	67	113	859	143	1200	168	44	33	18	12	6.0
15	16	86	106	1200	142	1100	154	43	33	17	12	5.8
16	20	172	100	1420	253	1090	142	41	30	22	11	6.2
17	14	252	94	1130	1020	1180	132	46	28	30	12	5.9
18	11	204	90	879	908	1120	124	61	27	26	12	5.7
19	11	150	110	696	788	879	117	53	29	21	12	6.7
20	10	144	115	547	664	686	114	44	33	18	11	6.7
21	10	271	299	476	542	603	108	41	29	17	11	6.4
22	10	547	536	425	515	532	106	40	26	17	41	6.1
23	10	836	685	378	522	481	101	46	25	16	46	5.5
24	9.8	937	785	343	481	438	109	86	24	14	26	4.7
25	8.7	1950	691	307	419	429	95	76	23	14	20	4.4
26	8.6	1060	512	277	359	425	87	61	23	14	18	5.0
27	8.6	915	404	252	315	450	82	66	22	15	16	5.9
28	7.9	1360	333	223	284	605	77	69	23	15	15	6.9
29	7.9	895	390	200	---	654	73	62	28	14	14	6.3
30	7.9	609	961	184	---	580	70	55	35	14	15	11
31	7.9	---	1300	199	---	513	---	49	---	15	15	---
TOTAL	288.4	11320	10387	22184	9367	20162	6473	1717	931	598	615	233.3
MEAN	9.30	377	335	716	335	650	216	55.4	31.0	19.3	19.8	7.78
MAX	20	1950	1300	3120	1020	1200	526	86	45	30	58	14
MIN	6.7	10	90	184	123	270	70	40	22	14	11	4.4
AC-FT	572	22450	20600	44000	18580	39990	12840	3410	1850	1190	1220	463
CFSM	.13	5.31	4.72	10.1	4.71	9.16	3.04	.78	.44	.27	.28	.11
IN.	.15	5.93	5.44	11.62	4.91	10.56	3.39	.90	.49	.31	.32	.12

CAL YR 1988	TOTAL 81177.5	MEAN 222	MAX 3000	MIN 4.4	AC-FT 161000	CFSM 3.12	IN. 42.53
WTR YR 1989	TOTAL 84275.7	MEAN 231	MAX 3120	MIN 4.4	AC-FT 167200	CFSM 3.25	IN. 44.16

ALSEA RIVER BASIN

14306100 NORTH FORK ALSEA RIVER AT ALSEA, OR

LOCATION.--Lat 44°22'45", long 123°35'40", in SE 1/4 sec.1, T.14 S., R.8 W., Benton County, Hydrologic Unit 17100205, on left bank at Alsea, 0.2 mi upstream from bridge on Lobster Valley Road, 0.7 mi upstream from confluence with South Fork, and at mile 49.4.

DRAINAGE AREA.--63.0 mi².

PERIOD OF RECORD.--October 1957 to September 1989 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 272.31 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. No regulation. Some diversions by pumping upstream from station.

AVERAGE DISCHARGE.--32 years, 275 ft³/s, 59.28 in/yr, 199,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,100 ft³/s Dec. 22, 1964, gage height, 14.57 ft, from rating curve extended above 2,900 ft³/s on basis of slope-area measurement at gage height 11.80 ft; minimum discharge, 8.3 ft³/s June 8, Sept. 19, 1979.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 9	2200	*3,570	*7.01	No other peak greater than base discharge.			
Minimum discharge, 10 ft ³ /s Sept. 25.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	24	438	759	235	279	440	100	62	41	49	21
2	21	65	344	587	227	288	501	95	59	37	68	21
3	21	123	279	509	212	256	508	95	55	33	43	20
4	22	123	239	468	206	254	485	95	53	34	34	19
5	23	86	215	445	197	697	442	88	51	31	30	19
6	23	159	219	399	169	1060	389	84	50	29	27	18
7	22	90	193	358	162	787	343	81	49	28	25	17
8	22	82	174	396	156	607	302	78	48	28	24	17
9	21	92	162	1550	151	555	275	77	47	28	24	17
10	21	200	150	2280	154	674	252	76	45	29	24	16
11	22	160	138	1220	157	787	232	74	45	28	23	16
12	22	126	129	868	164	997	219	72	44	27	22	15
13	22	113	126	745	168	1260	207	70	45	26	22	15
14	26	85	114	679	166	1160	194	68	49	26	21	15
15	25	151	107	1020	163	1060	182	66	48	26	20	15
16	24	371	103	1270	463	1070	172	64	43	33	20	15
17	22	451	98	1190	1130	1040	163	68	41	36	20	15
18	21	301	95	919	972	1130	155	80	40	31	20	15
19	21	208	120	720	845	875	148	69	46	28	20	15
20	21	216	131	595	660	683	141	64	47	26	20	15
21	21	672	305	563	547	581	136	61	40	25	21	14
22	21	1150	560	518	582	485	134	61	37	25	38	14
23	21	1110	594	450	590	419	133	82	36	24	39	14
24	20	889	609	395	503	387	146	132	33	23	28	14
25	20	1400	485	348	426	428	128	100	32	22	25	14
26	19	980	375	311	364	425	119	84	32	23	23	16
27	19	1070	318	284	321	476	112	82	31	25	22	17
28	19	1390	274	260	288	595	107	81	33	23	21	16
29	19	839	390	241	---	563	104	74	41	23	21	15
30	19	579	1230	231	---	502	102	70	54	25	23	22
31	19	---	1150	238	---	453	---	66	---	25	23	---
TOTAL	661	13305	9864	20816	10378	20833	6971	2457	1336	868	840	492
MEAN	21.3	443	318	671	371	672	232	79.3	44.5	28.0	27.1	16.4
MAX	26	1400	1230	2280	1130	1260	508	132	62	41	68	22
MIN	19	24	95	231	151	254	102	61	31	22	20	14
AC-FT	1310	26390	19570	41290	20580	41320	13830	4870	2650	1720	1670	976
CFSM	.34	7.04	5.05	10.7	5.88	10.7	3.69	1.26	.71	.44	.43	.26
IN.	.39	7.86	5.82	12.29	6.13	12.30	4.12	1.45	.79	.51	.50	.29

CAL YR 1988 TOTAL 80097 MEAN 219 MAX 2880 MIN 18 AC-FT 158900 CFSM 3.47 IN. 47.30
WTR YR 1989 TOTAL 88821 MEAN 243 MAX 2280 MIN 14 AC-FT 176200 CFSM 3.86 IN. 52.45

ALSEA RIVER BASIN

193

14306340 EAST FORK LOBSTER CREEK NEAR ALSEA, OR

LOCATION.--Lat 44°14'53", long 123°38'07", in NE 1/4 SE 1/4 sec.22, T.15 S., R.8 W., Benton County, Hydrologic Unit 17100205, on left bank 500 ft upstream from mouth, and 9 mi south of Alsea.

DRAINAGE AREA.--5.70 mi².

PERIOD OF RECORD.--July 1983 to current year.

REVISED RECORDS.--WDR OR-87-2: 1984(M,P), 1985(M,P), 1986(M,P).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 680 ft, from topographic map.

REMARKS.--Records good above 2 ft³/s, fair below. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--6 years, 23.1 ft³/s, 55.04 in/yr, 16,740 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 652 ft³/s Nov. 2, 1984, gage height, 3.81 ft, from rating curve extended above 260 ft³/s; maximum gage height, 3.86 ft, Dec. 9, 1987, from crest-stage gage; minimum discharge, 0.17 ft³/s Sept. 27, 28, Oct. 2, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 9	2230	*430	*3.45	No other peak greater than base discharge.			
Minimum discharge, 0.70 ft ³ /s Sept. 14-17.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	1.4	37	53	19	20	43	7.9	e6.8	3.3	4.1	1.3
2	.90	9.9	30	43	19	20	49	7.4	e6.3	2.8	5.1	1.3
3	.90	40	25	41	19	18	48	7.4	e5.8	2.4	3.1	1.2
4	.90	33	21	39	16	18	43	7.2	e5.2	2.2	2.3	1.1
5	.90	22	18	39	15	94	39	6.3	e4.7	2.0	2.0	1.0
6	.90	41	17	37	15	116	33	5.7	e4.5	1.9	1.7	1.0
7	.90	20	16	34	15	79	29	5.4	e4.3	1.8	1.5	1.0
8	.90	16	15	39	14	56	26	5.0	3.9	1.7	1.4	1.0
9	.90	19	14	171	14	51	23	4.8	3.9	1.7	1.3	.99
10	.90	51	13	233	15	52	21	4.8	3.8	1.7	1.3	.90
11	.90	33	12	108	16	59	19	4.8	3.6	1.7	1.2	.90
12	.90	25	11	65	19	92	17	4.8	3.4	1.5	1.1	.80
13	.91	23	11	57	20	119	15	4.6	3.4	1.5	1.1	.80
14	1.1	17	10	52	20	97	14	4.4	3.7	1.5	1.1	.73
15	1.3	32	9.4	102	19	95	13	4.1	3.7	1.5	1.0	.70
16	1.3	52	8.6	115	34	98	12	3.9	3.3	2.3	1.0	.70
17	1.3	65	8.5	111	66	97	12	4.4	3.0	3.2	1.0	.75
18	1.1	43	8.1	83	54	111	11	6.4	2.9	2.3	1.0	.85
19	1.1	34	8.4	61	52	68	10	5.1	3.0	1.8	1.0	.90
20	1.1	47	11	50	42	50	10	4.4	3.1	1.5	1.0	.96
21	1.1	138	29	49	36	43	9.3	4.1	3.0	1.5	1.1	1.0
22	1.1	163	54	49	41	38	9.0	3.9	2.6	1.4	2.9	1.0
23	1.1	124	47	41	44	34	9.8	8.8	2.4	1.3	3.0	.91
24	1.1	98	50	36	38	32	13	17	2.2	1.4	2.0	.92
25	1.0	118	36	31	33	56	11	12	2.0	1.3	1.6	1.0
26	1.0	86	27	27	27	54	10	9.9	2.0	1.3	1.5	1.1
27	1.0	104	23	24	23	54	9.4	11	2.0	1.5	1.3	1.1
28	1.0	122	19	22	21	62	8.8	11	2.1	1.4	1.2	1.1
29	1.0	70	27	21	---	54	8.2	e9.6	3.2	1.3	1.2	1.1
30	1.0	48	126	20	---	46	8.0	e8.4	4.5	1.3	1.3	1.8
31	1.0	---	92	19	---	42	---	e7.5	---	2.4	1.4	---
TOTAL	31.51	1695.3	834.0	1872	766	1925	583.5	212.0	108.3	56.4	52.8	29.91
MEAN	1.02	56.5	26.9	60.4	27.4	62.1	19.4	6.84	3.61	1.82	1.70	1.00
MAX	1.3	163	126	233	66	119	49	17	6.8	3.3	5.1	1.8
MIN	.90	1.4	8.1	19	14	18	8.0	3.9	2.0	1.3	1.0	.70
AC-FT	63	3360	1650	3710	1520	3820	1160	421	215	112	105	59
CFSM	.18	9.91	4.72	10.6	4.80	10.9	3.41	1.20	.63	.32	.30	.17
IN.	.21	11.06	5.44	12.22	5.00	12.56	3.81	1.38	.71	.37	.34	.20

CAL YR 1988 TOTAL 7462.04 MEAN 20.4 MAX 285 MIN .62 AC-FT 14800 CFSM 3.58 IN. 48.70
WTR YR 1989 TOTAL 8166.72 MEAN 22.4 MAX 233 MIN .70 AC-FT 16200 CFSM 3.93 IN. 53.30

e Estimated

ALSEA RIVER BASIN

14306400 FIVE RIVERS NEAR FISHER, OR

LOCATION.--Lat 44°20'15", long 123°49'35", W-1/2 sec.19, T.14 S., R.9 W., Lincoln County, Hydrologic Unit 17100205, in Siuslaw National Forest, on left bank at downstream side of abandoned highway bridge, 500 ft downstream from Lobster Creek, 3.2 mi north of Fisher, and at mile 3.3.

DRAINAGE AREA.--114 mi².

PERIOD OF RECORD.--August 1958 to September 1963, October 1967 to current year.

REVISED RECORDS.--WSP 1718: 1959.

GAGE.--Water-stage recorder. Elevation of gage is 130 ft from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--27 years, 541 ft³/s, 64.45 in/yr, 392,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,200 ft³/s Jan. 21, 1972, gage height, 21.08 ft; minimum discharge, 16 ft³/s Oct. 1, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 22, 1964, reached a stage of 22.3 ft, from floodmarks, discharge, 19,000 ft³/s from rating curve extended above 10,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 10	0200	*5,020	*11.63	No other peak greater than base discharge.			
Minimum discharge, 24 ft ³ /s Sept. 13-19, 23-26.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	36	893	1370	446	537	920	183	130	79	57	34
2	30	130	730	1080	422	605	1050	171	120	70	91	33
3	30	398	611	888	395	549	1010	172	111	64	62	32
4	30	491	524	787	359	547	911	177	106	59	51	30
5	31	303	467	755	371	1460	810	160	99	57	45	30
6	32	548	455	735	e325	2430	721	151	97	54	42	30
7	31	284	414	723	308	1620	649	146	94	52	39	29
8	31	212	372	747	297	1270	589	138	91	51	37	29
9	31	214	343	1850	290	1190	540	136	89	51	36	28
10	29	557	323	3950	301	1430	495	138	86	52	36	27
11	30	481	300	2310	309	1710	456	135	84	50	34	27
12	30	370	282	1630	332	2010	426	129	83	47	33	26
13	30	323	275	1460	348	2550	396	124	85	48	33	25
14	37	258	253	1450	349	2280	368	119	92	47	31	24
15	42	379	239	2560	341	2000	343	114	89	46	30	24
16	38	699	228	2360	541	1860	323	111	80	56	30	24
17	35	1070	217	2000	1400	1990	304	122	76	66	30	24
18	33	792	209	1620	1160	2350	288	163	74	57	29	24
19	32	561	243	1310	1080	1750	274	137	81	50	29	25
20	32	578	310	1080	922	1370	266	118	85	46	29	26
21	32	1410	749	1020	792	1150	251	110	75	44	31	26
22	35	2570	1290	944	869	971	256	108	69	43	65	26
23	33	2530	1310	839	926	841	260	153	67	41	69	25
24	32	2300	1390	744	843	802	299	298	63	41	47	24
25	31	2890	1120	662	752	1020	250	232	60	39	40	24
26	31	1880	871	600	666	1040	230	184	60	40	36	25
27	30	1770	742	549	601	1070	213	192	59	42	36	27
28	30	2280	659	499	554	1230	202	189	62	39	33	29
29	32	1520	688	461	---	1160	192	170	77	38	33	27
30	32	1130	1800	431	---	1000	185	154	107	39	38	31
31	32	---	1920	439	---	903	---	140	---	39	37	---
TOTAL	996	28964	20227	37853	16299	42695	13477	4774	2551	1547	1269	815
MEAN	32.1	965	652	1221	582	1377	449	154	85.0	49.9	40.9	27.2
MAX	42	2890	1920	3950	1400	2550	1050	298	130	79	91	34
MIN	29	36	209	431	290	537	185	108	59	38	29	24
AC-FT	1980	57450	40120	75080	32330	84690	26730	9470	5060	3070	2520	1620
CFSM	.28	8.47	5.72	10.7	5.11	12.1	3.94	1.35	.75	.44	.36	.24
IN.	.33	9.45	6.60	12.35	5.32	13.93	4.40	1.56	.83	.50	.41	.27

CAL YR 1988 TOTAL 154260 MEAN 421 MAX 5420 MIN 23 AC-FT 306000 CFSM 3.70 IN. 50.34
WTR YR 1989 TOTAL 171467 MEAN 470 MAX 3950 MIN 24 AC-FT 340100 CFSM 4.12 IN. 55.95

e Estimated

ALSEA RIVER BASIN

195

14306500 ALSEA RIVER NEAR TIDEWATER, OR

LOCATION.--Lat 44°23'10", long 123°49'50", in NW 1/4 NW 1/4 sec.6, T.14 S., R.9 W., Lincoln County, Hydrologic Unit 17100205, on right bank 0.9 mi downstream from Grass Creek, 2.5 mi upstream from Scott Creek, 3.8 mi southeast of Tidewater, and at mile 21.0.

DRAINAGE AREA.--334 mi².

PERIOD OF RECORD.--October 1939 to current year.

GAGE.--Water-stage recorder. Datum of gage is 48.16 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 16, 1939, nonrecording gage at present site and datum.

REMARKS.--Records good. No regulation. Diversion for irrigation upstream from station.

AVERAGE DISCHARGE.--50 years, 1,501 ft³/s, 61.03 in/yr, 1,087,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,800 ft³/s Dec. 22, 1964, gage height, 27.44 ft; minimum discharge, 45 ft³/s Sept. 26, 27, 1965.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood on or about Feb. 3, 1890, reached a stage of 29.5 ft, from floodmark (discharge not determined).

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 13,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 10	0400	*14,600	*15.51	No other peak greater than base discharge.			
Minimum discharge, 65 ft ³ /s Oct. 27 to Nov. 1.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	72	2360	4160	1250	1470	2300	566	371	246	161	107
2	72	158	1900	3170	1170	1630	2600	533	346	212	306	101
3	68	680	1570	2620	1090	1500	2680	522	324	196	224	97
4	70	919	1330	2320	995	1420	2500	547	308	183	174	94
5	73	602	1180	2230	968	2290	2320	502	287	176	150	90
6	75	1000	1140	2090	961	6450	2080	478	282	168	137	88
7	74	639	1040	2000	876	4580	1870	461	273	162	127	85
8	74	452	952	2010	843	3500	1700	442	268	157	121	83
9	72	451	889	5060	821	3010	1550	430	261	155	116	81
10	70	949	835	12000	829	3500	1420	436	255	158	114	80
11	69	1060	778	7030	859	4270	1290	427	248	156	112	77
12	70	752	733	4870	902	4770	1200	409	246	150	107	73
13	71	687	713	4180	944	6830	1130	396	250	148	104	72
14	77	561	662	3990	952	6800	1060	380	263	145	102	71
15	89	677	622	6040	936	5910	1000	368	273	142	100	70
16	87	1440	594	6520	1260	5590	952	355	250	158	97	70
17	80	2280	574	5790	4570	5420	906	368	232	187	95	70
18	75	1720	553	4670	3910	6580	860	470	225	179	94	70
19	73	1160	632	3730	3540	5360	822	438	234	157	94	72
20	72	1150	712	3080	2980	4050	794	371	257	143	93	72
21	71	2720	1660	2840	2470	3410	759	343	232	138	96	72
22	75	5590	3160	2690	2470	2860	752	335	211	135	153	70
23	74	6420	3510	2380	2740	2470	755	389	202	128	205	69
24	70	5150	3680	2110	2480	2220	852	761	193	124	157	68
25	68	7410	3010	1870	2190	2450	755	661	184	122	129	67
26	66	5130	2310	1690	1920	2730	689	529	181	120	117	68
27	65	4540	1930	1540	1720	2660	644	515	179	125	111	71
28	65	6870	1700	1400	1570	3030	612	521	182	124	105	78
29	65	4380	1930	1290	---	3120	585	475	208	118	103	75
30	65	3080	5360	1210	---	2750	564	439	286	118	109	85
31	65	---	6140	1230	---	2500	---	400	---	121	112	---
TOTAL	2236	68699	54159	107810	48216	115130	38001	14267	7511	4751	4025	2346
MEAN	72.1	2290	1747	3478	1722	3714	1267	460	250	153	130	78.2
MAX	89	7410	6140	12000	4570	6830	2680	761	371	246	306	107
MIN	65	72	553	1210	821	1420	564	335	179	118	93	67
AC-FT	4440	136300	107400	213800	95640	228400	75370	28300	14900	9420	7980	4650
CFSM	.22	6.86	5.23	10.4	5.16	11.1	3.79	1.38	.75	.46	.39	.23
IN.	.25	7.65	6.03	12.01	5.37	12.82	4.23	1.59	.84	.53	.45	.26
CAL YR 1988	TOTAL 425078	MEAN 1161	MAX 15600	MIN 60	AC-FT 843100	CFSM 3.48	IN. 47.34					
WTR YR 1989	TOTAL 467151	MEAN 1280	MAX 12000	MIN 65	AC-FT 926600	CFSM 3.83	IN. 52.03					

BIG CREEK BASIN

14306900 BIG CREEK NEAR ROOSEVELT BEACH, OR

LOCATION.--Lat 44°10'05", long 124°03'55", in SE 1/4 SE 1/4 sec.13, T.16 S., R.12 W., Lane County, Hydrologic Unit 17100205, on right bank 1.0 mi downstream from Frying Pan Creek, 2.5 mi east of Roosevelt Beach.

DRAINAGE AREA.--11.9 mi².

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 141 ft, by barometer.

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--17 years, 90.8 ft³/s, 103.62 in/yr, 65,780 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,150 ft³/s Nov. 30, 1975, gage height, 6.90 ft; minimum discharge, 3.8 ft³/s Oct. 15, 1979.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 9	2330	*837	5.77	Jan. 9	2330	(a)	*6.01

Minimum discharge, 5.2 ft³/s Oct. 24.

(a) From crest-stage gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.1	e10	171	270	68	112	169	31	34	16	32	8.6
2	7.8	e24	135	236	64	118	162	29	32	15	36	8.5
3	7.8	e98	112	189	58	98	152	30	28	15	20	8.1
4	7.8	e107	95	167	54	96	144	30	27	13	17	7.8
5	7.8	e83	86	152	52	219	130	27	26	12	15	7.7
6	7.8	e120	85	138	50	359	117	26	25	12	14	7.4
7	7.8	58	73	128	48	275	106	26	23	11	12	7.4
8	7.8	76	65	226	45	217	96	24	22	11	11	7.1
9	7.4	e70	60	569	45	195	87	24	21	11	11	7.0
10	7.4	e165	55	722	47	187	79	24	21	11	11	6.6
11	7.4	e135	51	461	47	202	73	23	20	10	10	6.4
12	7.4	e108	49	319	46	298	68	22	20	10	9.6	6.1
13	10	101	48	277	46	356	63	22	21	10	9.8	5.8
14	23	89	45	249	45	326	58	21	25	9.9	9.3	5.8
15	25	e155	42	448	44	298	55	20	20	9.9	8.9	5.8
16	15	330	40	480	185	262	51	20	18	27	8.6	5.8
17	12	350	38	443	370	274	48	27	18	24	8.6	5.9
18	11	215	38	351	329	309	45	32	18	17	8.5	6.1
19	11	177	51	266	287	260	43	25	18	14	8.2	6.1
20	11	154	75	208	242	210	46	22	18	13	8.2	6.1
21	11	233	116	182	197	195	40	21	16	12	15	5.8
22	10	397	179	152	220	159	46	22	15	11	27	5.7
23	9.7	388	176	129	201	139	44	33	15	10	16	5.5
24	9.3	416	173	114	177	160	45	47	14	10	12	5.5
25	9.0	498	154	102	158	236	40	38	14	9.7	11	5.5
26	8.7	356	132	93	135	240	39	34	14	9.9	10	5.5
27	8.2	393	121	86	120	245	36	51	13	10	9.8	5.6
28	e8.5	432	112	77	107	272	35	51	15	9.4	9.3	5.8
29	e9.4	307	185	71	---	241	33	45	20	9.4	9.0	5.5
30	e9.0	223	381	68	---	200	32	40	20	9.5	9.4	13
31	e9.3	---	350	76	---	166	---	37	---	9.2	9.2	---
TOTAL	312.4	6268	3493	7449	3487	6924	2182	924	611	381.9	406.4	199.5
MEAN	10.1	209	113	240	125	223	72.7	29.8	20.4	12.3	13.1	6.65
MAX	25	498	381	722	370	359	169	51	34	27	36	13
MIN	7.4	10	38	68	44	96	32	20	13	9.2	8.2	5.5
AC-FT	620	12430	6930	14780	6920	13730	4330	1830	1210	757	806	396
CFSM	.85	17.6	9.47	20.2	10.5	18.8	6.11	2.50	1.71	1.04	1.10	.56
IN.	.98	19.59	10.92	23.29	10.90	21.64	6.82	2.89	1.91	1.19	1.27	.62

CAL YR 1988 TOTAL 29681.9 MEAN 81.1 MAX 602 MIN 5.8 AC-FT 58870 CFSM 6.81 IN. 92.79
WTR YR 1989 TOTAL 32638.2 MEAN 89.4 MAX 722 MIN 5.5 AC-FT 64740 CFSM 7.51 IN. 102.03

e Estimated

SIUSLAW RIVER BASIN

197

14307580 LAKE CREEK NEAR DEADWOOD, OR

LOCATION.--Lat 44°04'58", long 123°47'05", in NW 1/4 NW 1/4 sec.21, T.17 S., R.9 W., Lane County, Hydrologic Unit 17100206, on right bank 0.2 mi upstream from Indian Creek, 1.5 mi southwest of Deadwood, and at mile 2.6.

DRAINAGE AREA.--174 mi².

PERIOD OF RECORD.--October 1967 to September 1989 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 178.86 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records excellent except those for discharges above 1,000 ft³/s, estimated daily discharges, and discharges for period Aug. 3 to Sept. 30, which are good. Flow slightly regulated by natural storage in Triangle Lake. Several diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--22 years, 706 ft³/s, 55.10 in/yr, 511,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,400 ft³/s Dec. 25, 1980, gage height, 15.86 ft; minimum discharge, 12 ft³/s Aug. 14, 15, 17, 18, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	2130	4,720	6.60	Jan. 10	0100	*7,140	*8.35

Minimum discharge, 25 ft³/s Sept. 19, 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	48	1250	2090	574	651	e1400	e290	196	96	55	53
2	29	115	971	1570	550	803	e1500	e280	175	88	96	51
3	28	392	782	1230	513	745	e1400	e275	160	80	77	47
4	28	490	652	1040	468	708	e1300	e270	149	74	63	42
5	29	358	566	997	440	1720	e1150	254	139	69	52	39
6	29	668	559	948	415	3030	e1000	240	133	68	52	38
7	28	382	496	911	399	2250	e900	229	126	63	50	38
8	28	320	445	996	383	1730	e800	216	121	59	43	39
9	27	327	411	2930	372	1520	e740	207	117	58	41	37
10	27	789	385	5480	376	1550	e680	204	113	58	43	31
11	27	728	359	3490	384	1790	e620	200	109	57	45	29
12	28	601	337	2610	407	e2000	e560	196	107	54	50	31
13	28	536	322	2220	430	e2800	e530	189	107	53	47	28
14	30	394	303	2140	430	e3400	e500	180	116	51	54	27
15	32	515	287	2980	426	e3200	e470	173	116	47	42	27
16	31	904	274	3040	937	e3000	e450	167	107	54	40	27
17	30	1510	262	2670	2360	e2800	e430	171	102	78	39	26
18	28	1130	253	2230	1880	e3000	e410	225	100	63	40	26
19	27	785	276	1840	1710	e2600	e400	211	100	52	39	25
20	27	930	316	1530	1450	e2000	e380	186	104	45	38	26
21	27	2040	891	1430	1190	e1700	e370	171	96	44	39	26
22	26	3420	1630	1380	1180	e1400	e360	165	87	51	66	26
23	26	3490	1800	1230	1180	e1250	e360	212	82	59	79	26
24	26	3070	2110	1070	1050	e1150	e410	418	77	46	62	40
25	26	3330	1660	941	929	e1500	e400	406	73	33	57	62
26	58	2520	1220	839	816	e1700	e380	318	72	32	57	53
27	65	2400	978	759	729	e1600	e350	292	70	34	54	46
28	74	3300	815	686	665	e1700	e330	283	71	35	51	40
29	59	2330	811	627	---	e1800	e315	264	86	32	49	35
30	49	1680	2090	581	---	e1700	e300	240	119	32	52	36
31	43	---	2860	568	---	e1500	---	216	---	37	55	---
TOTAL	1052	39502	26371	53053	22643	58297	19195	7348	3330	1702	1627	1077
MEAN	33.9	1317	851	1711	809	1881	640	237	111	54.9	52.5	35.9
MAX	74	3490	2860	5480	2360	3400	1500	418	196	96	96	62
MIN	26	48	253	568	372	651	300	165	70	32	38	25
AC-FT	2090	78350	52310	105200	44910	115600	38070	14570	6610	3380	3230	2140
CFSM	.20	7.57	4.89	9.84	4.65	10.8	3.68	1.36	.64	.32	.30	.21
IN.	.22	4.45	5.64	11.34	4.84	12.46	4.10	1.57	.71	.36	.35	.23

CAL YR 1988 TOTAL 209220 MEAN 572 MAX 6930 MIN 19 AC-FT 415000 CFSM 3.29 IN. 44.73
WTR YR 1989 TOTAL 235197 MEAN 644 MAX 5480 MIN 25 AC-FT 466500 CFSM 3.70 IN. 50.28

e Estimated

SIUSLAW RIVER BASIN

14307620 SIUSLAW RIVER NEAR MAPLETON, OR
(National stream quality accounting network station)

LOCATION.--Lat 44°03'45", long 123°52'55", in SW 1/4 NW 1/4 sec.27, T.17 S., R.10 W., Lane County, Hydrologic Unit 17100206, on right bank 250 ft above Shoemaker Creek, 2.5 mi northwest of Mapleton, and at mile 23.7.

DRAINAGE AREA.--588 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1967 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 41 ft, from topographic map.

REMARKS.--Records good. No regulation or diversions upstream from station.

AVERAGE DISCHARGE.--22 years, 2,103 ft³/s, 48.57 in/yr, 1,524,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,400 ft³/s Jan. 21, 1972, gage height, 28.45 ft; minimum discharge, 45 ft³/s Aug. 18, 19, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of December 1964 reached a stage of about 28 ft, from information by local residents (discharge not determined).

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 15,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 10	0430	*22,100	*18.03	No other peak greater than base discharge.			
Minimum discharge, 81 ft ³ /s Sept. 18, 19.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	134	147	3060	e5740	1740	1980	3800	814	610	356	225	154
2	129	267	2430	e4320	1700	2410	4120	781	559	323	375	148
3	121	1040	2040	e3370	1600	2420	3850	748	523	303	336	140
4	116	1290	1760	2850	1480	2280	3430	730	491	279	284	131
5	119	1040	1600	2720	1400	4320	3050	704	458	263	232	125
6	120	1810	1560	2680	1370	8810	2690	693	448	256	215	118
7	122	1280	1430	2640	1300	6420	2390	696	433	244	201	116
8	121	1000	1330	2860	1260	4850	2160	682	406	232	185	114
9	116	989	1250	8190	1240	4210	1980	653	393	225	172	110
10	111	1920	1180	18700	1260	4320	1820	629	380	229	e166	105
11	111	2040	1110	11200	1270	4850	1690	628	372	228	e160	101
12	113	1670	1060	7450	1310	5720	1560	617	368	223	157	99
13	115	1580	1020	5960	1320	8670	1470	595	372	217	152	111
14	125	1240	968	5840	e1360	9650	1390	562	397	213	154	99
15	137	1310	924	8320	e1330	8880	1320	544	386	205	149	88
16	136	2020	889	e8170	2540	8050	1250	530	376	231	138	85
17	129	3580	853	e7430	7520	7510	1190	540	361	310	135	84
18	123	3070	836	6260	e5750	8460	1140	647	348	278	133	82
19	119	2070	921	4980	e4740	7010	1090	629	346	242	132	83
20	118	2100	1040	4110	e3960	5420	1060	555	357	219	128	88
21	116	5020	2550	3770	e3160	4590	1020	525	331	214	132	89
22	115	9300	4790	3730	e3020	3880	1010	512	311	210	205	87
23	113	9200	5480	3520	3400	3350	1010	611	301	214	234	86
24	112	8620	6000	3080	3090	3100	1160	1150	288	202	196	86
25	109	8570	5050	2690	2740	4520	1100	1130	275	178	175	121
26	124	6050	3720	2400	2420	4820	1040	923	272	174	169	123
27	159	6000	2920	2200	2190	4380	987	854	267	178	164	117
28	160	8310	2450	2030	2030	4770	922	833	269	177	155	109
29	155	5830	2510	1880	---	5060	866	775	309	173	149	105
30	143	4090	5950	1760	---	4570	827	722	399	170	152	115
31	133	---	7740	1730	---	4030	---	661	---	182	156	---
TOTAL	3874	102453	76421	152580	67500	163310	52392	21673	11406	7148	5716	3219
MEAN	125	3415	2465	4922	2411	5268	1746	699	380	231	184	107
MAX	160	9300	7740	18700	7520	9650	4120	1150	610	356	375	154
MIN	109	147	836	1730	1240	1980	827	512	267	170	128	82
AC-FT	7680	203200	151600	302600	133900	323900	103900	42990	22620	14180	11340	6380
CFSM	.21	5.81	4.19	8.37	4.10	8.96	2.97	1.19	.65	.39	.31	.18
IN.	.25	6.48	4.83	9.65	4.27	10.33	3.31	1.37	.72	.45	.36	.20

CAL YR 1988 TOTAL 618190 MEAN 1689 MAX 20700 MIN 77 AC-FT 1226000 CFSM 2.87 IN. 39.11
WTR YR 1989 TOTAL 667692 MEAN 1829 MAX 18700 MIN 82 AC-FT 1324000 CFSM 3.11 IN. 42.24

e Estimated

SIUSLAW RIVER BASIN

199

14307620 SIUSLAW RIVER NEAR MAPLETON, OR--continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--June 1967 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: June 1978 to September 1981.

WATER TEMPERATURE: November 1967 to September 1975. October 1977 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS NONCARB (MG/L AS CACO3)
DEC 21...	1100	2340	45	6.5	5.5	2.8	10.8	86	93	180	13	1
FEB 23...	1200	3400	40	7.0	7.5	3.8	12.8	106	K11	K17	10	0
JUN 07...	1235	434	45	7.7	17.0	1.0	10.0	103	K7	110	12	0
AUG 29...	1545	146	52	7.4	19.5	0.7	9.0	98	K10	K11	14	0
DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WATER DIS IT FIELD (MG/L AS CACO3)	BICAR- BONATE WATER DIS IT FIELD (MG/L AS HCO3)	CAR- BONATE WATER DIS IT FIELD (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
DEC 21...	3.2	1.1	4.2	41	0.5	0.6	11	14	0	4.1	4.7	<0.1
FEB 23...	2.6	0.9	3.7	42	0.5	0.7	11	13	0	3.2	3.5	0.1
JUN 07...	3.1	1.1	4.4	42	0.6	0.8	14	17	0	1.0	3.9	0.1
AUG 29...	3.4	1.3	5.0	42	0.6	1.1	18	21	0	<1.0	4.4	<0.1
DATE	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	SOLIDS, DIS- SOLVED (TONS AC-FT)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS TOTAL (MG/L AS P)	
DEC 21...	11	28	38	177	0.04	0.01	0.46	<0.2	<0.01	<0.01	0.01	
FEB 23...	12	27	36	248	0.04	<0.01	0.41	0.3	<0.01	0.01	0.02	
JUN 07...	12	26	37	30.5	0.03	0.01	0.11	<0.2	<0.01	<0.01	<0.01	
AUG 29...	11	44	--	--	--	0.07	<0.10	0.3	--	0.02	0.02	

K - Results based on colony count outside acceptable range (non-ideal colony count).

SIUSLAW RIVER BASIN

14307620 SIUSLAW RIVER NEAR MAPLETON, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
DEC 21...	30	<1	10	<0.5	<1	2	<3	2	100	<5	<4	5
FEB 23...	40	<1	9	<0.5	<1	<1	<3	1	83	<5	<4	3
JUN 07...	20	<1	10	<0.5	<1	<1	<3	5	130	1	<4	5
AUG 29...	40	<1	11	<0.5	<1	1	<3	2	190	1	<4	11
DATE	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	
DEC 21...	<0.1	<10	4	<1	<1	36	<6	6	13	82	79	
FEB 23...	<0.1	<10	<1	<1	1	30	<6	8	8	73	68	
JUN 07...	<0.1	<10	8	<1	<1	38	<6	9	3	3.5	--	
AUG 29...	<0.1	<10	<1	<1	<1	46	<6	14	2	0.79	95	

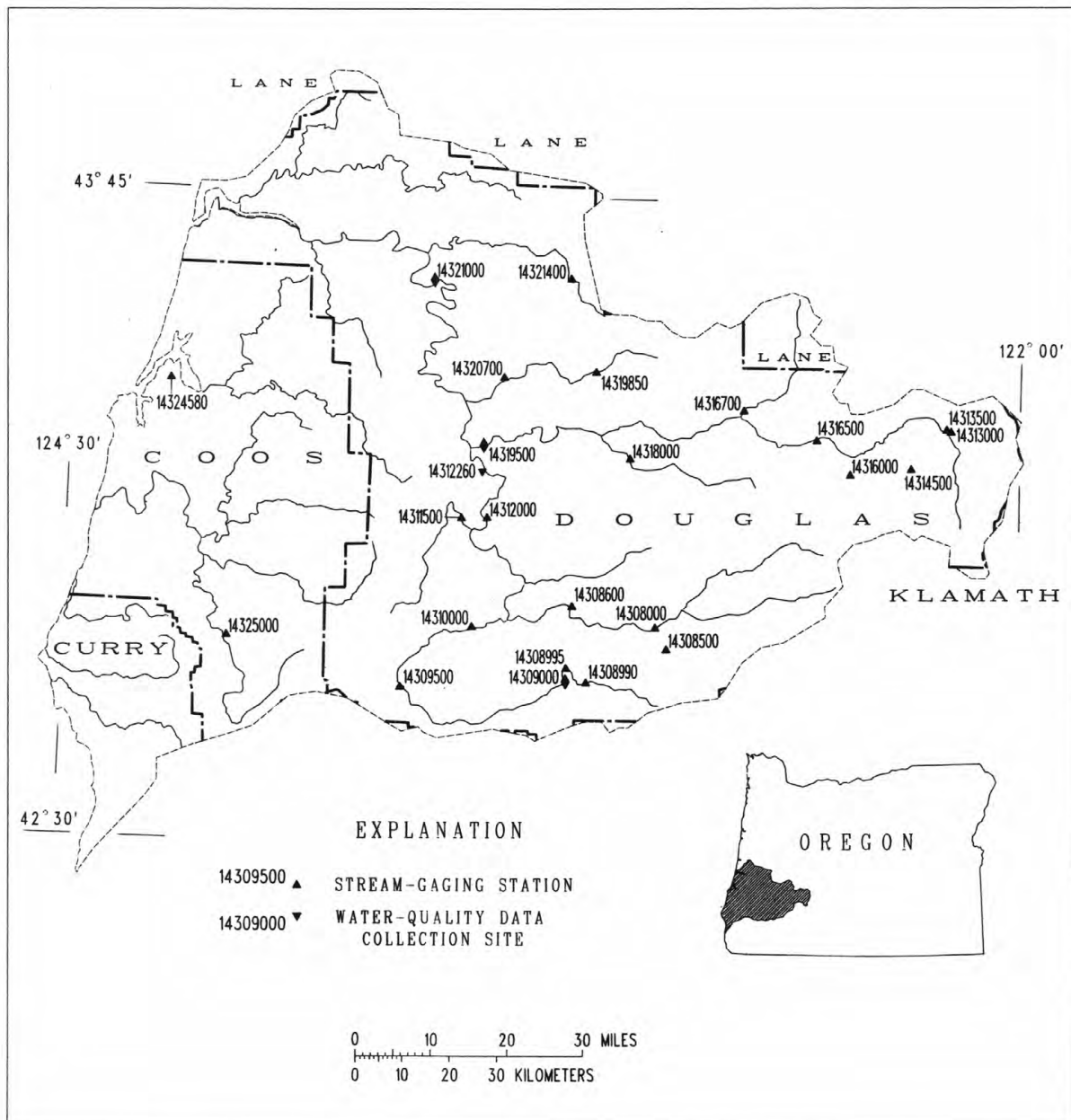


Figure 6.--Location of surface-water and water-quality stations in the Umpqua River, Coos River, and Coquille River basins.

SOUTH UMPQUA RIVER BASIN

14308000 SOUTH UMPQUA RIVER AT TILLER, OR

LOCATION.--Lat 42°55'50", long 122°56'50", in NE 1/4 sec.33, T.30 S., R.2 W., Douglas County, Hydrologic Unit 17100302, Umpqua National Forest, on left bank 0.3 mi upstream from bridge on State Highway 227 at Tiller, 0.3 mi upstream from Elk Creek, and at mile 187.31.

DRAINAGE AREA.--449 mi².

PERIOD OF RECORD.--October 1910 to December 1911, October 1939 to current year. Monthly discharge only for some periods, published in WSP 1318. Prior to December 1911, published as South Fork of Umpqua River at Tiller.

REVISED RECORDS.--WSP 1448: 1911(M), 1912, drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 991.8 ft above National Geodetic Vertical Datum of 1929 (river-profile survey). Prior to Oct. 1, 1939, nonrecording gage at site 0.2 mi downstream at different datum.

REMARKS.--Records good. No regulation. Small diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--51 years, 1,036 ft³/s, 31.33 in/yr, 750,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 60,200 ft³/s Dec. 22, 1964, gage height, 25.72 ft; minimum discharge observed, 20 ft³/s Sept. 3, 4, 1911.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 7,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	2330	11,100	11.01	Mar. 6	0830	8,220	9.44
Jan. 10	0330	*29,100	17.69	Mar. 10	0030	7,800	9.18
Jan. 10	0330	(a)	*18.58	Mar. 21	1330	11,100	11.01

Minimum discharge, 38 ft³/s Oct. 27 to Nov. 2.

(a) From crest-stage gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	38	1400	960	2470	1210	3130	1510	881	179	88	102
2	50	39	1330	952	1880	1320	3210	1330	837	173	90	89
3	48	126	1170	1490	1490	1170	2850	1220	796	164	96	83
4	47	162	1040	1830	1230	1100	2420	1210	750	157	91	80
5	47	92	913	2550	1010	3660	2280	1270	702	151	87	74
6	52	278	1030	1860	933	7270	2370	1350	654	146	84	73
7	50	235	1050	1390	851	4790	2500	1320	603	141	80	70
8	48	151	864	1190	775	3430	2540	1270	550	136	78	67
9	47	155	754	5060	731	5150	2440	1350	506	133	108	65
10	45	198	802	15400	695	6460	2270	1410	470	133	99	64
11	44	327	782	4940	674	5210	1970	1200	435	130	84	62
12	42	285	712	2940	675	4220	1860	1020	410	126	78	60
13	42	504	670	2220	660	3850	1800	908	390	122	73	58
14	42	385	617	e2000	626	3170	1830	826	368	119	73	57
15	42	375	534	e1800	586	3400	1750	761	382	120	69	55
16	41	740	464	e1600	744	4030	1610	720	372	119	68	55
17	41	1780	409	e1900	2070	3380	1470	698	327	133	68	56
18	41	883	363	e2100	3550	3340	1440	676	302	132	68	76
19	41	529	360	e2000	3650	4160	1470	618	284	120	68	77
20	41	851	417	e2200	2650	3170	1390	570	270	114	66	65
21	41	1320	714	e2400	2340	8220	1290	551	256	112	65	60
22	41	5920	908	e2600	3670	6290	1180	530	242	108	69	58
23	40	5840	820	e2200	4010	4100	1070	629	232	104	161	56
24	40	2260	716	1590	2740	3090	1080	681	220	101	174	53
25	40	1840	633	1310	2100	3150	2280	883	208	98	112	52
26	40	2390	527	1180	1700	2740	2560	889	199	95	94	54
27	39	1930	465	1310	1450	2350	2390	915	193	94	86	68
28	38	4390	432	1290	1290	3180	2130	1200	185	91	81	71
29	38	2450	451	1270	---	3710	1880	1200	185	88	78	69
30	38	1570	991	1920	---	2980	1700	1080	190	88	151	80
31	38	---	1260	2600	---	3670	---	961	---	88	135	---
TOTAL	1336	38043	23598	76052	47250	116970	60160	30756	12399	3815	2822	2009
MEAN	43.1	1268	761	2453	1687	3773	2005	992	413	123	91.0	67.0
MAX	52	5920	1400	15400	4010	8220	3210	1510	881	179	174	102
MIN	38	38	360	952	586	1100	1070	530	185	88	65	52
AC-FT	2650	75460	46810	150800	93720	232000	119300	61000	24590	7570	5600	3980
CFSM	.10	2.82	1.70	5.46	3.76	8.40	4.47	2.21	.92	.27	.20	.15
IN.	.11	3.15	1.96	6.30	3.91	9.69	4.98	2.55	1.03	.32	.23	.17

CAL YR 1988 TOTAL 274617 MEAN 750 MAX 8350 MIN 38 AC-FT 544700 CFSM 1.67 IN. 22.75
WTR YR 1989 TOTAL 415210 MEAN 1138 MAX 15400 MIN 38 AC-FT 823600 CFSM 2.53 IN. 34.40

e Estimated

SOUTH UMPQUA RIVER BASIN

203

14308500 ELK CREEK NEAR DREW, OR

LOCATION.--Lat 42°53'25", long 122°55'00", in SW 1/4 sec.11, T.31 S., R.2 W., Douglas County, Hydrologic Unit 17100302, on right bank 100 ft downstream from Dixon Creek, 0.1 mi upstream from Drew Creek, 1.3 mi northwest of Drew, 3.3 mi southeast of Tiller, and at mile 4.1.

DRAINAGE AREA.--54.4 mi².

PERIOD OF RECORD.--September 1954 to September 1982, October 1986 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,279.25 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No regulation. Several diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--31 years (1955-82, 1987-89), 81.4 ft³/s, 20.32 in/yr, 59,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,880 ft³/s Dec. 22, 1964, gage height, 10.61 ft, from rating curve extended above 2,900 ft³/s on basis of slope-area measurement at gage height 10.34 ft; maximum gage height, 10.80 ft Jan. 15, 1974; no flow at times during water years 1974, 1977, 1981, 1987, and 1988.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 11.8 ft, from floodmarks, probably for flood in January or November 1953, discharge, about 11,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	1900	1,470	6.48	Jan. 10	0300	*2,120	*7.16

Minimum discharge, 0.43 ft³/s Sept. 15, 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.63	.83	84	87	166	85	175	91	24	4.8	.86	2.6
2	.59	1.3	74	109	135	108	162	76	21	4.5	.87	2.0
3	.57	3.9	64	141	110	101	151	67	18	3.7	.85	1.4
4	.57	3.9	53	156	100	109	129	58	17	3.1	.83	1.3
5	.65	2.8	45	196	e90	340	113	51	15	3.1	.76	1.1
6	.71	6.2	41	152	e80	440	102	45	13	2.8	.52	.96
7	.81	6.1	39	121	e74	295	94	41	12	2.1	.70	.94
8	.78	4.7	34	119	e69	235	85	37	11	1.9	.84	.86
9	.73	4.4	29	381	e64	537	77	44	11	2.2	4.4	.80
10	.69	8.4	26	989	e62	524	69	53	11	2.6	3.2	.73
11	.70	9.1	24	362	e60	384	61	49	9.8	2.1	2.4	.57
12	.68	7.3	22	234	e60	280	54	44	9.4	1.6	1.6	.55
13	.71	11	21	190	e59	250	49	38	9.1	1.8	1.1	.51
14	.69	17	19	152	e57	201	45	34	8.4	1.8	.97	.55
15	.67	16	17	129	54	188	43	31	10	2.4	.92	.50
16	.65	33	16	129	69	225	39	26	10	2.3	.82	.48
17	.65	95	16	146	117	197	35	24	8.7	2.8	.81	1.3
18	.67	48	16	150	184	320	32	23	7.7	2.3	.85	2.9
19	.73	29	15	148	195	403	29	22	7.2	1.5	.78	1.7
20	.74	32	26	181	155	272	26	20	7.2	1.5	.70	1.1
21	.75	111	72	222	145	485	28	18	6.7	2.0	.69	.94
22	.78	924	134	252	239	336	34	17	6.1	1.5	.84	.85
23	.81	427	89	193	249	236	35	20	5.8	1.3	3.9	.76
24	.84	167	69	150	186	187	57	23	5.4	1.2	3.5	.69
25	.88	188	56	124	147	179	439	23	4.7	1.1	2.1	.77
26	.88	199	45	114	121	150	243	22	4.4	.92	1.4	.79
27	.87	146	38	119	103	139	173	26	4.5	1.4	1.1	2.1
28	.86	254	34	111	90	221	144	36	4.5	1.1	.88	2.5
29	.86	159	50	105	---	258	122	39	5.4	.88	.90	2.4
30	.84	106	127	134	---	199	103	34	5.6	.87	4.5	5.7
31	.83	---	128	170	---	206	---	29	---	.88	4.5	---
TOTAL	22.82	3020.93	1523	5966	3240	8090	2948	1161	293.6	64.05	49.09	40.35
MEAN	.74	101	49.1	192	116	261	98.3	37.5	9.79	2.07	1.58	1.34
MAX	.88	924	134	989	249	537	439	91	24	4.8	4.5	5.7
MIN	.57	.83	15	87	54	85	26	17	4.4	.87	.52	.48
AC-FT	45	5990	3020	11830	6430	16050	5850	2300	582	127	97	80
CFSM	.01	1.85	.90	3.54	2.13	4.80	1.81	.69	.18	.04	.03	.02
IN.	.02	2.07	1.04	4.08	2.22	5.53	2.02	.79	.20	.04	.03	.03

CAL YR 1988 TOTAL 16243.06 MEAN 44.4 MAX 924 MIN .00 AC-FT 32220 CFSM .82 IN. 11.11
WTR YR 1989 TOTAL 26418.84 MEAN 72.4 MAX 989 MIN .48 AC-FT 52400 CFSM 1.33 IN. 18.07

e Estimated

SOUTH UMPQUA RIVER BASIN

14308600 SOUTH UMPQUA RIVER AT DAYS CREEK, OR

LOCATION.--Lat 42°58'05", long 123°09'60", in NW 1/4 sec.15, T.30 S., R.4 W., Douglas County, Hydrologic Unit 17100302, on left bank 0.3 mi upstream from Days Creek, 0.4 mi southeast of community of Days Creek, and at mile 170.2.

DRAINAGE AREA.--641 mi².

PERIOD OF RECORD.--March 1975 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 738.55 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. No regulation. Many small diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--14 years, 1,164 ft³/s, 24.66 in/yr, 843,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,300 ft³/s Dec. 6, 1981, gage height, 22.39 ft; minimum discharge, 29 ft³/s Oct. 14, 15, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 12,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 23	0130	13,300	12.61	Mar. 21	1430	12,400	12.35
Jan. 10	0600	*34,700	*20.35				

Minimum discharge, 38 ft³/s Oct. 31 to Nov. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	38	1630	1380	2850	1330	3610	1720	899	224	89	141
2	57	41	1530	1250	2170	1580	3570	1470	850	207	95	116
3	54	110	1340	1880	1690	1420	3220	1330	806	196	99	102
4	51	264	1170	2290	1380	1330	2710	1300	758	185	101	94
5	51	160	1040	3200	1100	3620	2510	1320	708	175	91	88
6	57	229	1080	2540	1010	8330	2530	1390	662	169	84	83
7	61	383	1170	1880	933	5690	2660	1380	611	162	78	78
8	56	228	985	1540	847	4080	2700	1330	561	155	72	74
9	52	230	844	5250	811	5680	2600	1330	523	152	82	72
10	49	200	868	18800	785	7780	2410	1530	492	153	131	69
11	46	412	875	6650	758	6070	2100	1290	460	150	95	64
12	44	330	796	3950	783	4920	1950	1090	434	142	84	61
13	43	601	739	2910	781	4490	1880	965	423	137	75	58
14	43	510	689	2250	737	3750	1890	875	405	131	67	55
15	43	420	608	1850	689	3860	1830	806	402	134	65	52
16	43	661	541	1770	778	4580	1680	753	412	135	63	52
17	43	2410	485	2030	2140	3990	1530	724	372	141	61	60
18	42	1330	444	2270	3980	3900	1470	701	344	163	61	79
19	41	709	445	2150	4330	5240	1490	663	322	139	60	106
20	41	902	486	2610	3120	4030	1430	606	304	128	58	85
21	40	1350	887	2910	2650	8930	1330	582	290	126	55	73
22	40	6240	1410	3240	3780	7640	1250	563	276	125	57	67
23	40	8010	1260	2510	4840	5010	1120	627	266	116	130	64
24	40	2960	1030	1960	3260	3750	1140	692	254	110	213	59
25	40	2290	922	1600	2460	3640	3060	840	241	106	147	56
26	40	3060	757	1410	1970	3190	3400	927	232	102	113	55
27	40	2460	654	1510	1660	2690	2920	877	224	100	100	76
28	39	5000	609	1500	1460	3390	2500	1210	216	98	90	95
29	39	3190	603	1420	---	4330	2160	1250	214	95	89	86
30	39	1960	1250	1980	---	3410	1910	1130	229	94	152	103
31	39	---	1860	2830	---	4110	---	994	---	90	206	---
TOTAL	1416	46688	29007	91320	53752	135760	66560	32265	13190	4340	2963	2323
MEAN	45.7	1556	936	2946	1920	4379	2219	1041	440	140	95.6	77.4
MAX	63	8010	1860	18800	4840	8930	3610	1720	899	224	213	141
MIN	39	38	444	1250	689	1330	1120	563	214	90	55	52
AC-FT	2810	92610	57540	181100	106600	269300	132000	64000	26160	8610	5880	4610
CFSM	.07	2.43	1.46	4.60	2.99	6.83	3.46	1.62	.69	.22	.15	.12
IN.	.08	2.71	1.68	5.30	3.12	7.88	3.86	1.87	.77	.25	.17	.13

CAL YR 1988 TOTAL 328908 MEAN 899 MAX 9000 MIN 33 AC-FT 652400 CFSM 1.40 IN. 19.09
WTR YR 1989 TOTAL 479584 MEAN 1314 MAX 18800 MIN 38 AC-FT 951300 CFSM 2.05 IN. 27.83

SOUTH UMPQUA RIVER BASIN

205

14308990 COW CREEK ABOVE GALESVILLE RESERVOIR, NEAR AZALEA, OR

LOCATION.--Lat 42°49'24", long 123°07'29", in SW 1/4 NW 1/4 sec.1, T.32 S., R.4 W., Douglas County, Hydrologic Unit 17100302, on left bank, about 600 ft upstream from bridge on Houck Ranch Road (BLM), 1.1 mi downstream from Sugar Creek, 3.2 mi south of Galesville Dam, 6.9 mi northeast of Azalea, and at mile 65.6

DRAINAGE AREA.--64.7 mi².

PERIOD OF RECORD.--October 1985 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,900 ft, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 2,610 ft³/s Feb. 2, 1987, gage height 6.89 ft; minimum discharge, 5.1 ft³/s Sept. 4, 1987, Sept. 4-7, 1988.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1927 occurred Jan. 15, 1974. Stage and discharge not known at this site, but was 10,600 ft³/s at site 7.4 mi downstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,100 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	2000	1,490	5.17	Jan. 10	0400	*2,230	*6.24

Minimum discharge, 7.3 ft³/s several days in October and Sept. 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.9	7.6	73	61	148	95	203	113	35	17	11	11
2	7.6	9.9	63	55	122	102	205	97	33	16	11	11
3	7.3	20	55	68	e101	88	198	88	32	15	11	10
4	7.4	14	48	82	e88	87	175	82	31	14	10	9.8
5	8.0	11	44	118	e80	384	161	75	30	14	9.8	9.7
6	8.2	24	42	95	e78	542	151	69	29	14	9.4	9.6
7	8.2	17	40	79	e83	329	142	64	28	14	9.3	9.4
8	7.9	14	37	71	e78	256	131	61	28	14	9.4	9.0
9	7.7	14	35	225	e74	666	120	63	27	15	11	8.7
10	7.3	21	34	995	67	673	110	65	27	15	11	8.3
11	7.3	19	32	307	63	480	99	58	26	13	11	8.1
12	7.4	16	31	196	59	370	92	54	25	13	9.9	8.0
13	7.6	23	29	156	57	366	86	51	24	12	9.4	7.9
14	7.6	31	28	123	54	290	80	49	24	12	9.3	7.8
15	7.6	31	26	107	51	265	75	47	26	14	9.3	7.8
16	7.6	50	e26	108	56	277	71	45	27	13	9.4	7.6
17	7.6	129	e25	121	75	246	67	44	24	14	9.3	10
18	7.6	56	e25	124	138	408	63	43	23	13	9.3	15
19	7.8	34	25	122	166	439	60	43	22	12	9.1	11
20	7.7	34	31	146	131	323	57	41	22	12	8.9	9.6
21	7.9	103	40	187	128	508	59	39	21	13	8.9	9.1
22	7.6	1010	57	204	287	381	65	38	20	12	10	8.6
23	7.9	433	50	152	271	287	66	40	19	11	14	8.3
24	8.2	157	44	123	189	256	77	45	19	11	12	7.9
25	8.2	135	40	106	149	282	253	43	18	11	11	7.9
26	7.9	134	34	99	125	234	207	40	18	11	10	8.3
27	7.6	102	32	102	110	217	171	42	18	12	9.9	14
28	7.6	204	31	97	100	e240	153	46	18	11	9.3	11
29	7.6	127	30	94	---	e229	132	45	19	10	10	11
30	7.6	90	68	122	---	e219	120	41	21	11	21	16
31	7.6	---	84	154	---	227	---	38	---	10	14	---
TOTAL	239.0	3070.5	1259	4799	3128	9766	3649	1709	734	399	327.9	291.4
MEAN	7.71	102	40.6	155	112	315	122	55.1	24.5	12.9	10.6	9.71
MAX	8.2	1010	84	995	287	673	253	113	35	17	21	16
MIN	7.3	7.6	25	55	51	87	57	38	18	10	8.9	7.6
AC-FT	474	6090	2500	9520	6200	19370	7240	3390	1460	791	650	578
CFSM	.12	1.58	.63	2.39	1.73	4.87	1.88	.85	.38	.20	.16	.15
IN.	.14	1.77	.72	2.76	1.80	5.62	2.10	.98	.42	.23	.19	.17

CAL YR 1988 TOTAL 16741.7 MEAN 45.7 MAX 1010 MIN 5.2 AC-FT 33210 CFSM .71 IN. 9.63
WTR YR 1989 TOTAL 29371.8 MEAN 80.5 MAX 1010 MIN 7.3 AC-FT 58260 CFSM 1.24 IN. 16.89

e Estimated

SOUTH UMPQUA RIVER BASIN

14308995 GALESVILLE RESERVOIR NEAR AZALEA, OR

LOCATION.--Lat 42°50'56", long 123°10'40", in NE 1/4 sec.28, T.31 S., R.4 W., Douglas County, Hydrologic Unit 17100302, on the upstream face of Galesville dam to the right side of the spillway section, 1.2 mi downstream from McGinnis Creek, 5.6 mi northeast of Azalea, and at mile 60.2.

DRAINAGE AREA.--74.3 mi².

PERIOD OF RECORD.--October 1985 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Douglas County).

REMARKS.--Reservoir is formed by a roller compacted concrete dam; storage began Oct. 7, 1985. Capacity, 42,220 acre-ft between elevations 1,780.0 ft (bottom of evacuation outlet) and 1,881.5 ft (crest of spillway). Dead storage, 1,800 acre-ft below elevation 1,780.0 ft. Reservoir is used for irrigation, power generation, flood control, and recreation. Figures given herein represent total contents.

COOPERATION.--Elevations and capacity table furnished by Douglas County Water Resources Department.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents recorded, 40,760 acre-ft May 7, 1989, elevation, 1,879.72 ft; minimum contents, 10,640 acre-ft Nov. 13, 14, 1988, elevation, 1,816.11 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 40,760 acre-ft May 7, elevation, 1,879.72 ft; minimum contents, 10,640 acre-ft Nov. 13, 14, elevation, 1,816.11 ft.

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

1,780	1,800	1,820	11,954	1,860	29,476
1,790	3,589	1,830	15,656	1,870	34,969
1,800	5,889	1,840	19,819	1,880	40,932
1,810	8,696	1,850	24,422	1,885	44,127

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1822.30	1817.04	1827.54	1826.19	1843.13	1850.39	1875.60	1879.34	1878.18	1871.20	1863.14	1853.56
2	1822.14	1816.92	1827.60	1826.26	1843.47	1850.65	1875.64	1879.44	1878.07	1870.99	1862.83	1853.24
3	1821.97	1816.79	1827.61	1826.40	1843.73	1850.82	1875.65	1879.54	1877.90	1870.74	1862.52	1852.93
4	1821.81	1816.62	1827.58	1826.64	1843.85	1851.00	1875.76	1879.62	1877.69	1870.45	1862.21	1852.61
5	1821.65	1816.54	1827.54	1827.13	1843.86	1852.42	1876.01	1879.67	1877.47	1870.17	1861.90	1852.29
6	1821.49	1816.53	1827.48	1827.45	1843.90	1854.41	1876.03	1879.70	1877.26	1869.88	1861.58	1851.97
7	1821.33	1816.45	1827.42	1827.65	1843.96	1855.56	1876.06	1879.71	1877.03	1869.59	1861.26	1851.66
8	1821.17	1816.37	1827.33	1827.82	1844.00	1856.41	1876.08	1879.67	1876.80	1869.34	1860.95	1851.32
9	1821.00	1816.28	1827.23	1828.89	1844.06	1858.82	1876.10	1879.68	1876.57	1869.18	1860.64	1850.98
10	1820.83	1816.24	1827.12	1833.82	1844.11	1861.21	1876.12	1879.67	1876.34	1868.96	1860.33	1850.63
11	1820.66	1816.18	1827.01	1835.21	1844.16	1862.81	1876.19	1879.62	1876.11	1868.69	1860.01	1850.29
12	1820.49	1816.13	1826.87	1835.99	1844.20	1864.02	1876.31	1879.57	1875.88	1868.42	1859.69	1849.94
13	1820.32	1816.11	1826.74	1836.61	1844.22	1865.16	1876.40	1879.51	1875.64	1868.16	1859.36	1849.60
14	1820.16	1816.14	1826.60	1837.01	1844.22	1866.02	1876.48	1879.44	1875.41	1867.90	1859.04	1849.24
15	1820.00	1816.18	1826.45	1837.31	1844.22	1866.78	1876.54	1879.37	1875.19	1867.64	1858.72	1848.85
16	1819.83	1816.35	1826.29	1837.63	1844.28	1867.59	1876.58	1879.29	1874.96	1867.39	1858.38	1848.49
17	1819.62	1816.98	1826.11	1838.01	1844.42	1868.30	1876.60	1879.18	1874.71	1867.16	1858.06	1848.32
18	1819.40	1817.06	1825.94	1838.39	1844.85	1869.58	1876.61	1879.11	1874.46	1866.91	1857.73	1848.14
19	1819.23	1816.98	1825.80	1838.78	1845.39	1870.92	1876.61	1879.02	1874.21	1866.66	1857.40	1847.94
20	1819.04	1816.88	1825.73	1839.29	1845.78	1871.87	1876.62	1878.90	1873.97	1866.41	1857.08	1847.75
21	1818.87	1817.17	1825.82	1840.01	1846.14	1873.45	1876.64	1878.80	1873.72	1866.17	1856.75	1847.56
22	1818.71	1821.94	1825.96	1840.72	1847.25	1874.24	1876.67	1878.71	1873.46	1865.92	1856.45	1847.35
23	1818.54	1824.10	1826.00	1841.15	1848.25	1874.61	1876.71	1878.67	1873.20	1865.67	1856.16	1847.15
24	1818.38	1824.71	1826.02	1841.40	1848.87	1874.89	1876.85	1878.62	1872.94	1865.41	1855.84	1846.95
25	1818.21	1825.21	1825.99	1841.56	1849.32	1875.17	1877.63	1878.58	1872.66	1865.15	1855.58	1846.69
26	1818.04	1825.69	1825.90	1841.68	1849.66	1875.26	1878.08	1878.50	1872.38	1864.87	1855.26	1846.46
27	1817.87	1826.00	1825.82	1841.81	1849.93	1875.30	1878.45	1878.47	1872.09	1864.58	1854.94	1846.27
28	1817.70	1826.79	1825.72	1841.92	1850.15	1875.43	1878.79	1878.45	1871.82	1864.28	1854.64	1846.06
29	1817.53	1827.20	1825.61	1842.02	---	1875.54	1879.04	1878.40	1871.62	1863.99	1854.41	1845.87
30	1817.36	1827.42	1825.79	1842.26	---	1875.56	1879.24	1878.34	1871.41	1863.69	1854.17	1845.71
31	1817.20	---	1826.07	1842.66	---	1875.61	---	1878.26	---	1863.44	1853.87	---
MAX	1822.30	1827.42	1827.61	1842.66	1850.15	1875.61	1879.24	1879.71	1878.18	1871.20	1863.14	1853.56
MIN	1817.20	1816.11	1825.61	1826.19	1843.13	1850.39	1875.60	1878.26	1871.41	1863.44	1853.87	1845.71
(†)	11000	14660	14140	21000	24500	38250	40460	39860	31320	26320	22390	
(#)	-1820	+3660	-520	+6860	+3500	+13750	+2210	-600	-4080	-4460	-5000	-3930

CAL YR 1988 MAX -- MIN -- AC-FT† -5710
WTR YR 1989 MAX 1879.71 MIN 1816.11 AC-FT† +9570

† Contents, in acre-feet, at 2400, on last day of month.

Change in contents, in acre-feet.

SOUTH UMPQUA RIVER BASIN

207

14309000 COW CREEK NEAR AZALEA, OR

LOCATION.--Lat 42°49'30", long 123°10'40", in N-1/2 sec.4, T.32 S., R.4 W., Douglas County, Hydrologic Unit 17100302, on right bank 0.8 mi upstream from Whitehorse Creek, 4.5 mi northeast of Azalea, and at mile 58.2.

DRAINAGE AREA.--78.0 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1926 to September 1928 (no winter records), April 1929 to December 1931, April 1932 to current year.

REVISED RECORDS.--WSP 984: 1933-36. WSP 1154: 1946(M), 1948(M). WSP 1448: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,694.32 ft above National Geodetic Vertical Datum of 1929 (Douglas County Road Department bench mark). Prior to July 19, 1949, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records excellent. Flow regulated since Oct. 7, 1985 by Galesville Reservoir (station 14308995). Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--59 years (water years 1930-31, 1933-89), 110 ft³/s, 19.15 in/yr, 79,700 acre-ft/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,600 ft³/s Jan. 15, 1974, gage height, 16.40 ft, from high-water mark in well; minimum discharge, 1.1 ft³/s Aug. 12, 1981, but may have been less during period of no gage-height record Sept. 4-30, 1970.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 239 ft³/s Mar. 29, gage height, 2.55 ft; minimum discharge, 9.7 ft³/s July 31.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	34	67	64	74	67	234	94	61	78	93	88
2	35	36	66	64	65	68	226	78	66	78	93	88
3	35	45	66	64	63	67	219	66	84	83	93	88
4	35	46	66	67	72	66	163	66	96	95	92	87
5	35	32	65	71	76	75	149	66	96	94	92	87
6	35	32	62	67	68	75	166	65	96	95	92	87
7	35	31	62	65	64	70	152	66	96	95	92	85
8	35	31	61	66	65	68	143	80	96	85	92	92
9	35	31	61	80	65	74	128	74	95	58	92	91
10	35	32	63	130	65	75	120	73	96	72	92	91
11	35	32	60	80	65	70	90	76	96	86	91	91
12	34	32	60	72	65	70	67	74	95	86	91	91
13	34	33	60	71	65	75	65	73	93	86	91	90
14	34	34	60	68	65	75	65	73	93	86	91	91
15	34	33	60	67	64	75	65	73	94	86	91	100
16	34	42	60	67	63	76	65	73	93	83	90	93
17	41	63	60	67	64	76	65	73	93	80	91	59
18	45	60	62	71	67	83	65	73	93	79	91	58
19	34	58	60	67	67	84	65	73	93	81	91	57
20	39	58	61	60	66	81	65	72	93	79	90	56
21	34	59	58	73	66	98	65	72	93	79	90	56
22	34	76	66	82	72	188	65	69	92	78	92	56
23	34	80	64	87	72	222	65	63	92	78	92	55
24	33	69	63	96	69	204	66	63	93	78	92	55
25	33	72	62	95	68	223	79	63	96	78	77	69
26	34	70	61	94	67	227	105	62	99	88	89	72
27	33	72	60	93	67	232	94	62	98	88	88	59
28	33	70	60	93	67	236	72	63	94	88	85	63
29	33	70	61	92	---	236	70	63	78	88	89	63
30	33	67	66	92	---	237	74	62	78	88	89	60
31	33	---	67	90	---	235	---	62	---	75	88	---
TOTAL	1081	1500	1930	2415	1876	3808	3132	2165	2731	2571	2802	2278
MEAN	34.9	50.0	62.3	77.9	67.0	123	104	69.8	91.0	82.9	90.4	75.9
MAX	45	80	67	130	76	237	234	94	99	95	93	100
MIN	33	31	58	60	63	66	65	62	61	58	77	55
AC-FT	2140	2980	3830	4790	3720	7550	6210	4290	5420	5100	5560	4520
MEAN†	5.20	112	53.8	189	130	346	142	60.0	22.5	10.4	9.11	9.92
CFSM†	0.07	1.44	0.69	2.42	1.67	4.44	1.82	0.77	0.29	0.13	0.12	0.13
IN.†	0.08	1.60	0.80	2.80	1.74	5.12	2.02	0.89	0.32	0.15	0.13	0.14
AC-FT†	320	6640	3310	11650	7220	21300	8420	3690	1340	640	560	590

CAL YR 1988 TOTAL 21818 MEAN 59.6 MAX 223 MIN 31 AC-FT 43280 MEAN† 51.8 CFSM† 0.66 IN.† 9.03 AC-FT† 37570
WTR YR 1989 TOTAL 28289 MEAN 77.5 MAX 237 MIN 31 AC-FT 56110 MEAN† 90.7 CFSM† 1.16 IN.† 15.79 AC-FT† 65680

† Adjusted for change in contents in Galesville Reservoir.

SOUTH UMPQUA RIVER BASIN
14309000 COW CREEK NEAR AZALEA, OR--Continued
WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

DISSOLVED OXYGEN: November 1985 to current year.

INSTRUMENTATION.--Water-quality monitor since November 1985.

EXTREMES FOR PERIOD OF DAILY RECORD.--

DISSOLVED OXYGEN: Maximum recorded, 15.1 mg/L Feb. 7, 1989, caused by operation of bypass valve at dam; minimum, 0.9 mg/L July 30, 1988.

EXTREMES FOR CURRENT YEAR.--

DISSOLVED OXYGEN: Maximum recorded, 15.1 mg/L Feb. 7, caused by operation of bypass valve at dam; minimum recorded, 3.9 mg/L July 28.

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	8.1	7.7	7.8	8.1	7.7	7.9	7.5	6.6	7.0	8.1	7.6	7.9
2	8.0	7.5	7.9	8.0	7.6	7.8	7.4	6.8	7.1	8.1	7.6	7.9
3	8.0	7.7	7.8	9.7	7.5	8.3	7.6	6.9	7.2	8.2	7.7	7.9
4	8.1	7.4	7.7	10.0	7.9	8.8	7.8	6.7	7.3	8.2	7.7	8.0
5	8.0	7.7	7.9	8.1	7.4	7.8	7.8	6.6	7.1	8.5	7.8	8.1
6	8.1	7.9	8.0	7.9	7.4	7.7	6.9	6.2	6.6	10.3	7.8	6.8
7	8.0	7.7	7.9	7.8	7.2	7.6	7.3	6.4	6.9	8.5	7.8	8.1
8	8.1	7.8	7.9	8.4	7.6	8.0	8.2	6.9	7.7	11.3	7.8	8.3
9	8.1	7.8	8.0	8.4	8.0	8.2	8.3	7.6	8.0	8.8	8.0	8.3
10	8.1	7.6	7.9	8.4	8.0	8.2	10.9	7.8	8.9	8.6	7.9	8.3
11	8.0	7.5	7.8	8.4	8.0	8.2	8.5	7.9	8.2	8.7	8.0	8.3
12	7.9	7.6	7.7	8.3	7.8	8.0	8.3	7.5	7.9	8.5	8.0	8.3
13	7.7	7.5	7.6	8.2	7.7	7.9	7.9	6.8	7.5	9.1	6.7	8.0
14	7.8	7.5	7.7	9.5	7.7	8.3	8.0	6.3	7.2	8.9	7.1	7.9
15	7.9	7.6	7.8	8.4	7.9	8.2	8.0	7.0	7.4	9.3	6.8	8.1
16	7.9	7.6	7.7	8.9	7.4	8.1	7.8	7.0	7.4	9.4	7.4	8.2
17	9.2	7.6	8.3	9.9	7.3	8.1	7.7	7.1	7.4	11.6	7.6	8.6
18	9.4	6.5	8.3	7.8	7.4	7.6	9.1	7.0	7.5	11.8	8.0	9.7
19	9.3	7.5	7.8	7.7	7.3	7.5	8.2	7.3	7.7	11.9	11.3	11.7
20	9.1	7.7	8.1	7.8	7.3	7.5	8.0	7.2	7.5	12.1	7.9	10.6
21	7.8	7.4	7.6	8.3	7.2	7.5	11.3	7.4	8.9	9.3	7.7	8.5
22	7.8	7.5	7.6	8.5	6.4	7.4	8.2	7.7	7.9	8.9	7.7	8.4
23	7.8	7.5	7.6	7.5	6.3	6.9	7.9	7.3	7.7	8.8	8.0	8.4
24	7.8	7.4	7.6	10.2	6.2	7.2	7.9	6.7	7.4	9.6	8.7	9.2
25	7.7	7.3	7.5	7.5	6.3	6.9	7.5	6.7	7.1	9.7	8.9	9.4
26	7.7	7.3	7.5	8.1	7.1	7.5	7.3	6.4	7.0	10.0	8.6	9.2
27	7.8	7.5	7.7	11.1	6.5	9.0	7.6	6.7	7.1	9.8	9.0	9.4
28	8.0	7.5	7.8	8.3	7.2	7.9	7.7	7.0	7.4	9.7	8.8	9.2
29	7.9	7.3	7.6	11.3	6.5	8.0	10.5	7.3	7.7	9.7	8.8	9.3
30	7.9	7.6	7.8	7.4	6.0	6.8	8.4	7.6	7.9	9.8	9.0	9.4
31	7.9	7.7	7.8	---	---	---	8.2	7.6	8.0	9.6	7.7	8.8
MONTH	9.4	6.5	7.8	11.3	6.0	7.8	11.3	6.2	7.5	12.1	6.7	8.7

SOUTH UMPQUA RIVER BASIN

209

14309000 COW CREEK NEAR AZALEA, OR--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	8.4	7.2	7.7	11.5	10.6	11.1	10.8	10.0	10.5	---	---	---
2	9.4	7.8	8.5	11.6	10.2	10.9	10.9	10.3	10.6	---	---	---
3	12.0	8.1	9.8	11.3	10.1	10.7	10.9	10.3	10.6	---	---	---
4	11.9	8.7	10.0	11.7	10.7	11.2	11.6	10.5	11.0	---	---	---
5	13.9	7.4	9.0	11.4	10.9	11.2	11.7	10.6	11.0	---	---	---
6	9.7	7.7	9.0	11.5	10.7	11.2	11.1	10.6	10.8	10.1	9.6	9.8
7	15.1	8.7	10.0	11.3	10.1	10.7	10.9	10.2	10.6	10.7	9.6	10.0
8	10.1	7.9	9.1	11.1	9.7	10.6	10.9	10.0	10.4	10.4	8.9	9.6
9	10.1	8.3	9.0	10.8	9.8	10.3	10.7	10.3	10.5	9.3	8.8	9.0
10	9.4	8.8	9.1	11.5	10.7	11.1	10.5	9.8	10.3	9.5	8.9	9.2
11	9.7	8.7	9.2	11.2	9.9	10.6	10.8	9.7	10.2	10.8	8.8	9.4
12	9.3	8.2	8.8	11.0	10.1	10.7	10.4	9.5	10.0	9.0	8.4	8.8
13	11.2	8.3	9.7	11.2	10.1	10.7	10.4	9.6	10.0	9.3	8.4	8.9
14	11.2	10.2	10.7	11.2	10.5	10.8	10.5	9.7	10.1	9.5	8.7	9.1
15	11.3	10.6	10.8	11.1	10.4	10.7	10.6	9.9	10.2	9.6	8.5	9.0
16	11.0	10.3	10.7	10.9	10.1	10.6	10.4	9.8	10.1	9.3	8.8	9.1
17	11.1	10.4	10.8	11.2	10.4	10.7	10.6	9.6	10.1	9.4	8.9	9.2
18	11.1	10.5	10.8	10.8	10.2	10.6	10.6	9.9	10.2	9.7	8.5	9.3
19	11.2	10.2	10.7	11.0	10.3	10.7	10.6	9.8	10.2	9.5	8.9	9.2
20	11.3	10.5	10.8	11.0	10.2	10.6	10.4	9.7	10.1	9.7	9.1	9.4
21	11.4	10.7	11.0	11.0	10.1	10.5	10.3	9.5	9.9	9.9	9.1	9.5
22	11.6	10.1	10.8	11.1	10.3	10.8	10.5	9.5	10.0	9.7	9.2	9.5
23	11.1	9.0	10.3	11.0	10.0	10.6	10.4	9.6	9.9	9.6	8.6	9.3
24	11.1	10.0	10.5	10.7	10.1	10.5	10.3	9.5	9.9	9.8	9.2	9.5
25	11.2	10.1	10.7	10.5	10.0	10.3	10.2	9.5	9.8	9.9	9.4	9.6
26	11.4	10.5	10.9	10.7	10.0	10.3	10.1	9.6	9.8	9.9	9.3	9.6
27	11.5	10.6	11.0	10.7	10.0	10.4	10.3	9.7	9.9	9.9	9.3	9.6
28	11.7	6.0	10.8	10.7	9.9	10.4	10.4	9.7	10.0	10.0	9.4	9.7
29	---	---	---	10.6	10.2	10.4	10.3	9.7	10.0	9.9	9.4	9.7
30	---	---	---	10.8	10.3	10.5	---	---	---	9.9	9.3	9.6
31	---	---	---	10.9	10.3	10.6	---	---	---	9.8	9.5	9.6
MONTH	15.1	6.0	10.0	11.7	9.7	10.7	---	---	---	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	9.8	8.9	9.6	7.5	6.8	7.1	11.2	10.7	11.0	---	---	---
2	9.8	8.9	9.4	7.6	6.4	7.1	11.2	10.9	11.0	---	---	---
3	10.0	9.0	9.5	7.7	6.4	7.0	11.3	10.7	11.0	---	---	---
4	9.4	8.6	9.1	7.2	6.2	6.8	11.2	10.7	10.9	---	---	---
5	9.5	8.6	9.1	7.2	5.9	6.7	11.2	10.5	10.9	---	---	---
6	9.5	8.7	9.1	7.3	6.3	6.8	11.1	10.6	10.9	---	---	---
7	9.3	8.8	9.1	7.2	6.2	6.8	10.9	10.1	10.6	---	---	---
8	9.3	8.9	9.1	7.2	5.6	6.6	10.7	10.2	10.5	---	---	---
9	9.4	8.2	8.8	6.8	5.9	6.3	10.9	10.4	10.7	---	---	---
10	8.7	8.1	8.4	6.5	5.0	5.9	11.0	10.6	10.8	---	---	---
11	8.8	8.1	8.4	5.9	5.1	5.4	11.1	10.6	10.9	---	---	---
12	8.8	8.2	8.4	6.1	4.5	5.4	11.3	10.7	11.0	---	---	---
13	8.8	8.1	8.4	6.3	4.5	5.4	---	---	---	---	---	---
14	8.7	8.1	8.5	5.8	4.5	5.1	---	---	---	---	---	---
15	8.6	6.7	7.9	5.2	4.6	4.9	---	---	---	---	---	---
16	7.1	6.6	6.9	5.5	4.6	5.0	---	---	---	---	---	---
17	7.4	6.5	7.0	5.4	4.5	4.9	---	---	---	---	---	---
18	7.4	6.4	6.9	5.5	4.5	5.1	---	---	---	---	---	---
19	7.4	6.4	6.9	10.3	4.1	5.3	---	---	---	11.0	10.6	10.8
20	7.5	5.7	7.0	5.7	4.6	5.0	---	---	---	11.2	10.6	10.9
21	7.4	6.1	7.0	5.3	4.5	4.9	---	---	---	11.1	10.4	10.7
22	7.3	6.5	6.9	5.5	4.5	5.0	10.6	9.9	10.3	10.8	10.1	10.4
23	7.5	6.4	7.0	5.6	4.2	4.9	11.0	10.5	10.7	10.3	9.5	9.9
24	7.4	6.4	7.0	5.9	4.4	5.0	11.1	10.8	10.9	9.6	9.1	9.4
25	7.5	6.3	6.9	5.8	4.5	5.0	---	---	---	9.6	9.1	9.4
26	7.4	6.5	6.9	5.5	4.1	4.7	---	---	---	9.7	4.6	8.1
27	7.3	6.6	6.9	5.1	4.4	4.8	---	---	---	5.5	4.4	4.9
28	7.1	6.3	6.8	5.3	3.9	4.7	---	---	---	7.1	4.3	4.8
29	7.4	6.8	7.1	5.3	4.3	4.7	---	---	---	9.4	4.5	6.0
30	7.5	6.9	7.1	5.5	4.2	4.7	---	---	---	5.0	4.5	4.7
31	---	---	---	11.1	4.2	5.7	---	---	---	---	---	---
MONTH	10.0	5.7	7.9	11.1	3.9	5.6	---	---	---	---	---	---

SOUTH UMPQUA RIVER BASIN

14309500 WEST FORK COW CREEK NEAR GLENDALE, OR

LOCATION.--Lat 42°48'15", long 123°36'35", in SW 1/4 NE 1/4 sec.11, T.32 S., R.8 W., Douglas County, Hydrologic Unit 17100302, on left bank 1.6 mi downstream from Bear Creek, 11 mi northwest of Glendale, and at mile 0.8.

DRAINAGE AREA.--86.9 mi².

PERIOD OF RECORD.--August 1955 to current year.

REVISED RECORDS.--WSP 1738: 1956, drainage area (former site). WSP 1935: 1956.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,018.48 ft above National Geodetic Vertical Datum of 1929. Prior to June 8, 1964, at site 0.6 mi upstream at different datum.

REMARKS.--Records excellent except for estimated daily discharges, which are fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--34 years, 268 ft³/s, 41.88 in/yr, 194,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,700 ft³/s Dec. 22, 1964, gage height, 18.59 ft, from floodmark, from rating curve extended above 2,600 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 3.7 ft³/s Aug. 17, 19, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	2030	3,430	8.03	Jan. 10	0330	*5,280	*9.90

Minimum discharge, 5.5 ft³/s Sept. 14-17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.4	6.5	271	532	305	219	302	84	56	26	11	8.8
2	6.9	11	203	410	260	222	368	75	51	23	11	8.1
3	6.6	44	163	484	214	192	378	72	47	20	11	7.5
4	6.5	31	134	511	182	187	339	69	44	19	11	7.3
5	7.0	19	113	498	157	1180	293	65	40	18	10	7.3
6	7.6	55	100	400	146	1190	252	61	38	18	9.4	7.3
7	7.7	39	88	316	147	710	220	58	37	17	8.9	7.2
8	7.3	32	79	277	154	512	197	56	35	16	11	6.9
9	6.7	30	73	797	154	869	180	54	35	16	13	6.6
10	6.7	139	69	3110	127	1260	163	55	34	16	11	6.3
11	6.4	107	63	1130	126	1130	147	53	33	16	10	6.1
12	6.1	66	59	711	134	1240	135	50	e32	15	9.6	6.0
13	6.1	205	56	571	140	1740	127	48	e31	14	9.1	5.8
14	6.3	238	53	459	141	1190	117	46	e30	14	8.6	5.7
15	6.4	176	49	437	138	985	108	45	e31	16	8.5	5.5
16	6.4	338	47	540	191	836	102	43	e30	16	8.2	5.5
17	6.4	1400	45	602	380	820	96	42	e29	16	7.9	6.2
18	6.4	508	44	537	445	1750	90	42	e28	15	7.9	7.7
19	6.4	225	45	464	513	1150	86	43	e27	14	7.9	8.1
20	6.4	158	52	445	413	771	83	40	e26	13	7.9	7.6
21	6.4	307	154	512	368	923	82	39	e25	13	7.6	7.2
22	6.4	2340	459	618	872	816	80	38	e24	13	8.2	6.9
23	6.4	1670	382	498	981	621	85	62	e23	12	10	6.6
24	6.4	787	326	395	628	490	95	179	e22	12	11	6.3
25	6.4	908	251	317	455	643	171	108	e21	12	9.9	6.0
26	6.4	928	183	270	354	640	167	83	20	11	9.2	6.1
27	6.4	613	156	254	287	509	126	73	20	11	8.5	19
28	6.4	835	135	251	248	452	108	79	20	11	8.2	16
29	6.4	571	125	234	---	411	96	78	22	11	7.7	12
30	6.4	381	698	259	---	361	89	69	33	11	8.4	15
31	6.4	---	814	303	---	325	---	62	---	11	9.0	---
TOTAL	204.1	13167.5	5489	17142	8660	24344	4882	1971	944	466	290.6	238.6
MEAN	6.58	439	177	553	309	785	163	63.6	31.5	15.0	9.37	7.95
MAX	7.7	2340	814	3110	981	1750	378	179	56	26	13	19
MIN	6.1	6.5	44	234	126	187	80	38	20	11	7.6	5.5
AC-FT	405	26120	10890	34000	17180	48290	9680	3910	1870	924	576	473
CFSM	.08	5.05	2.04	6.36	3.56	9.04	1.87	.73	.36	.17	.11	.09
IN.	.09	5.64	2.35	7.34	3.71	10.42	2.09	.84	.40	.20	.12	.10

CAL YR 1988 TOTAL 56763.0 MEAN 155 MAX 3300 MIN 4.7 AC-FT 112600 CFSM 1.78 IN. 24.30
WTR YR 1989 TOTAL 77798.8 MEAN 213 MAX 3110 MIN 5.5 AC-FT 154300 CFSM 2.45 IN. 33.30

e Estimated

LOCATION.--Lat 42°55'25", long 123°25'40", in NE 1/4 sec.32, T.30 S., R.6 W., Douglas County, Hydrologic Unit 17100302, on left bank 0.4 mi upstream from Council Creek, 3.8 mi southwest of Riddle, and at mile 6.7.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,800 ft³/s Jan. 10, gage height, 12.24 ft; minimum discharge, 52 ft³/s Oct. 2-4, 10-12.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	57	764	1700	852	649	1020	515	222	149	110	120
2	52	60	598	1240	761	684	1110	469	208	139	108	114
3	52	99	486	1250	645	653	1130	422	198	131	118	111
4	53	113	411	1410	559	614	1070	389	200	126	115	110
5	57	92	361	1470	491	2140	926	363	206	135	114	109
6	59	107	327	1320	460	3930	836	343	200	132	112	108
7	59	126	297	1080	454	2380	774	324	196	129	111	105
8	58	101	275	931	431	1670	710	310	192	126	111	102
9	55	101	257	1560	434	2080	658	309	191	127	127	104
10	53	195	245	7830	424	3860	610	313	188	110	122	105
11	52	255	235	3990	420	3080	550	303	185	105	118	104
12	53	158	223	2400	453	2710	495	289	181	113	114	101
13	54	228	213	1840	510	3580	455	279	179	114	111	100
14	54	582	204	1490	520	3060	428	269	177	115	110	100
15	54	327	195	1260	503	2640	404	259	186	120	109	99
16	53	435	188	1340	537	2380	384	248	191	122	107	106
17	53	2440	182	1490	844	2320	371	240	178	122	107	114
18	54	1290	178	1430	1010	4290	354	238	171	118	108	106
19	61	592	185	1270	1190	3700	341	238	166	113	105	93
20	59	399	192	1170	1040	2560	331	228	163	111	104	87
21	55	510	409	1220	889	2540	334	215	159	113	104	83
22	59	3740	1380	1700	1360	2540	349	211	154	112	108	81
23	56	4300	1450	1520	2420	2140	344	237	151	109	111	78
24	56	2130	1170	1260	1740	1760	389	424	148	106	115	76
25	57	2060	980	1030	1270	1750	884	338	143	104	113	74
26	55	2170	742	879	985	1730	1400	285	139	103	107	76
27	55	1500	605	802	809	1490	1070	261	146	109	100	130
28	56	1890	530	772	717	1340	813	264	145	109	104	114
29	56	1570	470	725	---	1230	658	275	152	108	102	101
30	57	1050	1210	727	---	1120	565	262	161	109	115	126
31	56	---	2470	815	---	1080	---	240	---	110	131	---
TOTAL	1718	28677	17432	48921	22728	67700	19763	9360	5276	3649	3451	3037
MEAN	55.4	956	562	1578	812	2184	659	302	176	118	111	101
MAX	61	4300	2470	7830	2420	4290	1400	515	222	149	131	130
MIN	52	57	178	725	420	614	331	211	139	103	100	74
AC-FT	3410	56880	34580	97030	45080	134300	39200	18570	10460	7240	6850	6020
CAL YR 1988	TOTAL	158661	MEAN	433	MAX	6910	MIN	52	AC-FT	314700		
WTR YR 1989	TOTAL	231712	MEAN	635	MAX	7830	MIN	52	AC-FT	459600		

SOUTH UMPQUA RIVER BASIN

14311500 LOOKINGGLASS CREEK AT BROCKWAY, OR

LOCATION.--Lat 43°07'50", long 123°27'50", in SE 1/4 SE 1/4 sec.13, T.28 S., R.7 W., Douglas County, Hydrologic Unit 17100302, on left bank 1.7 mi northwest of Brockway and at mile 2.85.

DRAINAGE AREA.--158 mi².

PERIOD OF RECORD.--October 1955 to current year.

REVISED RECORDS.--WSP 2135: Drainage area (former site).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 540 ft, from topographic map. Prior to Oct. 5, 1967, water-stage recorder at site 2.3 mi downstream at different datum. Oct. 5, 1967, to Oct. 5, 1976, water-stage recorder, at datum 1.00 ft lower.

REMARKS.--No estimated daily discharges. Records good. Some regulation by Ben Irving Reservoir 17 mi upstream on Berry Creek, capacity, 11,200 acre-ft since January 1980. Many diversions by pumping for irrigation upstream from station. Discharge not adjusted for storage or release from Ben Irving Reservoir as losses from reservoir at times exceed natural flow.

AVERAGE DISCHARGE.--24 years (water years 1956-79), 282 ft³/s, 204,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,000 ft³/s Dec. 26, 1955, gage height, 24.93 ft, site and datum then in use, from rating curve extended above 7,200 ft³/s on basis of slope-area measurement of peak flow; maximum gage height, 25.28 ft Dec. 23, 1964 (backwater from South Umpqua River, site and datum then in use); no flow at times each year prior to January 1980, Aug. 6, 7, 1987.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,300 ft³/s Jan. 10, gage height, 10.88 ft; maximum gage height, 11.07 ft Jan. 10, from crest-stage gage; minimum discharge, 0.75 ft³/s Aug. 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	33	231	737	220	194	232	53	23	12	4.4	8.1
2	8.8	38	194	546	224	306	247	48	20	10	5.1	6.4
3	8.9	39	164	463	209	273	227	45	18	6.7	5.0	6.5
4	10	42	139	421	196	260	207	46	16	5.9	5.4	6.8
5	12	37	121	426	173	677	189	42	14	6.1	6.0	6.5
6	12	33	109	418	175	895	170	40	13	4.8	4.7	6.8
7	12	46	97	388	181	613	152	38	11	4.2	4.9	6.3
8	11	41	88	395	158	459	137	36	9.9	4.5	6.0	6.0
9	10	38	81	780	124	495	125	33	9.8	5.3	9.5	5.8
10	11	45	76	3720	139	599	114	33	10	5.4	7.5	5.6
11	10	59	72	1600	178	594	103	33	9.5	5.4	5.8	5.1
12	5.4	40	68	888	239	536	95	31	8.2	4.6	4.0	4.2
13	2.8	39	65	839	286	971	88	31	6.7	4.5	4.3	4.0
14	3.3	54	61	806	291	1180	82	29	7.0	4.6	3.7	4.2
15	2.9	51	59	713	273	1200	76	28	9.4	4.9	2.5	3.6
16	3.0	60	57	645	399	962	72	26	11	5.6	1.7	5.4
17	3.2	359	53	546	778	685	68	25	7.9	6.7	1.7	16
18	5.0	234	52	449	751	861	58	25	6.8	8.1	.88	18
19	9.8	125	58	364	649	814	54	26	5.7	6.7	1.0	18
20	11	86	62	308	530	618	51	23	2.3	6.8	3.2	17
21	14	109	353	448	423	931	50	22	4.7	4.3	4.1	15
22	20	702	1110	661	437	819	49	21	3.7	3.9	3.2	14
23	23	891	1150	594	452	622	49	24	2.7	4.2	3.5	15
24	27	671	934	488	385	487	49	39	3.2	4.0	5.1	15
25	28	745	704	391	317	467	82	40	2.2	4.7	5.3	14
26	28	804	520	333	267	403	107	33	2.1	4.8	4.8	14
27	28	506	416	285	233	365	84	30	1.9	4.4	4.3	20
28	28	557	343	258	210	338	69	29	1.9	3.6	3.5	24
29	30	428	290	235	---	290	61	31	2.4	3.1	3.0	24
30	32	302	546	217	---	266	55	28	13	4.5	6.9	25
31	31	---	1010	206	---	255	---	25	---	5.8	8.8	---
TOTAL	451.1	7214	9283	19568	8897	18435	3202	1013	257.0	170.1	139.78	340.3
MEAN	14.6	240	299	631	318	595	107	32.7	8.57	5.49	4.51	11.3
MAX	32	891	1150	3720	778	1200	247	53	23	12	9.5	25
MIN	2.8	33	52	206	124	194	49	21	1.9	3.1	.88	3.6
AC-FT	895	14310	18410	38810	17650	36570	6350	2010	510	337	277	675

CAL YR 1988 TOTAL 55963.6 MEAN 153 MAX 3110 MIN 2.8 AC-FT 111000
WTR YR 1989 TOTAL 68970.28 MEAN 189 MAX 3720 MIN .88 AC-FT 136800

SOUTH UMPQUA RIVER BASIN

213

14312000 SOUTH UMPQUA RIVER NEAR BROCKWAY, OR

LOCATION.--Lat 43°08'00", long 123°23'50", in SW 1/4 sec.15, T.28 S., R.6 W., Douglas County, Hydrologic Unit 17100302, on right bank 10 ft upstream from Winston Bridge on State Highway 99, 2.5 mi northeast of Brockway, 4.2 mi downstream from Lookingglass Creek, and at mile 132.8.

DRAINAGE AREA.--1,670 mi².

PERIOD OF RECORD.--December 1905 to June 1912, October 1923 to September 1926, January 1942 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 1248: 1946(M), 1948(M), 1951. WSP 1448: Drainage area. WDR OR 72-1: 1965(M).

GAGE.--Water-stage recorder. Datum of gage is 462.52 ft above National Geodetic Vertical Datum of 1929 (State Highway Department bench mark). Prior to June 24, 1949, nonrecording gage at several sites within 400 ft of present site at various datums. June 24, 1949, to Oct. 1, 1970, at datum 461.84 ft National Geodetic Vertical Datum of 1929 (State Highway Department bench mark).

REMARKS.--No estimated daily discharges. Records excellent. Regulation from Ben Irving Reservoir, since January 1980, on Berry Creek during summer months. Many small diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--55 years (water years 1907-11, 1924-26, 1943-89), 2,846 ft³/s, 23.14 in/yr, 2,062,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 125,000 ft³/s Dec. 23, 1964, gage height, 34.28 ft; minimum discharge, 16 ft³/s Aug. 23, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Feb. 21, 1927, reached a stage of about 31.2 ft, present site and datum, discharge, 89,500 ft³/s. Discharge for flood of February 1890, which reached a stage 1.9 ft higher, according to local resident who lived nearby at time of both floods, has been found to be in error and should not be used.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 20,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 23	0630	22,000	14.27	Jan. 10	1300	*48,300	*21.40

Minimum discharge, 107 ft³/s Oct. 19, 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	148	118	3150	5020	4570	2800	5680	2880	1350	415	198	341
2	135	125	2740	3790	4030	3120	5470	2500	1240	382	203	271
3	128	145	2390	3980	3280	3300	5340	2250	1170	353	205	243
4	124	257	2070	4540	2700	2960	4750	2120	1110	320	214	227
5	124	372	1830	5510	2310	4650	4300	2050	1050	307	210	215
6	132	281	1640	5480	2100	16100	4100	2070	986	302	199	207
7	138	440	1790	4420	1990	10900	4120	2060	926	288	189	202
8	140	469	1620	3720	1840	7610	4050	1980	861	276	187	193
9	137	342	1400	6440	1730	7950	3950	1900	809	272	198	187
10	130	374	1310	32600	1780	14700	3700	2170	765	279	222	183
11	122	539	1340	17600	1760	11500	3310	2010	726	259	247	179
12	118	672	1260	9730	1890	9510	3020	1750	683	250	211	169
13	114	652	1170	7300	2070	10200	2790	1560	650	249	193	162
14	115	1110	1100	6140	2100	9560	2770	1420	640	248	184	160
15	116	946	1020	5060	2010	8840	2720	1320	645	251	175	153
16	115	1070	919	4700	1980	9020	2560	1230	668	259	170	151
17	113	4430	840	4800	3400	8360	2370	1160	632	273	165	174
18	110	3950	773	4940	5750	9750	2210	1140	566	275	165	207
19	111	2000	752	4610	7230	11900	2180	1110	520	271	168	213
20	113	1420	792	4600	6160	9120	2140	1020	494	240	166	219
21	121	1770	1400	5110	4990	12900	2050	959	470	234	169	195
22	116	7660	4280	6730	4730	14700	2040	926	449	232	176	180
23	117	16400	5390	6000	8730	9950	1850	936	427	228	187	169
24	119	7350	4200	4940	6960	7470	1870	1210	412	217	258	161
25	118	5730	3590	4070	5310	6640	3730	1330	392	207	332	153
26	116	6920	2810	3480	4220	6390	6490	1450	369	199	267	150
27	118	5610	2280	3220	3540	5530	5140	1330	358	197	228	170
28	118	7120	2030	3230	3110	5290	4270	1560	365	203	205	241
29	119	6450	1780	3010	---	6520	3620	1800	370	197	192	249
30	119	4190	2470	3090	---	5640	3150	1700	403	196	244	244
31	122	---	6410	4010	---	5740	---	1500	---	200	333	---
TOTAL	3786	88912	66546	191870	102270	258620	105740	50401	20506	8079	6460	5968
MEAN	122	2964	2147	6189	3652	8343	3525	1626	684	261	208	199
MAX	148	16400	6410	32600	8730	16100	6490	2880	1350	415	333	341
MIN	110	118	752	3010	1730	2800	1850	926	358	196	165	150
AC-FT	7510	176400	132000	380600	202900	513000	209700	99970	40670	16020	12810	11840
CFSM	.07	1.77	1.29	3.71	2.19	5.00	2.11	.97	.41	.16	.12	.12
IN.	.08	1.98	1.48	4.27	2.28	5.76	2.36	1.12	.46	.18	.14	.13
CAL YR 1988	TOTAL 612733	MEAN 1674	MAX 20100	MIN 80	AC-FT 1215000	CFSM 1.00	IN. 13.65					
WTR YR 1989	TOTAL 909158	MEAN 2491	MAX 32600	MIN 110	AC-FT 1803000	CFSM 1.49	IN. 20.25					

SOUTH UMPQUA RIVER BASIN

14312260 SOUTH UMPQUA RIVER NEAR ROSEBURG, OR

LOCATION.--Lat 43°13'20", long 123°24'45", in NW 1/4 SE 1/4 sec.16, T.27 S., R.6 W., Douglas County, Hydrologic Unit 17100302, on left bank, 3.7 mi west of Roseburg, and at mile 117.7.

DRAINAGE AREA.--1,798 mi².

PERIOD OF RECORD.--Water years 1970 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1970 to current year.

pH: August 1971 to current year.

DISSOLVED OXYGEN: October 1970 to current year.

WATER TEMPERATURE: October 1970 to current year.

INSTRUMENTATION.--Water-quality monitor from October 1970 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 423 microsiemens Sept. 18, 1971; minimum, 37 microsiemens Feb. 18, 1983.

pH: Maximum, 10.0 units Sept. 8, 9, 1971; minimum, 5.0 units Sept. 29, 1971.

DISSOLVED OXYGEN: Maximum, 18.5 mg/L Aug. 24, 1986; minimum, 0.4 mg/L Aug. 10, 1978.

WATER TEMPERATURE: Maximum, 35.0°C July 16, 1976; minimum, 0.0°C Dec. 14, 16, 1972, Jan. 9, 1974, Feb. 6-9, 1989.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 219 microsiemens Nov. 1; minimum recorded, 67 microsiemens Feb. 2.

pH: Maximum, 9.5 units Aug. 18-20; minimum recorded, 6.9 units Jan. 18, Mar. 22.

DISSOLVED OXYGEN: Maximum recorded, 15.4 mg/L Sept. 20, 21; minimum recorded, 5.3 mg/L Aug. 22, 23, 27.

WATER TEMPERATURE: Maximum, 27.5°C Aug. 7; minimum, 0.0°C Feb. 6-9.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)
OCT 13...	1230	115	188	7.6	17.5	1.7	7.9	84	K32	210	69
NOV 18...	1215	3830	96	7.3	8.5	--	11.0	94	330	940	37
DEC 21...	1330	1310	118	7.7	4.0	9.6	12.9	99	920	1400	47
JAN 24...	1400	4850	83	7.5	5.5	--	12.3	97	160	120	34
FEB 23...	1330	9220	70	7.6	7.0	27	11.8	98	K53	77	27
MAR 23...	0900	7540	81	7.2	8.0	--	10.5	89	K30	87	30
APR 11...	1400	3300	84	7.4	13.5	2.6	10.8	104	K17	K11	31
MAY 24...	1500	1190	108	7.8	15.5	--	10.0	101	49	K6	43
JUN 08...	1200	864	96	8.0	21.5	0.5	9.1	104	K18	K7	37
JUL 14...	1120	247	142	8.1	22.5	--	8.0	93	180	120	52
AUG 17...	1200	165	154	8.6	22.0	0.3	8.0	93	K7	640	60
SEP 05...	1700	213	152	8.9	22.5	--	11.8	138	340	290	51

K - Results based on colony count outside acceptable range (non-ideal colony count).

SOUTH UMPQUA RIVER BASIN

14312260 SOUTH UMPQUA RIVER NEAR ROSEBURG, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NESS HARD- NESS NONCARB (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WATER DIS IT FIELD (MG/L AS CACO3)	BICAR- BONATE WATER DIS IT FIELD (MG/L AS HCO3)	CAR- BONATE WATER DIS IT FIELD (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 13...	9	15	7.6	11	1.6	60	73	0	10	14	0.1
NOV 18...	7	8.8	3.6	--	--	29	36	0	--	6.5	--
DEC 21...	2	11	4.8	5.5	0.6	44	54	0	7.9	6.6	0.1
JAN 24...	0	7.5	3.7	--	--	34	41	0	--	3.5	--
FEB 23...	0	6.4	2.7	3.6	0.6	27	33	0	4.7	2.2	0.1
MAR 23...	1	6.9	3.0	--	--	28	34	0	--	2.1	--
APR 11...	5	7.4	3.0	3.6	0.5	25	31	0	3.2	2.3	0.1
MAY 24...	0	10	4.4	--	--	43	53	0	--	4.7	--
JUN 08...	0	8.9	3.6	4.6	0.5	38	46	0	4.0	3.8	0.1
JUL 14...	0	12	5.4	--	--	57	70	0	--	6.8	--
AUG 17...	5	13	6.6	8.8	1.0	54	59	4	7.0	10	0.1
SEP 05...	0	11	5.7	--	--	52	52	6	--	9.3	--
DATE	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS TOTAL (MG/L AS P)
OCT 13...	6.8	109	104	33.8	0.15	0.17	0.31	0.6	0.18	0.23	0.26
NOV 18...	--	72	--	--	--	--	0.25	0.8	0.03	--	0.10
DEC 21...	15	74	80	262	0.10	0.13	0.18	0.3	0.05	0.06	0.07
JAN 24...	--	59	--	--	--	--	0.19	<0.2	0.01	--	0.04
FEB 23...	15	48	53	1190	0.06	0.04	<0.10	<0.2	0.04	0.04	0.07
MAR 23...	--	68	--	--	--	--	0.10	<0.2	0.06	--	0.06
APR 11...	15	57	51	508	0.08	0.03	<0.10	<0.2	0.02	0.02	0.03
MAY 24...	--	70	--	--	--	--	<0.10	0.2	0.03	--	0.05
JUN 08...	14	64	63	149	0.09	0.03	<0.10	0.2	0.04	0.03	0.05
JUL 14...	--	63	--	--	--	--	0.49	0.6	0.09	--	0.08
AUG 17...	9.6	84	90	37.4	0.11	0.05	0.18	0.4	0.11	0.14	0.14
SEP 05...	--	90	--	--	--	--	0.30	0.4	0.14	--	0.14

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

SOUTH UMPQUA RIVER BASIN

14312260 SOUTH UMPQUA RIVER NEAR ROSEBURG, OR--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	193	184	188	219	208	213	85	79	82	89	85	87
2	186	177	182	216	209	213	86	84	85	95	89	92
3	188	181	184	213	201	207	86	83	84	97	95	95
4	187	184	186	202	199	201	---	---	---	95	87	91
5	---	---	---	206	201	203	---	---	---	88	85	87
6	---	---	---	204	196	200	---	---	---	85	82	83
7	---	---	---	201	196	198	---	---	---	91	85	88
8	---	---	---	199	188	193	---	---	---	96	90	94
9	---	---	---	189	185	187	---	---	---	99	89	96
10	---	---	---	187	178	183	---	---	---	---	---	---
11	---	---	---	177	171	174	---	---	---	---	---	---
12	---	---	---	171	157	163	---	---	---	---	---	---
13	---	---	---	157	153	155	109	104	105	---	---	---
14	---	---	---	156	146	151	117	108	111	---	---	---
15	---	---	---	145	131	137	111	103	105	---	---	---
16	---	---	---	132	125	130	109	103	105	---	---	---
17	---	---	---	---	---	---	107	104	106	---	---	---
18	---	---	---	111	94	98	114	105	110	---	---	---
19	---	---	---	105	96	100	114	111	112	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	202	195	199	---	---	---	122	107	116	---	---	---
23	203	196	200	---	---	---	105	98	100	---	---	---
24	204	199	202	79	70	74	102	98	100	---	---	---
25	206	200	203	88	80	86	104	102	103	---	---	---
26	206	202	204	88	80	84	108	104	106	---	---	---
27	209	203	206	82	77	79	111	107	109	---	---	---
28	209	202	206	86	74	83	115	111	113	---	---	---
29	210	203	206	73	69	71	118	115	116	---	---	---
30	---	---	---	80	73	77	120	116	118	---	---	---
31	---	---	---	---	---	---	115	86	99	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	74	68	70	97	92	94	87	82	84	89	88	88
2	70	67	68	104	98	102	88	85	87	91	89	90
3	71	68	69	101	99	100	86	85	86	93	91	92
4	74	71	72	103	99	100	90	86	88	95	94	94
5	77	72	74	109	101	105	93	90	92	96	94	95
6	81	76	77	99	69	78	94	92	93	95	93	94
7	82	78	81	74	69	71	93	92	92	93	90	92
8	83	82	83	80	74	77	91	89	90	90	88	89
9	---	---	---	85	80	83	89	87	88	89	87	88
10	---	---	---	82	71	75	88	87	87	89	87	88
11	---	---	---	77	73	75	89	86	87	87	84	85
12	---	---	---	78	74	76	87	85	86	87	84	86
13	---	---	---	81	79	80	88	87	87	91	87	89
14	---	---	---	83	78	80	89	85	86	95	91	93
15	---	---	---	86	83	85	87	85	86	98	94	96
16	---	---	---	87	84	86	87	85	86	100	97	98
17	---	---	---	85	83	84	88	86	86	102	99	101
18	---	---	---	89	84	87	89	87	88	104	102	103
19	---	---	---	84	80	81	97	88	90	105	103	104
20	---	---	---	85	81	82	90	88	89	106	103	105
21	---	---	---	92	77	88	90	88	89	107	105	106
22	---	---	---	78	75	76	---	---	---	109	106	107
23	---	---	---	85	79	82	---	---	---	112	108	109
24	80	70	74	90	85	87	---	---	---	112	109	110
25	86	81	83	93	90	91	---	---	---	110	107	108
26	89	85	87	90	88	89	---	---	---	107	100	104
27	90	86	88	94	89	91	87	84	86	100	96	98
28	93	90	91	95	93	95	87	85	86	97	95	97
29	---	---	---	93	84	88	87	86	86	96	91	94
30	---	---	---	89	84	85	88	86	87	91	88	89
31	---	---	---	90	86	89	---	---	---	88	86	88
MONTH	---	---	---	109	69	86	---	---	---	112	84	96

SOUTH UMPQUA RIVER BASIN

219

14312260 SOUTH UMPQUA RIVER NEAR ROSEBURG, OR--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	91	88	89	134	131	133	154	149	152	---	---	---
2	93	89	91	134	130	132	153	148	151	---	---	---
3	94	92	93	136	131	133	156	150	153	154	147	150
4	95	93	94	137	133	135	156	143	151	155	147	151
5	96	94	95	138	133	136	150	144	147	---	---	---
6	96	95	96	139	133	137	149	143	147	155	150	153
7	98	95	97	140	135	138	151	143	147	154	149	152
8	99	96	98	140	136	139	---	---	---	157	150	154
9	101	97	99	141	136	139	155	143	150	158	152	156
10	102	99	101	142	138	140	159	151	155	159	153	156
11	104	101	102	144	138	141	159	154	156	---	---	---
12	107	103	105	147	138	142	156	152	155	158	153	156
13	109	105	107	146	140	143	156	151	154	159	153	157
14	111	108	109	145	141	143	154	149	153	160	155	158
15	115	110	112	146	142	145	155	149	153	160	154	158
16	115	112	114	148	144	146	156	150	154	160	154	158
17	115	112	114	148	144	147	157	151	155	160	156	158
18	117	115	116	149	145	147	158	152	156	162	154	157
19	118	115	117	149	145	148	160	152	156	161	154	158
20	---	---	---	149	145	147	160	152	156	161	156	159
21	---	---	---	149	145	147	160	153	158	161	156	159
22	---	---	---	150	145	148	160	154	158	161	155	158
23	---	---	---	151	146	149	160	155	159	159	153	157
24	126	122	124	151	147	149	161	156	159	159	152	156
25	127	123	125	152	146	150	161	155	157	160	154	158
26	129	124	127	154	147	151	156	151	154	161	156	159
27	130	125	128	155	149	152	156	151	154	163	157	160
28	131	127	129	156	150	153	---	---	---	164	158	161
29	133	127	130	155	150	153	---	---	---	165	162	163
30	134	129	132	153	148	151	---	---	---	166	162	164
31	---	---	---	153	148	151	160	150	153	---	---	---
MONTH	---	---	---	156	130	144	---	---	---	---	---	---

SOUTH UMPQUA RIVER BASIN

14312260 SOUTH UMPQUA RIVER NEAR ROSEBURG, OR--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	9.0	7.4	8.0	7.4	7.4	7.2	7.5	7.4	7.4	7.3	7.5	7.4
2	9.0	7.4	7.8	7.4	7.4	7.3	7.5	7.4	7.3	7.3	7.4	7.4
3	8.9	7.4	8.0	7.3	7.4	7.3	7.6	7.4	7.3	7.2	7.5	7.3
4	8.5	7.3	8.0	7.3	7.4	7.3	7.6	7.5	7.4	7.3	7.5	7.4
5	8.5	7.3	7.9	7.4	---	7.3	7.5	7.4	7.5	7.3	7.4	7.3
6	8.5	7.3	7.8	7.4	---	---	7.4	7.3	7.5	7.4	7.4	7.1
7	8.7	7.3	7.8	7.4	---	---	7.4	7.3	7.6	7.4	7.2	7.1
8	8.5	7.3	7.7	7.5	---	---	7.5	7.4	7.6	7.4	7.3	7.2
9	8.7	7.3	7.8	7.5	---	---	7.7	7.4	7.6	7.5	7.3	7.2
10	8.6	7.3	7.6	7.4	7.3	---	---	---	7.6	7.5	7.2	7.1
11	8.6	7.3	7.7	7.4	7.6	7.3	---	---	7.6	7.5	7.1	7.1
12	8.8	7.3	7.6	7.4	---	---	---	---	7.6	7.5	7.1	7.1
13	8.1	7.3	7.5	7.4	7.6	7.4	7.2	7.1	7.6	7.6	7.1	7.0
14	8.6	7.2	7.6	7.4	7.6	7.4	7.1	7.0	7.6	7.5	7.2	7.0
15	---	---	7.6	7.4	7.7	7.5	7.1	7.1	7.6	7.5	7.2	7.1
16	---	---	7.5	7.3	7.7	7.5	7.1	7.0	7.6	7.5	7.2	7.1
17	8.4	---	7.3	7.1	7.7	7.5	7.1	7.0	7.6	7.5	7.2	7.1
18	8.7	7.2	7.2	7.1	7.7	7.5	7.0	6.9	7.5	7.3	7.1	7.1
19	8.7	7.2	7.3	7.2	7.6	7.5	7.0	7.0	7.3	7.3	7.1	7.0
20	8.3	7.2	---	---	---	7.6	---	---	7.3	7.2	7.2	7.1
21	8.5	7.2	---	---	7.8	---	---	---	7.4	7.3	7.2	7.0
22	8.6	7.3	---	---	7.7	7.5	---	---	7.4	7.3	7.0	6.9
23	8.7	7.3	---	---	7.5	7.4	---	---	7.4	7.2	7.1	7.0
24	8.5	7.3	7.3	7.0	7.5	7.5	7.4	---	7.3	7.2	7.1	7.1
25	8.3	7.4	7.2	7.2	7.5	7.4	7.4	7.3	7.3	7.1	7.1	7.0
26	8.1	7.4	7.2	7.2	7.6	7.4	7.4	7.4	7.3	7.1	7.1	7.0
27	8.4	7.4	7.3	7.2	7.6	7.5	7.4	7.3	7.4	7.3	7.1	7.0
28	8.3	7.3	7.4	7.2	7.6	7.5	7.4	7.3	7.5	7.3	7.1	7.1
29	8.3	7.3	7.2	7.1	7.7	7.6	7.5	7.3	---	---	7.1	7.0
30	---	7.3	7.3	7.2	7.7	7.6	7.5	7.4	---	---	7.1	7.1
31	8.5	---	---	---	7.7	7.4	7.5	7.4	---	---	7.1	7.0
MONTH	---	---	---	---	---	---	---	---	7.6	7.1	7.5	6.9
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	7.2	7.1	8.2	7.6	8.1	7.5	8.7	7.5	8.7	7.4	---	---
2	7.1	7.1	8.2	7.7	8.1	7.4	8.8	7.5	9.0	7.4	8.9	---
3	7.1	7.1	8.1	7.7	8.1	7.5	8.9	7.5	8.9	7.4	8.9	7.4
4	7.2	7.1	8.3	7.7	8.1	7.4	8.9	7.5	9.0	7.4	---	---
5	7.2	7.1	8.4	7.7	8.1	7.4	8.9	7.4	9.0	7.4	8.9	---
6	7.2	7.1	8.2	7.7	8.1	7.4	8.9	7.4	9.1	7.4	9.0	7.4
7	7.2	7.0	8.2	7.6	8.2	7.5	8.9	7.4	9.1	7.4	9.1	7.3
8	7.2	7.0	8.3	7.6	8.1	7.4	8.9	7.3	9.0	---	9.1	7.3
9	7.2	7.0	8.1	7.6	8.2	7.4	8.7	7.3	8.6	7.3	9.1	7.3
10	7.2	7.0	8.0	7.5	8.4	7.6	8.9	7.4	9.0	7.3	9.2	7.3
11	7.2	7.0	8.2	7.5	8.4	7.6	9.0	7.4	9.0	7.3	---	---
12	7.3	7.1	8.2	7.6	8.4	7.5	9.0	7.4	9.1	7.4	9.2	7.3
13	7.4	7.1	8.3	7.7	8.4	7.5	8.9	7.3	9.2	7.5	9.2	7.3
14	7.5	7.2	8.3	7.8	8.1	7.4	8.6	7.3	9.2	7.5	9.2	7.3
15	7.5	7.2	8.2	7.8	8.1	7.4	8.8	7.3	9.3	7.5	9.2	7.3
16	7.5	7.2	8.2	7.8	8.4	7.4	8.3	7.3	9.4	7.4	9.2	7.3
17	7.5	7.2	8.1	7.8	8.5	7.6	8.6	7.3	9.4	7.4	8.7	7.3
18	7.6	7.2	7.9	7.7	8.6	7.6	8.7	7.3	9.5	7.5	9.0	7.3
19	7.7	7.0	8.1	7.6	8.6	7.5	8.8	7.3	9.5	7.5	9.0	7.3
20	7.5	7.3	8.1	7.7	---	---	8.5	7.3	9.5	7.5	9.0	7.4
21	7.4	7.2	8.1	7.7	---	---	8.8	7.4	9.4	7.4	9.0	7.4
22	---	---	8.1	7.6	---	---	8.9	7.4	9.3	7.4	9.1	7.4
23	---	---	---	---	---	---	8.9	7.4	9.2	7.4	9.1	7.4
24	---	---	---	---	8.8	7.5	8.9	7.4	9.2	7.4	9.1	7.3
25	---	---	8.0	---	8.8	7.4	8.9	7.4	8.9	7.5	9.0	7.3
26	7.6	---	8.0	7.7	8.7	7.4	8.4	7.3	9.0	7.4	8.9	7.2
27	7.8	7.5	8.0	7.6	8.8	7.4	8.9	7.3	8.8	7.3	8.7	7.2
28	7.9	7.6	7.9	7.6	8.5	7.4	8.9	7.3	---	7.3	8.9	7.2
29	8.0	7.6	8.0	7.5	8.4	7.4	8.6	7.3	---	---	8.3	7.3
30	7.9	7.6	8.1	7.5	8.7	7.4	8.9	7.4	---	---	8.0	7.3
31	---	---	8.1	7.5	---	---	8.8	7.3	8.7	7.3	---	---
MONTH	---	---	---	---	---	---	9.0	7.3	---	---	---	---

SOUTH UMPQUA RIVER BASIN

221

14312260 SOUTH UMPQUA RIVER NEAR ROSEBURG, OR--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	11.7	6.1	8.3	9.9	8.2	8.9	12.3	12.0	12.1	13.4	12.7	13.1
2	12.3	7.7	9.7	9.1	7.7	8.3	12.3	12.1	12.2	13.3	12.8	13.0
3	11.6	7.4	9.1	10.0	7.5	8.6	12.3	12.1	12.2	13.0	12.5	12.8
4	10.7	6.9	8.5	9.8	7.8	8.5	---	---	---	12.9	12.6	12.7
5	10.9	6.8	8.6	9.0	7.9	8.4	---	---	---	13.0	12.7	12.8
6	10.4	7.0	8.3	9.2	8.2	8.7	---	---	---	13.1	12.6	12.9
7	10.9	6.8	8.4	9.1	8.0	8.5	---	---	---	13.3	12.9	13.1
8	10.4	6.8	8.2	9.1	8.3	8.6	---	---	---	13.3	12.8	13.2
9	10.4	6.9	8.2	9.4	8.3	8.7	---	---	---	13.2	12.6	13.0
10	10.5	6.8	8.3	8.9	8.0	8.5	---	---	---	---	---	---
11	10.6	6.7	8.2	9.1	8.3	8.7	---	---	---	---	---	---
12	11.1	6.7	8.7	9.0	8.4	8.7	---	---	---	---	---	---
13	9.3	6.8	7.9	8.9	7.8	8.2	---	---	---	12.2	11.7	12.0
14	10.4	---	---	11.2	7.8	9.4	---	---	---	12.1	11.6	11.9
15	---	---	---	10.3	8.4	9.2	---	---	---	11.9	11.4	11.7
16	---	---	---	9.6	7.5	8.5	---	---	---	11.8	11.3	11.5
17	---	---	---	---	---	---	---	---	---	11.4	10.7	11.2
18	10.3	6.8	8.3	11.1	10.8	11.0	---	---	---	11.5	10.6	11.1
19	9.7	6.5	7.8	11.4	11.0	11.2	---	---	---	11.5	10.8	11.2
20	8.9	6.3	7.4	---	---	---	---	---	---	12.0	11.3	11.7
21	9.8	7.0	8.1	---	---	---	14.2	---	---	12.1	11.2	11.6
22	9.6	6.7	7.8	---	---	---	14.0	13.1	13.7	11.9	11.5	11.7
23	9.8	6.9	8.3	---	---	---	13.2	12.8	13.0	12.1	11.7	11.9
24	10.1	7.5	8.6	12.0	11.3	11.4	13.2	12.9	13.1	12.7	11.9	12.3
25	9.6	7.2	8.3	11.6	11.4	11.5	13.2	13.1	13.2	12.8	12.2	12.5
26	9.4	7.4	8.2	11.7	11.5	11.6	13.3	13.1	13.2	12.5	12.2	12.3
27	10.6	7.3	8.5	11.8	11.6	11.7	13.4	13.1	13.3	12.5	12.1	12.3
28	9.9	7.4	8.5	11.7	11.5	11.6	13.7	13.4	13.4	12.7	12.1	12.4
29	10.1	7.5	8.6	12.9	11.6	11.9	13.6	13.0	13.4	12.6	12.0	12.3
30	---	7.2	---	12.1	11.8	12.0	13.3	12.8	13.1	12.6	11.9	12.3
31	12.5	---	---	---	---	---	13.3	12.9	13.1	12.4	12.0	12.2
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	12.2	11.8	12.1	11.7	11.2	11.4	11.0	10.7	10.9	10.5	9.7	10.1
2	12.6	12.1	12.4	11.9	11.1	11.6	11.4	10.8	11.1	10.7	10.0	10.3
3	13.1	12.5	12.8	12.2	11.7	12.0	11.5	11.1	11.3	10.4	10.0	10.2
4	13.7	13.1	13.4	12.2	11.9	12.1	11.5	11.0	11.3	10.5	9.9	10.2
5	13.8	13.5	13.6	12.1	11.4	11.8	11.2	10.5	10.9	10.1	9.2	9.7
6	13.9	13.5	13.8	11.6	10.8	11.2	10.9	10.2	10.6	9.6	8.9	9.2
7	13.9	13.3	13.7	11.4	10.7	11.1	10.6	10.1	10.4	9.3	8.7	9.0
8	13.9	13.4	13.6	11.4	11.1	11.3	10.5	10.1	10.4	9.5	8.8	9.2
9	13.7	13.1	13.5	11.3	10.9	11.1	10.6	10.2	10.4	9.5	8.8	9.1
10	13.3	12.8	13.2	11.3	10.5	11.0	10.6	10.2	10.4	10.1	9.3	9.8
11	13.2	12.6	12.9	10.7	10.2	10.4	10.7	10.2	10.4	10.7	10.0	10.4
12	12.9	12.4	12.7	10.6	10.3	10.5	10.6	10.1	10.4	10.6	10.3	10.4
13	12.7	12.2	12.5	10.7	10.5	10.6	10.6	10.0	10.3	10.7	10.1	10.5
14	12.4	12.1	12.2	11.2	10.5	10.7	10.7	10.0	10.3	10.3	9.8	10.1
15	12.4	12.1	12.3	10.6	10.2	10.4	10.4	9.9	10.2	10.1	9.4	9.9
16	12.2	12.0	12.1	10.4	10.2	10.2	10.3	9.6	10.0	9.9	9.3	9.5
17	12.1	11.5	11.9	10.8	10.4	10.6	10.1	9.5	9.8	9.8	9.3	9.5
18	11.8	11.6	11.7	11.3	10.6	10.8	10.4	9.1	9.8	10.0	9.4	9.8
19	11.9	11.4	11.7	10.9	10.3	10.6	10.1	9.4	9.8	10.3	9.6	10.0
20	11.7	11.4	11.5	10.6	10.3	10.4	9.9	9.3	9.6	10.4	9.6	10.1
21	11.7	11.3	11.6	10.4	10.0	10.2	10.3	9.5	9.9	10.5	9.6	10.0
22	11.7	11.5	11.6	10.7	10.0	10.4	---	---	---	9.7	9.1	9.4
23	12.0	11.5	11.8	10.8	10.3	10.6	---	---	---	---	---	---
24	12.0	11.2	11.6	10.6	9.2	10.3	---	---	---	---	---	---
25	11.7	11.4	11.6	9.4	9.0	9.2	---	---	---	---	---	---
26	11.6	11.2	11.3	9.6	9.2	9.4	10.7	---	---	11.2	10.3	10.7
27	11.6	11.3	11.4	10.1	9.6	9.8	10.6	10.2	10.4	10.8	10.3	10.5
28	11.6	11.3	11.4	10.0	9.8	9.9	10.2	9.4	9.9	10.7	10.3	10.5
29	---	---	---	10.2	9.9	10.0	9.6	9.3	9.5	11.2	10.4	10.7
30	---	---	---	10.5	10.0	10.2	9.7	9.2	9.5	10.9	10.1	10.5
31	---	---	---	10.9	10.4	10.6	---	---	---	10.5	9.3	10.1
MONTH	13.9	11.2	12.4	12.2	9.0	10.7	---	---	---	---	---	---

SOUTH UMPQUA RIVER BASIN

SOUTH UMPQUA RIVER NEAR ROSEBURG, OR--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	9.6	8.9	9.4	10.6	8.8	9.6	9.3	6.8	7.9	---	---	---
2	9.4	8.3	9.0	10.6	8.5	9.5	10.2	6.7	8.1	---	---	---
3	8.7	7.5	8.3	9.9	8.0	8.9	10.4	7.4	8.5	---	---	---
4	8.4	7.5	8.0	10.3	8.0	9.1	10.5	7.0	8.3	---	---	---
5	8.3	7.5	7.9	10.2	7.6	8.8	11.2	6.8	8.4	---	---	---
6	8.7	7.6	8.0	---	7.4	---	12.1	6.7	8.7	11.8	8.8	10.1
7	8.7	7.8	8.2	10.0	7.2	8.4	11.9	6.4	8.5	11.7	8.4	9.8
8	8.8	7.6	8.1	10.1	7.0	8.3	10.2	6.4	7.1	10.8	8.0	9.2
9	9.8	7.8	8.3	9.7	6.9	8.2	9.2	5.9	7.3	10.4	7.0	8.5
10	8.9	7.8	8.3	10.2	7.1	8.5	10.2	6.4	7.9	10.2	6.7	8.3
11	8.7	7.3	8.1	10.0	7.0	8.4	9.6	6.6	7.9	---	---	---
12	8.7	7.5	8.0	10.2	7.2	8.6	9.5	6.4	7.8	12.3	7.5	9.6
13	8.8	7.7	8.2	10.0	6.8	8.1	10.0	6.4	8.0	12.1	7.3	9.4
14	9.1	8.1	8.6	8.9	6.8	7.7	9.7	6.2	7.7	14.6	7.0	---
15	9.0	8.1	8.5	9.8	6.9	8.0	10.6	6.2	8.1	15.2	8.6	11.4
16	9.3	8.3	8.7	9.5	6.9	7.9	10.6	6.4	8.2	15.2	8.4	11.1
17	8.9	8.0	8.4	8.9	6.9	7.8	10.2	6.2	7.9	14.4	8.3	10.1
18	8.9	7.9	8.3	8.9	6.5	7.4	10.2	6.1	7.9	15.0	9.3	11.1
19	9.0	7.8	8.4	---	6.2	7.3	10.3	6.1	8.1	15.3	9.9	11.5
20	---	---	---	11.0	6.7	8.4	9.8	5.7	7.5	15.4	10.1	11.5
21	---	---	---	12.9	7.1	9.4	9.5	5.5	7.3	15.4	9.8	11.4
22	---	---	---	12.7	7.3	9.3	9.2	5.3	7.0	15.3	9.6	10.9
23	---	---	---	11.6	6.9	8.8	9.0	5.3	7.0	15.2	9.2	10.5
24	9.7	7.9	8.7	12.0	6.9	8.8	9.0	5.6	7.3	14.9	8.8	10.1
25	9.6	7.6	8.5	12.2	6.7	8.8	8.5	6.1	7.1	14.5	8.5	9.5
26	9.8	7.6	8.5	9.1	6.5	7.7	8.2	6.0	7.0	---	8.6	---
27	10.0	7.8	8.8	10.9	6.6	8.2	7.1	5.3	6.0	14.0	8.9	9.6
28	9.8	7.8	8.9	11.5	6.4	8.4	---	---	---	14.6	9.3	11.6
29	10.0	8.4	9.1	9.9	6.4	7.8	---	---	---	12.9	9.8	9.2
30	11.1	8.6	9.8	10.6	6.7	8.3	---	---	---	12.8	9.7	9.0
31	---	---	---	10.4	6.7	8.2	---	---	---	---	---	---
MONTH	---	---	---	---	6.2	---	---	---	---	---	---	---

SOUTH UMPQUA RIVER BASIN

223

14312260 SOUTH UMPQUA RIVER NEAR ROSEBURG, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	22.0	18.5	20.0	13.0	12.5	13.0	6.5	6.0	6.5	6.5	6.0	6.0
2	21.0	18.5	20.0	13.5	12.5	13.0	6.0	6.0	6.0	7.0	6.0	6.5
3	21.0	19.0	20.0	14.0	13.0	13.5	6.0	5.5	6.0	7.5	6.5	7.0
4	19.5	18.5	19.0	14.0	12.5	13.0	6.5	6.0	6.0	7.0	7.0	7.0
5	20.0	19.0	19.5	14.0	13.0	13.5	---	6.0	---	7.0	6.5	7.0
6	20.5	19.0	19.5	14.0	13.0	13.0	---	---	---	6.5	6.0	6.0
7	21.0	19.0	19.5	13.0	12.0	12.5	---	---	---	6.0	5.5	6.0
8	20.0	18.5	19.5	13.0	11.5	12.0	---	---	---	6.0	5.5	6.0
9	20.5	18.5	19.5	12.0	11.5	11.5	---	---	---	7.0	6.0	6.5
10	20.0	18.5	19.0	11.5	11.0	11.5	---	---	---	7.5	7.0	7.0
11	20.0	18.5	19.0	11.5	10.5	11.0	---	---	---	---	---	---
12	19.0	17.0	18.0	12.0	11.0	11.0	---	---	---	---	---	---
13	18.0	17.5	18.0	11.0	10.5	11.0	8.0	7.5	8.0	6.5	6.0	6.5
14	19.0	17.0	---	11.0	9.5	10.0	7.5	6.5	7.0	6.0	6.0	6.0
15	---	---	---	10.5	10.0	10.0	6.0	5.0	5.5	6.5	6.0	6.5
16	---	---	---	10.5	10.0	10.0	5.0	4.0	4.5	7.5	6.5	7.0
17	---	---	---	---	8.5	---	4.0	3.0	3.5	8.0	7.5	8.0
18	20.0	18.0	18.5	8.5	8.5	8.5	3.5	3.0	3.0	8.5	8.0	8.0
19	20.5	18.5	19.0	8.0	8.0	8.0	3.5	3.0	3.5	8.0	7.5	8.0
20	19.5	18.0	18.5	---	8.0	---	---	---	---	7.0	6.5	7.0
21	18.5	17.0	17.5	---	---	---	4.5	---	---	6.5	6.5	6.5
22	19.0	17.0	18.0	---	---	---	5.0	4.5	4.5	6.5	6.0	6.5
23	17.5	15.5	16.5	---	---	---	5.5	5.0	5.0	6.0	5.5	6.0
24	16.0	15.0	15.5	9.0	8.0	8.5	6.0	5.5	5.5	5.5	5.0	5.5
25	15.5	14.5	15.0	8.0	8.0	8.0	5.5	5.0	5.5	6.0	5.0	5.5
26	14.5	14.0	14.5	8.0	8.0	8.0	5.0	5.0	5.0	6.5	5.5	6.0
27	15.0	14.0	14.5	8.5	8.0	8.0	5.0	4.5	5.0	6.5	6.0	6.0
28	14.5	13.0	13.5	8.5	8.0	8.5	5.0	5.0	5.0	6.5	6.0	6.0
29	14.5	12.5	13.0	8.0	7.5	8.0	5.5	5.0	5.0	7.0	6.0	6.5
30	---	12.5	---	7.5	6.5	7.0	6.0	5.5	6.0	7.0	6.0	6.5
31	14.0	---	---	---	---	---	6.5	6.0	6.0	6.5	6.5	6.5
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	6.5	5.5	6.0	6.5	6.0	6.0	9.0	8.5	9.0	14.0	12.0	13.0
2	5.5	4.5	5.0	6.5	6.0	6.0	8.5	8.5	8.5	14.5	13.0	13.5
3	4.0	2.5	3.5	6.5	5.5	6.0	9.0	8.0	8.5	14.0	13.0	13.5
4	2.5	1.5	2.0	5.5	5.0	5.5	10.0	8.5	9.5	16.0	13.5	14.5
5	1.5	.5	1.0	7.5	5.5	6.5	12.5	10.0	11.5	18.0	15.5	16.5
6	1.0	.0	.5	8.0	7.5	8.0	13.5	11.5	12.5	19.0	17.5	18.0
7	1.0	.0	.5	8.5	8.0	8.0	14.0	12.0	13.0	19.0	18.5	19.0
8	1.0	.0	.5	8.5	8.0	8.0	14.0	12.0	13.0	19.5	17.5	18.5
9	1.5	.0	1.0	9.0	8.0	8.5	14.0	12.0	13.0	19.0	16.0	17.5
10	2.5	1.0	1.5	8.5	8.0	8.5	14.0	12.0	13.0	16.0	15.0	15.5
11	3.0	2.5	3.0	9.5	8.5	9.0	14.0	12.0	13.0	14.5	14.0	14.0
12	4.0	3.0	3.5	9.0	9.0	9.0	14.5	12.0	13.5	14.0	13.0	13.5
13	5.0	4.0	4.5	8.5	8.0	8.5	15.0	13.0	14.0	15.0	13.0	14.0
14	5.5	4.5	5.0	8.0	7.5	8.0	15.0	13.5	14.0	16.5	14.0	15.0
15	5.5	4.5	5.0	9.0	8.0	8.5	15.0	13.5	14.0	18.0	15.0	16.5
16	6.0	5.5	5.5	9.5	9.0	9.0	15.5	13.5	14.5	18.5	16.5	17.5
17	6.5	6.0	6.0	9.0	8.0	8.5	16.0	14.0	15.0	18.5	17.0	17.5
18	6.5	6.0	6.0	8.5	8.0	8.0	16.5	15.0	15.5	17.0	16.0	16.5
19	7.0	6.5	6.5	9.0	8.5	8.5	17.0	16.0	16.5	17.0	15.0	16.0
20	7.5	7.0	7.5	9.0	8.5	8.5	16.5	15.5	16.0	17.0	15.5	16.5
21	8.0	7.5	7.5	9.5	8.5	9.0	15.0	---	---	17.0	16.0	16.5
22	7.5	7.0	7.5	9.0	8.5	9.0	---	---	---	17.5	16.5	17.0
23	7.0	7.0	7.0	8.5	8.0	8.0	---	---	---	---	---	---
24	8.0	7.0	7.5	9.0	8.0	8.5	---	---	---	---	---	---
25	8.5	7.5	8.0	10.0	9.0	9.5	---	---	---	15.5	---	---
26	8.0	6.0	7.0	9.5	8.0	8.5	9.5	---	---	16.0	14.5	15.5
27	6.5	5.5	6.0	8.0	7.5	8.0	11.5	8.5	10.0	16.0	15.0	15.5
28	6.5	5.5	6.0	9.5	8.0	8.5	13.0	10.5	12.0	16.0	15.0	15.5
29	---	---	---	9.5	9.0	9.5	14.5	11.5	13.0	15.5	14.0	15.0
30	---	---	---	9.0	8.5	9.0	13.5	12.5	13.0	16.5	14.5	15.5
31	---	---	---	9.0	8.0	8.5	---	---	---	18.0	15.5	16.5
MONTH	8.5	.0	4.5	10.0	5.0	8.0	---	---	---	---	---	---

SOUTH UMPQUA RIVER BASIN

14312260 SOUTH UMPQUA RIVER NEAR ROSEBURG, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	20.0	16.5	18.5	21.5	19.0	20.5	22.0	21.0	21.5	---	---	---
2	21.5	18.5	20.0	23.0	19.0	21.0	23.0	21.0	21.5	22.5	---	---
3	22.0	19.5	21.0	24.0	20.5	22.0	24.0	20.5	22.0	23.0	19.0	21.0
4	23.0	20.5	22.0	25.0	21.0	23.0	24.5	21.0	23.0	---	---	---
5	23.0	21.5	22.5	25.5	21.0	23.0	25.5	21.5	23.5	22.5	---	---
6	23.0	21.5	22.5	26.0	21.5	23.5	26.5	22.5	24.5	22.5	19.0	20.5
7	23.0	21.5	22.5	26.5	22.5	24.0	27.5	23.5	25.5	23.0	18.5	20.5
8	22.5	21.0	22.0	25.0	22.0	23.5	26.5	---	---	23.5	19.0	21.0
9	21.0	19.5	20.5	23.0	21.5	22.5	25.0	23.5	24.5	24.0	19.5	22.0
10	21.5	19.5	20.5	23.5	21.0	22.0	26.0	23.0	24.0	24.5	20.0	22.0
11	22.5	21.0	21.5	25.0	20.5	23.0	25.5	22.0	24.0	---	---	---
12	22.5	21.0	22.0	26.0	22.0	24.0	25.5	22.0	24.0	23.5	19.5	21.5
13	22.0	21.0	21.5	25.0	22.5	24.0	25.5	22.0	24.0	23.5	19.0	21.5
14	21.5	20.0	21.0	23.5	22.5	23.0	25.0	22.5	23.5	23.0	19.5	21.5
15	20.5	19.0	20.0	25.0	21.5	23.0	25.5	22.0	23.5	23.5	19.5	21.5
16	21.5	18.5	20.0	23.0	22.0	22.5	25.0	22.0	23.5	22.0	20.0	21.0
17	22.0	20.0	20.5	24.5	22.0	23.0	24.0	22.0	23.0	21.0	19.0	20.0
18	23.0	19.5	21.0	26.0	22.5	24.0	25.0	21.0	23.0	21.0	18.0	19.5
19	21.5	20.0	20.5	26.0	23.0	24.5	25.0	21.5	23.5	20.0	17.0	18.5
20	---	19.5	---	24.0	22.5	23.0	25.5	22.5	24.0	20.0	17.0	18.5
21	---	---	---	24.5	21.5	23.0	25.0	22.5	23.5	20.5	17.5	19.0
22	---	---	---	25.0	21.5	23.0	24.5	22.5	23.5	21.5	18.0	19.5
23	---	---	---	25.0	22.0	23.5	23.5	22.0	22.5	22.0	18.5	20.0
24	26.0	22.0	24.0	25.5	22.5	24.0	23.0	21.0	22.0	22.0	19.0	20.5
25	26.5	23.0	24.5	26.5	22.5	24.5	23.0	20.5	21.5	21.0	19.0	20.0
26	25.5	23.5	24.0	24.5	22.5	23.5	24.0	20.5	22.0	21.0	19.0	20.0
27	24.0	22.0	23.0	26.0	22.0	23.5	24.0	21.0	22.5	20.0	19.0	19.5
28	22.0	21.0	21.5	25.5	21.5	23.5	---	21.0	---	20.5	18.5	19.5
29	21.0	20.0	20.5	23.5	22.5	23.0	---	---	---	19.5	19.0	19.0
30	22.0	19.0	20.5	24.5	21.5	23.0	---	---	---	19.0	18.5	19.0
31	---	---	---	23.5	21.5	22.5	23.5	20.5	22.0	---	---	---
MONTH	---	---	---	26.5	19.0	23.0	---	---	---	---	---	---

NORTH UMPQUA RIVER BASIN

225

14313000 LEMOLO LAKE NEAR TOKETEE FALLS, OR

LOCATION.--Lat 43°19'10", long 122°11'20", in SE 1/4 NW 1/4 sec.11, T.26 S., R.5 E., Douglas County, Hydrologic Unit 17100301, at Lemolo No. 1 diversion dam on North Umpqua River, 0.8 mi downstream from Lake Creek, 13.0 mi east of town of Toketee Falls, and at mile 93.01.

DRAINAGE AREA.--170 mi².

PERIOD OF RECORD.--July 1954 to current year. Prior to October 1960, published as Lemolo Reservoir near Toketee Falls.

GAGE.--Nonrecording gage. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Pacific Power & Light Co.).

REMARKS.--Lake is formed by Lemolo No 1 diversion dam. Storage began July 15, 1954. Usable capacity for normal operation, 12,520 acre-ft between elevations 4,097.0 ft and 4,148.5 ft. Dead storage below 4,097.0 ft, 1,040 acre-ft. Water is used for power generation. Figures given herein represent total contents.

COOPERATION.--Gage readings furnished by Pacific Power & Light Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 14,000 acre-ft Dec. 24, 1964, elevation, 4,149.5 ft; minimum observed, 11 acre-ft Mar. 5, 1955, elevation, 4,055.4 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 13,500 acre-ft May 10, elevation, 4,148.35 ft; minimum observed, 1,510 acre-ft Feb. 9, elevation, 4,102.50 ft.

MONTHEND ELEVATION AND CONTENTS AT 0900, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	4,138.3	9,650	--
Oct. 31.....	4,128.6	6,570	-3,080
Nov. 30.....	4,124.7	5,470	-1,100
Dec. 31.....	4,114.5	3,090	-2,380
CAL YR 1988.....	--	--	+40
Jan. 31.....	4,111.3	2,560	-530
Feb. 28.....	4,118.0	3,790	+1,230
Mar. 31.....	4,140.4	10,380	+6,590
Apr. 30.....	4,145.8	12,440	+2,060
May 31.....	4,146.4	12,680	+240
June 30.....	4,147.0	12,930	+250
July 31.....	4,147.0	12,930	0
Aug. 31.....	4,147.1	12,970	+40
Sept. 30.....	4,137.1	9,240	-3,730
WTR YR 1989.....	--	--	-410

LOCATION.--Lat 43°14'40", long 122°17'10", in SW 1/4 sec.1, T.27 S., R.4 E., Douglas County, Hydrologic Unit 17100301, Umpqua National Forest, on right bank 900 ft downstream from Clearwater No. 1 diversion dam, 0.4 mi upstream from Trap Creek, 8.7 mi east of town of Toketee Falls, and at mile 7.8.

PERIOD OF RECORD.--October 1927 to December 1945, March 1946 to current year. Records since October 1983 are equivalent to earlier records if diversion to Clearwater No. 1 power canal is added to flow past station. Monthly discharge only December 1927 to March 1928, published in WSP 1318. Prior to October 1952, published as "above Trap Creek."

GAGE.--Water-stage recorder. Datum of gage is 3,862.84 ft above National Geodetic Vertical Datum of 1929 (levels by Pacific Power & Light Co.). Prior to Dec. 1, 1953, at two sites about 0.4 mi downstream at different datums.

AVERAGE DISCHARGE.--55 years (1928-83), 173 ft³/s, 125,300 acre-ft/yr.

Combined flow, maximum discharge, 1,020 ft³/s Dec. 23, 1964; minimum daily, 91 ft³/s Nov. 4-6, 1931.

EXTREMES FOR CURRENT YEAR.--River only, maximum discharge, 154 ft³/s July 10, gage height, 4.15 ft; minimum discharge, 3.1 ft³/s Aug. 27-29.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.1	4.9	5.3	5.1	5.4	5.3	7.3	9.2	7.0	6.5	5.5	5.5
2	5.0	5.1	5.1	5.3	5.5	5.3	7.3	8.9	7.5	6.5	5.5	5.5
3	5.0	5.5	5.0	5.3	5.5	5.3	6.8	8.9	8.9	6.4	5.5	5.5
4	5.0	5.1	4.9	5.7	5.5	5.4	6.8	12	9.9	6.3	5.5	5.5
5	5.1	5.0	4.9	5.9	5.5	5.8	6.8	20	11	6.3	5.5	5.5
6	4.9	5.3	5.1	5.9	5.5	6.1	7.1	35	11	6.3	5.5	5.5
7	4.9	5.0	5.0	5.9	5.5	5.8	8.5	42	9.1	6.3	5.5	5.5
8	4.9	5.0	4.9	5.9	5.5	5.7	13	46	8.2	6.3	5.9	5.5
9	4.9	5.0	4.9	6.3	5.5	6.3	20	56	7.6	6.3	5.9	5.5
10	4.9	5.2	4.9	6.7	5.5	7.2	25	47	7.4	62	5.7	5.5
11	4.8	5.1	4.9	5.7	5.5	6.6	26	27	7.3	153	5.7	5.5
12	4.7	5.3	4.9	5.7	5.5	6.6	29	17	7.4	152	5.5	5.5
13	4.9	5.1	4.9	5.7	5.5	6.5	35	13	7.5	151	5.5	5.5
14	4.9	5.1	4.9	5.5	5.5	6.3	43	10	7.3	151	5.5	5.5
15	4.9	5.1	4.9	5.5	5.5	6.2	48	9.1	7.8	150	5.5	5.5
16	4.9	5.1	4.9	5.5	5.5	6.2	51	8.8	7.6	150	5.3	5.5
17	4.9	5.2	4.9	5.5	5.5	6.1	48	9.3	7.0	150	5.3	5.6
18	4.9	5.1	4.7	5.5	5.6	6.2	50	9.2	6.9	148	5.3	5.5
19	4.9	5.0	4.8	5.5	5.5	6.2	61	7.4	6.9	147	5.3	5.5
20	4.9	5.2	4.8	5.5	5.3	6.1	64	7.2	6.7	147	5.3	5.5
21	4.8	5.4	5.0	5.5	5.3	9.6	58	7.2	6.7	107	5.3	5.5
22	4.9	6.2	5.1	5.6	5.4	9.4	39	7.3	6.7	5.8	5.7	5.5
23	4.9	6.0	4.9	5.5	5.3	7.6	28	7.6	6.7	5.7	5.7	5.5
24	4.9	5.5	4.9	5.5	5.3	7.2	22	7.3	6.7	5.7	5.5	5.5
25	4.9	5.5	4.9	5.5	5.3	9.0	21	7.3	6.7	5.7	4.9	5.5
26	4.9	5.3	4.9	5.5	5.3	7.4	13	7.0	6.7	5.7	3.2	5.5
27	4.9	5.3	5.0	5.4	5.3	7.0	9.4	7.3	6.6	5.5	3.2	5.5
28	4.9	5.5	5.1	5.3	5.3	9.7	8.3	7.2	6.5	5.5	3.1	5.5
29	4.9	5.3	5.1	5.3	---	8.1	7.7	7.0	6.5	5.5	3.2	5.5
30	4.9	5.3	5.1	5.3	---	7.2	8.3	6.9	6.5	5.5	3.2	5.6
31	4.9	---	5.1	5.3	---	7.8	---	6.9	---	5.5	4.2	---
TOTAL	152.2	157.7	153.7	173.3	152.3	211.2	778.3	482.0	226.3	1781.3	157.4	165.2
MEAN	4.91	5.26	4.96	5.59	5.44	6.81	25.9	15.5	7.54	57.5	5.08	5.51
MAX	5.1	6.2	5.3	6.7	5.6	9.7	64	56	11	153	5.9	5.6
MIN	4.7	4.9	4.7	5.1	5.3	5.3	6.8	6.9	6.5	5.5	3.1	5.5
AC-FT	302	313	305	344	302	419	1540	956	449	3530	312	328
CAL YR 1988	TOTAL 3834.6		MEAN 10.5	MAX 178	MIN 4.7	AC-FT 7610						
WTR YR 1989	TOTAL 4590.9											

NORTH UMPQUA RIVER BASIN

14316000 FISH CREEK AT BIG CAMAS RANGER STATION, NEAR TOKETEE FALLS, OR

LOCATION.--Lat 43°13'50", long 122°26'45", in SE 1/4 sec.10, T.27 S., R.3 E., Douglas County, Hydrologic Unit 17100301, Umpqua National Forest, 0.2 mi upstream from Camas Creek, 0.7 mi east of Big Camas ranger station, 3.2 mi south of town of Toketee Falls, and at mile 4.7.

DRAINAGE AREA.--68.8 mi² (see REMARKS).

PERIOD OF RECORD.--October 1947 to current year. Records since October 1983 are equivalent to earlier records if diversion to Fish Creek power canal is added to flow past station. Prior to October 1952, published as "at Big Camas ranger station."

REVISED RECORDS.--WSP 1448: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,858.52 ft above National Geodetic Vertical Datum of 1929 (levels by Pacific Power & Light Co.). Prior to July 10, 1951, water-stage recorder and July 10 to Aug. 10, 1951, nonrecording gage at site 1,000 ft upstream at datum 13.72 ft higher. Aug. 11 to Nov. 3, 1951, nonrecording gage at site 200 ft downstream at different datum. Nov. 4, 1951, to Sept. 30, 1956, water-stage recorder at present site at datum 1.92 ft higher.

REMARKS.--Records good except for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year. Records given herein do not include flow in Fish Creek power canal (diversion began June 18, 1952), which diverts water 2 mi upstream from station for power generation at Fish Creek powerplant; diversion discharged to North Umpqua River 600 ft downstream from Toketee powerplant.

AVERAGE DISCHARGE.--36 years (1947-83), 237 ft³/s, 46.78 in/yr, 171,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--River only, maximum discharge, 12,100 ft³/s Dec. 22, 1964, gage height, 13.9 ft, from floodmark; minimum discharge, 2.3 ft³/s Sept. 25, 1957.

Combined flow, maximum discharge, 12,100 ft³/s Dec. 22, 1964; minimum daily, 19 ft³/s July 30, 1979, result of diversion dam manipulation.

EXTREMES FOR CURRENT YEAR.--River only, maximum discharge, 1,210 ft³/s Nov. 22, gage height, 5.87 ft; minimum discharge, 10 ft³/s Oct. 9, 10, Sept. 12, 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	12	88	30	98	81	514	196	224	29	26	23
2	12	47	84	31	e88	79	515	194	269	27	28	23
3	12	88	80	36	e70	69	439	209	287	25	25	21
4	13	23	76	40	e60	66	404	286	290	24	25	19
5	16	16	74	47	e55	263	419	396	286	22	28	18
6	13	59	101	43	e50	584	486	492	273	22	26	16
7	12	20	102	40	e46	448	573	521	245	22	25	14
8	12	19	90	39	e42	337	643	513	220	25	41	13
9	11	16	89	124	e40	577	658	569	203	34	48	12
10	12	50	102	388	e40	720	647	499	182	32	30	12
11	15	36	102	175	e38	695	601	374	169	29	26	12
12	15	68	97	121	e38	612	547	294	165	26	24	13
13	15	48	100	103	e42	530	487	255	157	25	23	12
14	14	34	90	86	38	399	536	233	145	25	23	13
15	14	35	78	77	36	336	540	220	165	28	24	12
16	14	44	68	72	40	319	502	224	135	29	24	12
17	14	44	61	67	53	274	472	232	115	40	23	18
18	13	29	54	63	85	291	513	213	107	29	25	20
19	13	27	52	61	112	318	554	175	100	27	28	14
20	13	42	50	65	96	272	525	170	93	29	27	13
21	13	99	48	74	94	687	462	175	84	27	27	12
22	13	666	46	73	152	695	357	173	80	24	57	14
23	13	504	42	e68	170	591	287	180	63	26	56	13
24	12	209	40	61	136	527	243	164	45	28	27	13
25	12	132	37	57	114	635	221	191	43	26	24	13
26	12	90	34	56	101	540	196	172	40	25	24	16
27	12	96	e32	57	91	472	182	224	37	24	27	20
28	12	211	31	56	85	591	170	222	34	25	25	14
29	13	127	31	56	---	554	157	201	33	27	36	14
30	14	100	37	73	---	504	178	191	34	27	47	23
31	12	---	32	95	---	560	---	196	---	26	24	---
TOTAL	403	2991	2048	2434	2110	13626	13028	8354	4323	834	923	462
MEAN	13.0	99.7	66.1	78.5	75.4	440	434	269	144	26.9	29.8	15.4
MAX	16	666	102	388	170	720	658	569	290	40	57	23
MIN	11	12	31	30	36	66	157	164	33	22	23	12
AC-FT	799	5940	4060	4830	4190	27030	25840	16570	8570	1650	1830	916
CFSM	.19	1.45	.96	1.14	1.10	6.39	6.31	3.92	2.09	.39	.43	.22
IN.	.22	1.62	1.11	1.12	1.14	7.37	7.04	4.52	2.34	.45	.50	.25

CAL YR 1988 TOTAL 35854 MEAN 98.0 MAX 1040 MIN 11 AC-FT 71120 CFSM 1.42 IN. 19.39
WTR YR 1989 TOTAL 51536 MEAN 141 MAX 720 MIN 11 AC-FT 102200 CFSM 2.05 IN. 27.87

e Estimated

NORTH UMPQUA RIVER BASIN

229

14316500 NORTH UMPQUA RIVER ABOVE COPELAND CREEK, NEAR TOKETEE FALLS, OR

LOCATION.--Lat 43°17'45", long 122°32'10", in NW 1/4 sec.24, T.26 S., R.2 E., Douglas County, Hydrologic Unit 17100301, Umpqua National Forest, on left bank 0.6 mi upstream from Copeland Creek, 4.7 mi west of town of Toketee Falls, and at mile 67.2.

DRAINAGE AREA.--475 mi².

PERIOD OF RECORD.--September 1949 to current year. Monthly discharge only September 1949, published in WSP 1318. Prior to October 1952, published as "above Copeland Creek."

REVISED RECORDS.--WSP 1448: 1953(M), 1954, drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,580 ft, from river-profile map. Prior to Aug. 1, 1976, on right bank at same datum.

REMARKS.--No estimated daily discharges. Records excellent. Considerable fluctuation caused by powerplants upstream; flow slightly regulated by Diamond Lake and by Lemolo Lake (station 14313000). No diversion upstream from station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--40 years, 1,499 ft³/s, 1,086,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,700 ft³/s Dec. 22, 1964, gage height, 19.1 ft, from floodmark, from rating curve extended above 7,200 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 370 ft³/s Sept. 30, 1981; minimum daily, 565 ft³/s Sept. 13, 1959.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,110 ft³/s Jan. 10, gage height, 9.20 ft; minimum discharge, 643 ft³/s Oct. 20, 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	765	673	1360	836	1520	1220	2690	1850	1890	1080	828	914
2	739	723	1390	884	1630	1280	2770	1850	1880	1060	830	880
3	748	922	1400	1090	1360	1190	2540	1850	1890	1070	832	826
4	779	831	1380	1170	966	1030	2420	2060	1950	1100	852	820
5	776	720	1220	1210	880	1780	2420	2370	1930	1010	940	790
6	777	900	1230	1140	1100	3400	2610	2610	1920	928	888	810
7	776	785	1340	1060	1110	2870	2780	2900	1950	1010	870	768
8	741	779	1180	993	1120	2390	3070	2900	1930	1060	887	741
9	727	776	1190	1750	1020	3080	3150	3110	1850	1040	980	806
10	682	836	1200	3430	884	3600	3050	3020	1700	1040	947	840
11	720	935	1190	1880	819	3380	2900	2700	1650	1000	933	822
12	728	857	1220	1480	805	3130	2870	2450	1670	994	858	889
13	704	944	1180	1400	842	2970	2930	2280	1710	991	853	899
14	706	861	1170	1280	925	2580	3200	2100	1580	1000	865	910
15	707	858	1080	1180	904	2530	3180	2050	1600	955	853	916
16	707	968	1060	1080	814	2670	3030	1970	1520	1010	859	926
17	708	1010	1050	1190	997	2350	2970	1930	1450	1030	857	927
18	698	909	930	1230	1060	2370	2990	1860	1440	945	866	901
19	675	831	995	1190	1290	2650	3110	1800	1370	943	817	922
20	647	897	970	1320	1370	2340	3070	1730	1380	931	971	916
21	685	1100	929	1380	1390	4010	2920	1790	1330	943	927	878
22	709	2500	786	1370	1600	3750	2560	1790	1300	950	850	911
23	688	2320	927	1210	1960	2990	2300	1890	1320	940	906	917
24	683	1580	822	1190	1620	2670	2180	1860	1140	899	931	907
25	684	1420	886	1120	1390	2890	2230	1930	1160	875	844	919
26	684	1340	842	1120	1250	2670	2110	1840	1230	925	880	901
27	686	1350	856	1110	1210	2530	2090	1790	1300	1080	906	874
28	686	1930	886	1140	1260	2660	1910	2060	1230	1020	865	870
29	682	1570	908	1150	---	2830	1870	1900	1120	905	870	873
30	672	1290	1060	1290	---	2640	1860	1800	1060	833	934	922
31	659	---	844	1490	---	2830	---	1820	---	827	913	---
TOTAL	22028	33415	33481	40363	33096	81280	79780	65860	46450	30394	27412	26195
MEAN	711	1114	1080	1302	1182	2622	2659	2125	1548	980	884	873
MAX	779	2500	1400	3430	1960	4010	3200	3110	1950	1100	980	927
MIN	647	673	786	836	805	1030	1860	1730	1060	827	817	741
AC-FT	43690	66280	66410	80060	65650	161200	158200	130600	92130	60290	54370	51960

CAL YR 1988 TOTAL 424333 MEAN 1159 MAX 4370 MIN 647 AC-FT 841700
WTR YR 1989 TOTAL 519754 MEAN 1424 MAX 4010 MIN 647 AC-FT 1031000

NORTH UMPQUA RIVER BASIN

14316700 STEAMBOAT CREEK NEAR GLIDE, OR

LOCATION.--Lat 43°21'00", long 122°43'40", in N 1/2 sec.32, T.25-1/2 S., R.1 E., Douglas County, Hydrologic Unit 17100301, in Umpqua National Forest, on right bank in Canton Creek Forest Service Park, 200 ft downstream from Canton Creek, 19 mi northeast of Glide, and at mile 0.5.

DRAINAGE AREA.--227 mi².

PERIOD OF RECORD.--Annual maximum, water year 1956, June 1956 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,128.55 ft above National Geodetic Vertical Datum of 1929 (levels by Federal Highway Administration). October 1955 to June 1956, nonrecording gage at site 100 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records excellent. No regulation or diversion upstream from station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--33 years, 738 ft³/s, 44.15 in/yr, 534,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 51,000 ft³/s Dec. 22, 1964, gage height, 25.6 ft, from floodmark, from rating curve extended above 13,000 ft³/s on basis of slope-area measurement at 17.96 ft; minimum discharge, 30 ft³/s Sept. 15-17, 1973.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 8,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	2100	9,440	10.01	Jan. 10	0100	*22,500	*16.15

Minimum discharge, 35 ft³/s Oct. 29 to Nov. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	36	1070	805	1800	804	1820	589	530	113	66	93
2	43	56	1070	730	1210	816	2280	527	478	107	69	81
3	41	265	916	1220	909	686	1880	497	434	101	70	73
4	42	234	809	1530	718	635	1550	525	402	97	64	69
5	48	134	690	1630	585	2980	1540	567	357	93	62	66
6	46	421	862	1200	533	6040	1620	595	322	90	59	63
7	44	240	817	877	485	3450	1630	559	287	87	56	60
8	42	167	640	761	446	2210	1560	507	261	84	55	57
9	41	140	572	6030	411	2740	1400	547	243	83	62	55
10	40	453	585	10100	396	3550	1250	589	226	84	58	53
11	39	527	532	2900	386	2940	1050	494	213	82	55	52
12	39	554	464	1750	391	2410	1000	413	206	79	53	50
13	39	526	428	1340	388	2200	980	365	197	78	51	49
14	39	443	383	1040	361	1810	992	332	200	78	50	48
15	39	532	330	933	336	2230	915	309	207	79	50	48
16	38	966	290	1150	422	3080	801	297	193	79	49	46
17	38	1390	261	1520	1530	2330	725	293	170	102	49	52
18	38	730	239	1620	1940	3050	721	300	159	89	49	67
19	38	463	254	1500	2540	3040	752	271	152	80	48	60
20	37	1050	327	1760	1840	2100	695	250	148	75	47	53
21	37	2480	511	1730	1720	4970	612	242	141	74	46	50
22	37	7350	603	1610	2840	3510	557	238	133	71	133	49
23	37	4200	563	1200	3120	2190	522	338	129	69	249	47
24	36	1740	488	934	1900	1680	507	676	124	68	159	46
25	36	1240	412	764	1400	2150	891	790	117	66	104	46
26	36	1300	343	698	1120	1850	1120	672	114	65	84	47
27	36	1410	312	844	958	1750	1120	801	111	65	74	52
28	36	3690	291	857	847	2930	874	1200	110	64	68	49
29	36	1830	307	863	---	2520	724	969	116	62	67	48
30	35	1160	1070	1540	---	1850	652	749	131	63	174	60
31	35	---	1190	2030	---	2150	---	606	---	63	123	---
TOTAL	1213	35727	17629	53466	31532	76651	32740	16107	6611	2490	2403	1689
MEAN	39.1	1191	569	1725	1126	2473	1091	520	220	80.3	77.5	56.3
MAX	48	7350	1190	10100	3120	6040	2280	1200	530	113	249	93
MIN	35	36	239	698	336	635	507	238	110	62	46	46
AC-FT	2410	70860	34970	106000	62540	152000	64940	31950	13110	4940	4770	3350
CFSM	.17	5.25	2.51	7.60	4.96	10.9	4.81	2.29	.97	.35	.34	.25
IN.	.20	5.85	2.89	8.76	5.17	12.56	5.37	2.64	1.08	.41	.39	.28
CAL YR 1988	TOTAL 223482	MEAN 611	MAX 10100	MIN 35	AC-FT 443300	CFSM 2.69	IN. 36.62					
WTR YR 1989	TOTAL 278258	MEAN 762	MAX 10100	MIN 35	AC-FT 551900	CFSM 3.36	IN. 45.60					

NORTH UMPQUA RIVER BASIN

231

14318000 LITTLE RIVER AT PEEL, OR

LOCATION.--Lat 43°15'10", long 123°01'30", in NW 1/4 sec.2, T.27 S., R.3 W., Douglas County, Hydrologic Unit 17100301, on left bank 0.6 mi southeast of Peel, 0.9 mi downstream from Cavitt Creek, and at mile 6.3.

DRAINAGE AREA.--177 mi².

PERIOD OF RECORD.--August 1954 to September 1989 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 828.33 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records excellent. No regulation. Small diversions for rural domestic use and irrigation upstream from station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--35 years, 469 ft³/s, 35.98 in/yr, 339,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,100 ft³/s Dec. 11, 1956, gage height, 19.63 ft, from rating curve extended above 5,900 ft³/s on basis of slope-area measurement at gage height 16.55 ft; minimum discharge, 13 ft³/s Oct. 1, 7, 1987, Sept. 14, 15, 1988.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 22, 23, 1953, reached a stage of 20.6 ft, from floodmark, discharge, 22,700 ft³/s, from rating curve extended above 5,900 ft³/s on basis of slope-area measurement at gage height 16.55 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	2100	6,460	10.57	Jan. 10	0300	*13,300	*16.03

Minimum discharge, 16 ft³/s several days in October, Nov. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	16	667	617	905	456	1140	435	315	67	39	72
2	21	24	587	614	682	576	1290	374	272	64	39	59
3	20	106	502	854	534	491	1080	341	241	60	39	51
4	20	77	433	973	432	482	915	333	216	57	34	47
5	23	47	381	1100	355	1950	883	322	191	55	32	43
6	23	247	437	842	330	3080	885	317	175	53	30	40
7	22	152	437	653	309	1930	889	297	160	51	29	37
8	20	109	366	613	290	1320	864	277	148	49	29	34
9	20	95	324	3170	284	1870	796	300	139	49	31	32
10	19	200	326	7170	280	2280	718	361	131	50	31	31
11	18	279	312	2450	284	1880	621	325	121	48	30	29
12	18	264	284	1480	298	1510	582	280	114	45	28	28
13	18	315	271	1170	297	1420	553	253	110	44	26	26
14	19	254	251	913	283	1230	546	232	111	44	25	24
15	18	294	221	787	269	1450	507	212	118	46	24	24
16	17	643	196	835	461	1930	461	193	112	47	24	23
17	17	1500	176	946	991	1560	418	184	100	58	24	30
18	17	652	160	959	1560	1850	397	191	93	51	24	48
19	17	385	177	894	1510	2120	399	178	89	45	23	37
20	17	519	237	1060	1100	1520	377	161	87	44	23	31
21	17	1040	434	1150	967	4140	344	152	82	45	22	28
22	17	3880	587	1130	1650	2720	331	148	78	41	72	26
23	18	2880	523	870	1660	1700	323	209	74	39	239	24
24	18	1260	460	680	1130	1270	333	284	70	38	122	23
25	18	1420	381	554	851	1330	1050	503	66	36	76	23
26	17	1450	304	498	673	1140	976	434	64	35	58	24
27	17	1120	268	550	560	945	789	528	64	37	49	31
28	16	2090	243	517	487	1140	664	779	64	35	43	32
29	16	1190	260	489	---	1340	564	639	69	33	41	28
30	16	795	772	696	---	1130	497	484	80	34	161	43
31	16	---	890	950	---	1320	---	383	---	34	100	---
TOTAL	573	23303	11867	36184	19432	49080	20192	10109	3754	1434	1567	1028
MEAN	18.5	777	383	1167	694	1583	673	326	125	46.3	50.5	34.3
MAX	23	3880	890	7170	1660	4140	1290	779	315	67	239	72
MIN	16	16	160	489	269	456	323	148	64	33	22	23
AC-FT	1140	46220	23540	71770	38540	97350	40050	20050	7450	2840	3110	2040
CFSM	.10	4.39	2.16	6.59	3.92	8.94	3.80	1.84	.71	.26	.29	.19
IN.	.12	4.90	2.49	7.60	4.08	10.32	4.24	2.12	.79	.30	.33	.22

CAL YR 1988	TOTAL 137729	MEAN 376	MAX 4630	MIN 13	AC-FT 273200	CFSM 2.13	IN. 28.95
WTR YR 1989	TOTAL 178523	MEAN 489	MAX 7170	MIN 16	AC-FT 354100	CFSM 2.76	IN. 37.52

NORTH UMPQUA RIVER BASIN

14319500 NORTH UMPQUA RIVER AT WINCHESTER, OR

LOCATION.--Lat 43°16'20", long 123°24'40", in NW 1/4 NE 1/4 sec.33, T.26 S., R.6 W., Douglas County, Hydrologic Unit 17100301, on left bank 400 ft downstream from county bridge, 3.0 mi west of Winchester, and at mile 1.8.

DRAINAGE AREA.--1,344 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1908 to December 1913, October 1923 to September 1929, August 1954 to current year. Prior to December 1908, monthly discharge only, published in WSP 1318.

REVISED RECORDS.--WSP 1448: 1909-12, drainage area. WDR OR-72-1: 1965(M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 372.97 ft above National Geodetic Vertical Datum of 1929 (Douglas County Road Department bench mark). Oct. 1, 1908, to Dec. 31, 1913, and Oct. 1, 1923, to Sept. 30, 1929, nonrecording gage at site 4.8 mi upstream at different datums. Aug. 27, 1954, to Aug. 12, 1965, water-stage recorder on right bank at same datum.

REMARKS.--No estimated daily discharges. Water-discharge records excellent. Diurnal fluctuation caused by upstream powerplants; slight regulation by Lemolo Lake and Diamond Lake. Several small diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--46 years, 3,758 ft³/s, 37.97 in/yr, 2,723,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 150,000 ft³/s Dec. 22, 1964, gage height, 34.2 ft, from floodmark; minimum discharge, 235 ft³/s Aug. 27, 1987, result of regulation at Winchester Dam 5.2 mi upstream.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 29, 1950, reached a stage of 23.2 ft, from floodmark, at site 4.8 mi upstream at different datum, discharge, 88,000 ft³/s. Flood of Nov. 23, 1953, reached a stage of 28.4 ft, from floodmarks, present site and datum, discharge, 93,300 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 20,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 23	0800	29,400	12.68	Mar. 6	1400	21,300	10.39
Jan. 10	0730	*62,300	21.15	Mar. 21	1700	25,200	11.52
Jan. 10	0730	(a)	*21.52				

Minimum discharge, 267 ft³/s Sept. 22, result of regulation.

(a) From crest-stage gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	897	728	4450	4510	6340	3730	8510	3950	3610	1490	992	1230
2	872	757	4300	3650	5490	4440	8880	3700	3440	1460	1000	1170
3	829	1040	3960	4590	4550	4040	8430	3540	3290	1420	1010	1080
4	838	1650	3610	5540	3640	3620	7160	3560	3180	1400	996	1020
5	893	1280	3260	6590	2870	5960	6840	3940	3200	1410	1010	989
6	896	1370	3010	5970	2800	19700	6860	4170	2980	1290	1080	946
7	889	1920	3430	4710	3010	13900	7060	4440	2960	1170	991	961
8	879	1920	3130	4150	2850	9600	7110	4470	2890	1290	1020	892
9	834	1290	2660	10900	2690	9170	7060	4390	2840	1320	1030	852
10	806	1260	2670	e43500	2460	14300	6660	4990	2710	1310	1160	1040
11	749	2400	2600	e15300	2320	11900	6100	4460	2470	1300	1070	1050
12	787	1890	2470	9310	2270	10700	5780	3970	2440	1250	1060	939
13	803	2680	2390	7380	2280	10500	5640	3650	2460	1220	954	1010
14	784	2220	2260	6430	2290	9620	5800	3360	2420	1230	954	1010
15	778	1930	2140	5360	2240	9820	5830	3150	2380	1220	965	1010
16	773	2780	1910	5520	2330	12300	5530	3070	2380	1200	951	1030
17	774	7000	1830	5960	5260	11100	5190	2910	2190	1310	950	1050
18	774	4520	1740	6370	7270	10600	5020	2910	2020	1330	961	1080
19	768	2770	1670	5880	8840	12700	5200	2840	2010	1200	964	1070
20	736	2940	1760	6110	7150	9920	5140	2660	1890	1170	891	1080
21	698	4480	2820	6770	6310	17800	4900	2570	1910	1150	1100	1030
22	735	18100	4350	7450	7350	17700	4600	2600	1800	1160	1050	802
23	775	20200	4690	6080	11400	11500	4130	2850	1760	1160	1490	991
24	754	9170	4070	4970	7770	8770	3970	3490	1720	1130	1580	991
25	743	7050	3390	4300	6040	8870	5380	4090	1540	1060	1310	988
26	746	7500	2720	3810	5010	8660	6400	4180	1550	1040	1110	1010
27	747	6420	2340	3770	4290	7650	5750	3800	1630	1100	1120	1010
28	744	11700	2230	3910	4000	8900	5100	5100	1680	1270	1100	996
29	742	8550	2100	3740	---	10600	4440	5170	1630	1190	1020	986
30	743	5580	3790	4440	---	8560	4120	4410	1550	1030	1240	1020
31	797	---	6240	5940	---	9060	---	3870	---	976	1420	---
TOTAL	24583	142535	93990	222310	131120	315690	178590	116260	70530	38256	33549	30333
MEAN	793	4751	3032	7171	4683	10180	5953	3750	2351	1234	1082	1011
MAX	897	20200	6240	43500	11400	19700	8880	5170	3610	1490	1580	1230
MIN	698	728	1670	3650	2240	3620	3970	2570	1540	976	891	802
AC-FT	48760	282700	186400	441000	260100	626200	354200	230600	139900	75880	66540	60170
CFSM	.59	3.54	2.26	5.34	3.48	7.58	4.43	2.79	1.75	.92	.81	.75
IN.	.68	3.95	2.60	6.15	3.63	8.74	4.94	3.22	1.95	1.06	.93	.84
CAL YR 1988	TOTAL 1121702	MEAN 3065	MAX 32000	MIN 687	AC-FT 2225000	CFSM 2.28	IN. 31.05					
WTR YR 1989	TOTAL 1397746	MEAN 3829	MAX 43500	MIN 698	AC-FT 2772000	CFSM 2.85	IN. 38.69					

e Estimated

NORTH UMPQUA RIVER BASIN

233

14319500 NORTH UMPQUA RIVER AT WINCHESTER, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1967-69, 1971 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: January 1971 to current year.

INSTRUMENTATION.--Temperature recorder since 1971.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 26.5°C Aug. 10, 1972, Aug. 8, 9, 1978, Aug. 9, 10, 1981; minimum, 0.0°C at times in 1971-72, 1974, 1977, 1980, 1984, 1989.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 24.0°C Aug. 7; minimum, 0.0°C Feb. 4-10.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	16.5	15.0	15.5	9.5	9.0	9.5	5.0	4.5	4.5	5.0	5.0	5.0
2	16.0	15.0	15.5	9.0	9.0	9.0	5.0	4.5	5.0	5.5	5.0	5.0
3	16.0	15.0	15.5	9.5	9.0	9.0	5.0	4.5	5.0	6.0	5.5	5.5
4	15.0	14.5	15.0	9.5	9.0	9.0	5.0	4.5	5.0	6.0	5.5	5.5
5	15.0	14.5	15.0	10.0	9.5	10.0	5.0	4.0	4.5	6.0	5.0	5.5
6	15.5	14.5	15.0	10.5	10.0	10.0	6.0	5.0	5.5	5.0	5.0	5.0
7	16.5	15.0	15.5	9.5	9.0	9.0	6.5	6.0	6.5	5.0	4.5	4.5
8	16.5	15.5	15.5	9.5	8.5	9.0	6.5	6.0	6.5	5.0	4.5	4.5
9	16.0	15.0	15.5	8.5	8.0	8.5	6.0	5.5	5.5	6.0	5.0	5.0
10	16.0	14.5	15.0	9.0	8.0	8.5	5.5	5.5	5.5	6.0	6.0	6.0
11	15.5	14.5	15.0	8.0	7.5	8.0	6.0	5.5	6.0	6.0	6.0	6.0
12	14.5	13.5	14.0	8.5	8.0	8.0	6.0	5.5	5.5	5.5	5.0	5.5
13	13.5	13.0	13.5	8.0	7.5	7.5	5.5	5.5	5.5	5.0	4.5	5.0
14	14.0	13.0	13.5	7.5	7.0	7.0	5.5	5.0	5.0	4.5	4.0	4.5
15	15.0	13.0	14.0	7.5	7.0	7.5	5.0	3.5	4.0	5.0	4.5	4.5
16	15.5	14.0	14.5	7.5	7.0	7.5	3.0	1.5	2.5	5.5	5.0	5.0
17	14.5	14.0	14.5	7.0	7.0	7.0	1.5	1.0	1.0	6.0	5.5	6.0
18	14.5	14.0	14.0	6.5	6.5	6.5	1.0	.5	1.0	6.5	6.0	6.0
19	15.0	14.0	14.0	6.5	6.0	6.0	2.0	1.0	1.5	6.0	5.0	5.5
20	14.0	13.0	14.0	6.0	6.0	6.0	3.0	2.0	2.5	5.0	5.0	5.0
21	13.5	13.0	13.0	6.5	6.0	6.5	4.0	3.0	3.5	5.5	5.0	5.5
22	13.5	12.5	13.0	8.0	6.5	7.5	4.0	4.0	4.0	5.5	4.5	5.0
23	12.0	11.0	12.0	8.0	7.0	7.5	4.5	4.0	4.5	4.5	4.0	4.5
24	11.5	10.5	11.0	7.0	6.5	6.5	4.5	4.5	4.5	4.0	3.0	3.5
25	11.0	10.5	11.0	6.5	6.0	6.0	4.5	4.0	4.5	4.0	3.5	4.0
26	10.5	10.0	10.5	6.5	6.0	6.5	4.0	3.5	3.5	4.5	3.5	4.0
27	10.5	10.0	10.5	6.5	6.5	6.5	3.5	3.5	3.5	4.5	4.0	4.0
28	10.5	9.5	10.0	7.0	6.5	7.0	3.5	3.5	3.5	5.0	4.5	4.5
29	10.0	9.5	9.5	7.0	6.0	6.5	4.0	3.5	3.5	5.0	4.5	4.5
30	10.5	9.0	9.5	6.0	5.0	5.5	5.0	4.0	4.0	5.0	4.0	4.5
31	10.5	9.5	10.0	---	---	---	5.0	5.0	5.0	5.5	5.0	5.5
MONTH	16.5	9.0	13.5	10.5	5.0	7.5	6.5	.5	4.5	6.5	3.0	5.0

14319500 NORTH UMPQUA RIVER AT WINCHESTER, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	5.5	4.0	5.0	5.5	4.5	5.0	7.5	7.0	7.5	12.0	10.0	10.5
2	4.0	2.5	3.0	5.0	5.0	5.0	7.0	6.5	7.0	12.0	11.0	11.5
3	2.5	1.5	2.0	5.0	3.5	4.5	7.5	6.5	7.0	12.0	10.5	11.0
4	1.5	.0	.5	5.0	4.0	4.5	9.0	7.5	8.0	13.0	10.5	11.5
5	.0	.0	.0	6.0	4.5	5.0	10.0	8.5	9.0	15.0	12.0	13.5
6	.0	.0	.0	7.0	6.0	6.5	11.0	9.0	10.0	15.0	14.0	14.5
7	.0	.0	.0	7.0	6.5	7.0	11.0	9.0	10.0	14.5	13.0	13.5
8	.0	.0	.0	7.5	6.5	7.0	11.0	9.0	10.0	14.5	12.5	13.5
9	.0	.0	.0	8.0	7.0	7.5	10.5	9.0	10.0	14.5	11.5	12.5
10	.5	.0	.0	7.5	7.0	7.0	11.0	9.0	10.0	11.5	10.5	11.0
11	2.5	.5	1.5	8.0	7.5	7.5	11.0	9.0	10.0	11.0	9.5	10.0
12	3.5	2.5	3.0	7.5	7.5	7.5	11.0	9.0	10.0	10.5	9.0	10.0
13	4.0	3.5	3.5	7.5	6.5	7.0	11.5	9.5	10.5	12.0	9.0	10.5
14	4.5	4.0	4.0	6.5	6.0	6.0	11.0	10.0	10.5	13.5	10.5	12.0
15	4.0	3.5	4.0	7.5	6.0	6.5	11.0	9.5	10.5	13.5	11.5	12.5
16	4.5	4.0	4.0	7.5	7.0	7.5	11.5	9.5	10.5	14.0	12.0	13.0
17	5.0	4.5	4.5	7.0	6.5	7.0	12.0	10.0	11.0	14.0	12.5	13.0
18	6.0	5.0	5.5	7.5	7.0	7.0	12.5	10.5	11.5	12.5	11.0	12.0
19	6.5	6.0	6.0	8.0	7.0	7.5	13.0	11.0	12.0	12.5	10.5	11.5
20	7.0	6.0	6.5	7.5	6.5	7.0	13.0	10.5	11.5	13.0	11.5	12.5
21	6.5	6.5	6.5	8.0	7.0	7.5	10.5	9.5	10.0	13.5	12.5	13.0
22	7.0	6.5	6.5	7.5	7.5	7.5	9.5	8.5	8.5	13.0	12.5	13.0
23	6.5	6.0	6.0	7.5	7.0	7.0	8.5	8.0	8.0	13.0	11.0	11.5
24	7.0	6.0	6.5	8.0	7.0	7.5	9.0	7.5	8.0	11.0	10.0	10.5
25	6.5	6.0	6.0	8.5	7.5	8.0	9.0	7.5	8.0	12.0	9.5	10.5
26	6.0	5.0	5.0	8.0	6.5	7.0	8.0	7.0	7.5	12.5	11.0	11.5
27	5.0	4.5	5.0	7.0	6.0	6.5	10.0	7.5	8.5	12.5	11.0	11.5
28	5.5	4.0	5.0	8.5	7.0	7.5	11.0	9.0	10.0	12.5	11.0	11.5
29	---	---	---	8.0	7.0	7.5	12.5	10.0	11.0	11.5	10.0	10.5
30	---	---	---	7.5	6.5	7.0	12.0	10.5	11.0	13.0	9.5	11.0
31	---	---	---	8.0	6.5	7.0	---	---	---	14.5	11.5	13.0
MONTH	7.0	.0	3.5	8.5	3.5	7.0	13.0	6.5	9.5	15.0	9.0	12.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	16.5	13.5	14.5	17.0	16.0	16.5	19.0	18.0	18.5	18.5	17.5	18.0
2	17.0	14.5	16.0	18.5	15.5	17.0	19.0	17.5	18.0	18.5	17.0	17.5
3	17.5	15.0	16.5	19.5	17.5	18.5	20.5	18.0	19.0	18.5	16.5	17.5
4	17.5	15.5	16.5	20.5	18.5	19.0	21.0	19.0	19.5	19.0	16.5	17.5
5	17.5	15.5	16.5	21.0	18.5	19.5	22.0	19.5	20.5	18.5	17.0	17.5
6	17.5	16.0	17.0	21.5	19.0	20.0	23.0	21.0	21.5	18.5	16.5	17.0
7	17.5	16.0	17.0	22.0	20.0	21.0	24.0	21.5	22.0	18.5	16.5	17.0
8	17.5	15.5	16.5	21.0	19.5	20.5	23.0	21.5	22.5	19.0	17.0	17.5
9	16.0	14.5	15.0	19.5	18.5	19.0	21.5	20.0	21.0	19.5	17.0	18.0
10	17.0	14.5	15.5	19.5	17.0	18.0	21.5	19.5	20.5	19.0	17.0	18.0
11	18.0	16.5	17.0	20.0	18.0	19.0	21.5	19.5	20.5	18.5	16.0	17.5
12	18.0	17.0	17.5	21.5	19.0	20.0	21.5	19.5	20.5	18.5	15.5	17.0
13	17.0	16.5	16.5	21.5	20.0	20.5	22.0	19.5	20.5	18.5	15.5	17.0
14	16.5	15.5	16.0	20.0	19.0	19.5	21.5	20.0	20.5	18.5	15.5	17.0
15	15.5	15.0	15.5	20.5	18.0	19.0	21.0	19.5	20.0	18.0	15.5	17.0
16	16.0	14.5	15.5	19.5	19.0	19.5	21.0	19.5	20.0	17.5	16.0	16.5
17	16.5	15.5	16.0	20.0	18.5	19.0	20.0	19.0	19.5	16.5	15.0	15.5
18	17.5	16.0	16.5	21.5	19.5	20.0	20.5	18.5	19.5	15.5	13.5	14.5
19	16.5	16.0	16.5	21.5	20.0	20.5	21.5	19.0	20.0	16.0	13.5	14.5
20	17.5	16.0	16.5	20.5	19.0	19.5	21.5	20.5	20.5	16.0	13.5	14.5
21	18.0	16.5	17.0	20.0	18.0	19.0	21.0	20.0	20.5	16.5	14.0	15.0
22	19.0	17.0	18.0	21.5	19.0	20.0	20.0	19.5	20.0	17.5	14.5	16.0
23	20.0	18.0	19.0	21.5	19.5	20.5	19.0	18.0	18.5	17.5	15.5	16.5
24	21.5	19.0	20.0	21.5	19.5	20.5	18.0	17.5	18.0	17.5	16.0	16.5
25	22.0	19.5	20.5	22.5	20.0	21.0	19.0	16.5	17.5	16.5	15.5	16.0
26	21.0	19.5	20.0	21.0	20.0	20.5	20.0	17.5	18.5	16.0	15.5	15.5
27	19.5	18.0	18.5	21.5	19.0	20.0	20.0	18.5	19.0	15.5	15.0	15.5
28	18.0	17.0	17.5	21.5	20.0	20.5	20.0	18.0	19.0	16.0	15.0	15.5
29	16.5	15.5	16.0	20.5	19.5	20.0	19.5	18.5	19.0	15.5	15.0	15.5
30	17.0	14.5	15.5	20.5	18.5	19.0	18.5	17.5	18.5	15.0	14.0	15.0
31	---	---	---	20.0	19.0	19.5	18.5	17.0	18.0	---	---	---
MONTH	22.0	13.5	17.0	22.5	15.5	19.5	24.0	16.5	19.5	19.5	13.5	16.5
YEAR	24.0	.0	11.5									

NORTH UMPQUA RIVER BASIN

235

14319850 GASSY CREEK NEAR NONPAREIL, OR

LOCATION.--Lat 43°25'02", long 123°07'14", in NW 1/4 NE 1/4 sec.12, T.25 S., R.4 W., Douglas County, Hydrologic Unit 17100303, on right bank 0.9 mi upstream from confluence with Calapooya Creek, and 4.2 mi northeast of community of Nonpareil.

DRAINAGE AREA.--9.19 mi².

PERIOD OF RECORD.--October 1988 to September 1989.

GAGE.--Water-stage recorder. Elevation of gage is 790 ft, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are fair. No diversion upstream from station. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 240 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 10	0100	*1,190	*4.73	No other peak greater than base discharge.			
No flow Aug. 14-22.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.12	.20	15	45	12	10	25	6.8	3.8	.55	.08	.47
2	e.11	.56	11	29	11	20	24	5.9	3.0	.46	.11	.29
3	e.10	2.5	8.1	27	9.5	22	22	5.4	2.5	.36	.12	.21
4	e.11	1.6	6.4	25	e7.6	19	21	5.1	2.1	.29	.10	.18
5	e.12	1.1	5.3	44	e7.3	43	18	4.5	1.8	.26	.08	.14
6	e.13	4.2	4.9	49	e7.3	91	15	4.1	1.5	.22	.05	.13
7	e.14	2.2	4.2	41	e7.0	53	13	3.7	1.4	.20	.04	.13
8	e.15	1.8	3.7	40	e6.7	32	12	3.2	1.2	.17	.03	.13
9	e.15	1.6	3.2	222	e6.5	26	11	3.4	1.3	.18	.04	.12
10	e.13	2.9	3.0	450	6.3	25	10	6.4	1.2	.20	.06	.12
11	e.12	3.2	2.7	101	6.5	22	8.9	5.4	1.1	.21	.06	.09
12	e.13	3.4	2.5	54	8.0	20	8.5	4.5	.95	.14	.04	.08
13	.14	4.7	2.3	43	10	55	8.2	4.0	.97	.12	.03	.07
14	.15	4.7	2.0	40	11	74	7.5	3.3	1.2	.12	.01	.05
15	.16	7.6	1.8	40	10	64	7.0	2.9	2.0	.15	.00	.04
16	.14	20	1.8	43	24	104	6.5	2.5	1.7	.16	.00	.03
17	.13	51	1.9	35	56	65	6.0	2.3	1.3	.30	.00	.02
18	.13	22	1.6	26	64	73	5.7	2.5	1.0	.28	.00	.03
19	.13	11	2.3	20	52	61	5.7	2.3	.88	.23	.00	.07
20	.13	8.8	5.7	18	33	42	5.7	2.0	.86	.19	.00	.08
21	.13	38	76	29	23	81	5.8	1.9	.73	.21	.00	.07
22	.13	149	110	47	29	70	6.2	1.8	.62	.18	.03	.06
23	.14	89	99	38	32	42	6.7	3.5	.56	.14	.22	.05
24	.15	67	67	27	25	29	7.2	7.7	.50	.13	.35	.04
25	.16	54	42	19	19	23	54	6.2	.41	.13	.21	.03
26	.16	55	25	15	15	19	45	5.1	.37	.11	.16	.04
27	.17	41	18	13	12	30	27	5.7	.35	.12	.13	.08
28	.18	67	15	12	11	42	9.0	7.0	.39	.12	.12	.13
29	.18	39	13	10	---	35	8.4	6.5	.54	.10	.17	.11
30	.18	22	46	9.4	---	27	7.7	5.6	.66	.09	2.2	.14
31	.18	---	72	11	---	27	---	4.6	---	.09	.98	---
TOTAL	4.38	776.06	672.4	1622.4	521.7	1346	417.7	135.8	36.89	6.21	5.42	3.23
MEAN	.14	25.9	21.7	52.3	18.6	43.4	13.9	4.38	1.23	.20	.17	.11
MAX	.18	149	110	450	64	104	54	7.7	3.8	.55	2.2	.47
MIN	.10	.20	1.6	9.4	6.3	10	5.7	1.8	.35	.09	.00	.02
AC-FT	8.7	1540	1330	3220	1030	2670	829	269	73	12	11	6.4
CFSM	.02	2.81	2.36	5.69	2.03	4.72	1.52	.48	.13	.02	.02	.01
IN.	.02	3.14	2.72	6.57	2.11	5.45	1.69	.55	.15	.03	.02	.01

WTR YR 1989 TOTAL 5548.19 MEAN 15.2 MAX 450 MIN .00 AC-FT 11000 CFSM 1.65 IN. 22.46

e Estimated

UMPQUA RIVER BASIN

14320700 CALAPOOYA CREEK NEAR OAKLAND, OR

LOCATION.--Lat 43°24'10", long 123°21'45", in NW 1/4 sec.13, T.25 S., R.6 W., Douglas County, Hydrologic Unit 17100303, near center of span on downstream side of highway bridge, 0.9 mi downstream from Williams Creek, 2.5 mi northwest of Sutherlin, 3.5 mi southwest of Oakland, and at mile 10.1

DRAINAGE AREA.--210 mi².

PERIOD OF RECORD.--October 1955 to September 1973, October 1986 to current year. Records for the years 1974-86 are available at the Douglas County Water Resources Dept. in Roseburg.

GAGE.--Water-stage recorder. Datum of gage is 371.26 ft above National Geodetic Vertical Datum of 1929. Prior to June 22, 1968, nonrecording gage at same site and datum.

REMARKS.--Records good for flows above 50 ft³/s; fair below. Diversion upstream from station for municipal supply of cities of Sutherlin and Oakland. Small diversions by pumping for irrigation upstream from station.

AVERAGE DISCHARGE.--21 years (water years 1956-73, 1987-89), 474 ft³/s, 30.65 in/yr, 343,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,600 ft³/s Nov. 23, 1961, gage height, 21.55 ft; no flow Sept. 9-11, 1966, Sept. 8, 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 10	0800	*10,400	*17.64	No other peak greater than base discharge.			
Minimum discharge, 2.8 ft ³ /s Sept. 16, 17.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.0	8.6	598	1060	488	397	803	213	173	29	6.3	24
2	7.6	9.6	455	858	447	684	849	177	144	29	6.9	22
3	6.3	50	359	806	389	614	806	164	121	28	7.3	19
4	6.2	91	293	762	337	555	723	169	106	27	7.6	17
5	6.6	70	246	1080	293	886	641	146	93	25	7.7	14
6	8.0	116	226	1100	292	1580	559	128	87	24	7.1	12
7	8.7	105	203	970	277	1270	485	118	80	22	6.2	11
8	7.6	80	182	931	266	952	426	109	75	21	5.2	10
9	7.1	70	164	2630	257	889	375	104	71	20	5.0	9.0
10	6.6	82	151	7370	261	883	331	134	71	19	5.1	8.1
11	6.2	87	137	2870	279	811	290	120	68	18	5.3	6.8
12	6.3	85	124	1700	324	711	261	106	66	17	5.4	5.7
13	6.0	149	117	1420	348	1260	237	99	64	16	5.1	4.4
14	6.1	127	107	1330	338	1840	215	92	64	15	4.6	3.7
15	7.2	124	99	1160	313	1830	199	89	67	13	4.2	3.3
16	6.5	231	93	1060	490	2220	183	86	76	13	3.9	3.0
17	5.8	1060	88	952	1170	1710	170	81	69	13	3.9	2.9
18	5.7	603	86	855	1370	1710	156	87	65	15	3.3	3.2
19	6.0	315	101	750	1230	1520	151	95	61	16	3.2	3.5
20	5.8	304	119	687	952	1200	142	87	58	14	3.6	4.1
21	5.8	571	771	934	793	1650	146	79	55	14	4.0	4.4
22	6.4	3100	2020	1270	883	1580	144	76	51	13	4.5	4.7
23	6.9	2410	2450	990	1010	1180	158	99	48	12	5.5	5.0
24	7.2	1710	1670	819	855	953	165	238	45	11	8.1	5.1
25	7.6	1380	1130	669	689	975	625	232	41	9.5	9.8	5.3
26	8.3	1410	773	573	570	853	677	202	37	8.8	10	5.3
27	8.3	1060	597	503	488	895	432	218	33	7.9	10	5.7
28	8.3	1700	528	445	435	1080	325	373	31	7.3	9.6	6.9
29	8.3	1180	465	395	---	1070	262	337	29	7.0	8.8	8.0
30	8.6	824	879	378	---	938	221	270	29	6.2	21	8.6
31	8.9	---	1480	414	---	894	---	213	---	5.8	24	---
TOTAL	219.9	19112.2	16711	37741	15844	35590	11157	4741	2078	496.5	222.2	245.7
MEAN	7.09	637	539	1217	566	1148	372	153	69.3	16.0	7.17	8.19
MAX	9.0	3100	2450	7370	1370	2220	849	373	173	29	24	24
MIN	5.7	8.6	86	378	257	397	142	76	29	5.8	3.2	2.9
AC-FT	436	37910	33150	74860	31430	70590	22130	9400	4120	985	441	487
CFSM	.03	3.03	2.57	5.80	2.69	5.47	1.77	.73	.33	.08	.03	.04
IN.	.04	3.39	2.96	6.69	2.81	6.30	1.98	.84	.37	.09	.04	.04

CAL YR 1988 TOTAL 130649.98 MEAN 357 MAX 6570 MIN .05 AC-FT 259100 CFSM 1.70 IN. 23.14
WTR YR 1989 TOTAL 444158.5 MEAN 395 MAX 7370 MIN 2.9 AC-FT 285900 CFSM 1.88 IN. 25.54

UMPQUA RIVER BASIN

237

14321000 UMPQUA RIVER NEAR ELKTON, OR

LOCATION.--Lat 43°35'10", long 123°33'15", in NW1/4 sec.8, T.23 S., R.7 W., Douglas County, Hydrologic Unit 17100303, on left bank 3.5 mi south of Elkton, 8.3 mi upstream from Elk Creek, and at mile 56.9.

DRAINAGE AREA.--3,683 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1905 to current year.

REVISED RECORDS.--WSP 1184: 1927(M), 1938(M), 1943(M), 1946(M). WSP 1448: 1911-13, drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 90.42 ft above National Geodetic Vertical Datum of 1929. Prior to June 29, 1972, at site 2,400 ft downstream at same datum. See WSP 1931 or 2135 for history of changes prior to June 29, 1972.

REMARKS.--Water-discharge records excellent except for estimated daily discharges, which are fair. Regulation by powerplants on North Umpqua River ordinarily does not affect discharge at this station. Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--84 years, 7,476 ft³/s, 27.57 in/yr, 5,416,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 265,000 ft³/s Dec. 23, 1964, gage height, 51.95 ft, from floodmarks; minimum discharge observed, 640 ft³/s July 18, 1926.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least December 1861, that of Dec. 23, 1964.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 52,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 10	1800	*100,000	*28.57	No other peak greater than base discharge.			
Minimum discharge, 937 ft ³ /s Oct. 22, 23.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e1080	1000	9540	13400	11100	7310	15600	7180	5260	1790	1220	1600
2	e1080	999	8150	10100	10800	7620	14600	6680	4870	1760	1220	1530
3	e1050	1050	7400	8930	9150	8810	15200	6160	4570	1720	1220	1440
4	e1000	1220	6550	10400	7610	7750	13200	5800	4330	1650	1220	1350
5	e1020	1750	5860	12100	6200	7730	12200	5780	4120	1590	1220	1270
6	e1050	1640	5180	14000	5290	29300	11500	6000	4030	1580	1220	1240
7	e1080	1750	5100	12000	5000	31400	11400	6240	3760	1510	1270	1200
8	e1080	2110	5340	10100	5040	20600	11300	6420	3650	1420	1230	1190
9	e1070	1820	4710	12500	4830	16300	11200	6240	3500	1440	1220	1160
10	e1070	1680	4150	73000	4670	25900	10700	6480	3370	1500	1230	1120
11	e1050	1670	4100	56000	4610	25600	10000	6870	3160	1490	1290	1140
12	e1040	2770	4000	e26200	4730	22000	9080	6110	2870	1490	1340	1280
13	1040	2580	3770	e18400	4980	21000	8630	5440	2820	1440	1270	1160
14	1010	3180	3570	17300	5140	23900	8390	5000	2840	1400	1220	1180
15	1010	3180	3350	14200	5070	21900	8560	4600	2760	1390	1170	1190
16	1000	3230	3110	12700	4980	23600	8280	4320	2760	1430	1170	1200
17	1000	6710	2810	12400	7880	23800	7800	4160	2720	1400	1150	1200
18	989	12400	2670	12600	13500	21000	7310	4020	2540	1490	1150	1240
19	984	7310	2520	12200	17400	27000	7130	3980	2330	1530	1140	1250
20	984	4750	2520	11200	16400	22900	7290	3840	2290	1430	1150	1340
21	968	5440	3190	12000	13100	23600	7070	3570	2160	1390	1120	1290
22	951	17800	8720	16300	12000	39600	6770	3460	2140	1350	1210	1300
23	942	43400	15200	15000	18900	25700	6370	3500	2020	1340	1280	1210
24	975	25100	13000	12300	17600	19000	5980	4130	1960	1340	1510	1130
25	975	15800	10800	10300	13300	16300	6140	5120	1910	1320	1660	1220
26	961	16800	8450	8780	10700	16600	12700	5720	1760	1280	1550	1220
27	961	15500	6670	7900	9020	14700	11900	5490	1740	1240	1420	1220
28	961	16500	5730	7780	7920	14400	10300	5520	1780	1250	1360	1230
29	961	20400	5140	7530	---	17500	8820	7210	1880	1380	1310	1220
30	961	13200	5330	7180	---	16300	7820	6690	1870	1370	1290	1300
31	961	---	12500	8910	---	14700	---	5890	---	1270	1390	---
TOTAL	31264	252739	189130	483710	256920	613820	293240	167620	87770	44980	39420	37620
MEAN	1009	8425	6101	15600	9176	19800	9775	5407	2926	1451	1272	1254
MAX	1080	43400	15200	73000	18900	39600	15600	7210	5260	1790	1660	1600
MIN	942	999	2520	7180	4610	7310	5980	3460	1740	1240	1120	1120
AC-FT	62010	501300	375100	959400	509600	1218000	581600	332500	174100	89220	78190	74620
CFSM	.27	2.29	1.66	4.24	2.49	5.38	2.65	1.47	.79	.39	.35	.34
IN.	.32	2.55	1.91	4.89	2.60	6.20	2.96	1.69	.89	.45	.40	.38

CAL YR 1988 TOTAL 1962658 MEAN 5362 MAX 58000 MIN 763 AC-FT 3893000 CFSM 1.46 IN. 19.82
WTR YR 1989 TOTAL 2498233 MEAN 6844 MAX 73000 MIN 942 AC-FT 4955000 CFSM 1.86 IN. 25.23

e Estimated

UMPQUA RIVER BASIN

14321000 UMPQUA RIVER NEAR ELKTON, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: April 1971 to current year.

INSTRUMENTATION.--Temperature recorder since April 1971.

REMARKS.--Chemical analyses available October 1965 to September 1986.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 30.0°C July 14, 1971; minimum, 0.0°C Jan. 7, 8, 11, 12, and probably Jan. 9, 10, 1974, Feb. 6-9, 1989.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 25.5°C Aug. 7, 8; minimum, 0.0°C Feb. 6-9.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	19.0	17.5	18.5	13.0	12.5	12.5	7.0	6.5	6.5	6.0	5.5	6.0
2	19.0	17.5	18.0	12.5	12.0	12.0	6.5	6.0	6.0	6.0	6.0	6.0
3	18.0	17.0	17.5	12.0	12.0	12.0	6.0	6.0	6.0	6.5	6.0	6.5
4	17.5	17.5	17.5	12.0	12.0	12.0	6.0	5.5	5.5	6.5	6.5	6.5
5	17.5	17.5	17.5	12.0	12.0	12.0	6.0	5.5	5.5	6.5	6.5	6.5
6	17.5	17.5	17.5	12.0	11.5	11.5	6.5	6.0	6.0	6.5	6.0	6.0
7	18.0	17.0	17.5	11.5	11.0	11.0	6.5	6.5	6.5	6.0	5.5	5.5
8	18.0	17.5	17.5	11.0	11.0	11.0	7.0	6.5	7.0	5.5	5.5	5.5
9	18.0	17.5	18.0	11.0	10.5	10.5	7.5	7.0	7.5	6.5	5.5	6.0
10	18.0	17.5	18.0	10.5	10.0	10.5	7.5	7.5	7.5	6.5	6.5	6.5
11	17.5	17.0	17.5	10.5	10.0	10.0	7.5	7.5	7.5	6.5	6.5	6.5
12	17.0	16.5	17.0	10.0	10.0	10.0	7.5	7.0	7.0	6.5	6.5	6.5
13	17.0	16.5	16.5	10.0	9.0	9.5	7.5	7.0	7.0	6.5	5.5	6.0
14	16.5	16.5	16.5	9.0	8.5	9.0	7.0	6.0	6.5	5.5	5.5	5.5
15	17.5	16.5	17.0	9.0	9.0	9.0	6.0	4.5	5.5	5.5	5.5	5.5
16	17.5	17.0	17.5	9.0	8.5	9.0	4.5	4.0	4.5	6.5	5.5	6.0
17	17.5	17.0	17.5	8.5	8.5	8.5	4.0	3.5	3.5	7.0	6.5	6.5
18	17.0	16.5	17.0	8.0	7.5	8.0	3.0	3.0	3.0	7.5	7.0	7.0
19	17.0	16.5	17.0	8.0	7.5	7.5	3.0	2.5	3.0	7.5	7.0	7.0
20	17.0	16.5	16.5	7.5	7.5	7.5	3.0	3.0	3.0	7.0	6.5	6.5
21	16.5	16.5	16.5	7.5	7.5	7.5	3.5	3.0	3.0	6.5	6.0	6.0
22	16.5	16.0	16.5	8.5	7.5	8.0	4.5	3.5	4.0	6.0	5.5	6.0
23	16.0	15.5	15.5	8.5	8.5	8.5	5.0	4.5	5.0	5.5	5.0	5.5
24	15.5	15.0	15.0	8.5	8.0	8.5	5.5	5.0	5.5	5.0	4.5	5.0
25	15.0	14.5	14.5	8.0	7.5	8.0	5.5	5.5	5.5	4.5	4.5	4.5
26	14.5	14.0	14.5	7.5	7.5	7.5	5.5	5.0	5.5	5.0	4.5	5.0
27	14.0	13.5	13.5	7.5	7.5	7.5	5.0	4.5	4.5	5.5	5.0	5.0
28	13.5	13.0	13.0	7.5	7.5	7.5	4.5	4.5	4.5	5.5	5.5	5.5
29	13.0	12.5	12.5	7.5	7.5	7.5	5.0	4.5	4.5	6.0	5.5	5.5
30	13.0	12.5	13.0	7.5	7.0	7.0	5.0	5.0	5.0	6.0	6.0	6.0
31	13.0	13.0	13.0	---	---	---	5.5	5.0	5.5	6.0	6.0	6.0
MONTH	19.0	12.5	16.5	13.0	7.0	9.5	7.5	2.5	5.5	7.5	4.5	6.0

UMPQUA RIVER BASIN

239

14321000 UMPQUA RIVER NEAR ELKTON, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	6.0	5.0	5.5	6.0	6.0	6.0	9.0	8.0	8.5	14.0	13.0	13.5
2	5.0	4.5	4.5	6.0	5.5	6.0	9.0	8.5	8.5	14.0	13.0	13.5
3	4.0	2.5	3.5	6.0	5.5	6.0	9.0	8.0	8.5	14.0	14.0	14.0
4	2.5	1.5	2.0	6.0	5.5	5.5	9.5	8.5	9.0	15.5	14.0	14.5
5	1.5	.5	.5	6.0	5.5	6.0	11.0	9.0	10.0	15.5	14.5	15.0
6	.5	.0	.0	7.5	6.0	7.0	12.5	11.0	11.5	16.0	15.0	15.5
7	.0	.0	.0	8.0	7.5	7.5	13.5	11.5	12.5	17.0	16.0	16.0
8	.5	.0	.0	8.0	7.5	8.0	13.5	12.0	12.5	17.0	15.5	16.0
9	.5	.0	.5	8.5	8.0	8.0	13.0	11.5	12.5	---	---	---
10	1.0	.5	1.0	8.5	8.0	8.5	13.0	11.5	12.5	---	---	---
11	2.0	1.0	1.5	8.5	8.5	8.5	13.0	11.5	12.5	---	---	---
12	2.5	2.0	2.5	9.0	8.5	8.5	13.5	12.0	12.5	---	---	---
13	3.5	2.5	3.0	8.5	8.0	8.5	13.5	12.5	13.0	---	---	---
14	4.5	3.5	4.0	8.0	7.5	7.5	13.5	13.0	13.5	---	---	---
15	5.0	4.5	4.5	8.0	7.0	7.5	14.0	13.0	13.5	---	---	---
16	5.0	5.0	5.0	8.5	8.0	8.5	14.0	13.0	13.5	---	---	---
17	6.0	5.0	5.5	8.5	8.0	8.5	14.5	13.0	14.0	---	---	---
18	6.5	6.0	6.0	8.0	8.0	8.0	15.0	14.5	14.5	---	---	---
19	7.0	6.5	6.5	8.5	8.0	8.0	15.5	14.5	15.0	---	---	---
20	7.5	7.0	7.0	8.5	8.0	8.5	15.0	14.5	14.5	---	---	---
21	7.5	7.0	7.5	8.5	8.0	8.5	14.5	13.5	14.0	---	---	---
22	7.5	7.5	7.5	8.5	8.5	8.5	13.0	12.5	12.5	---	---	---
23	7.5	7.0	7.0	8.5	8.0	8.5	12.5	11.5	12.0	---	---	---
24	7.0	6.5	7.0	8.0	8.0	8.0	11.5	11.0	11.0	---	---	---
25	7.5	7.0	7.0	9.0	8.0	8.5	11.0	10.0	10.5	---	---	---
26	7.5	6.5	7.0	9.0	8.5	9.0	10.0	9.5	10.0	---	---	---
27	7.0	6.0	6.0	8.5	8.0	8.0	10.5	9.0	10.0	---	---	---
28	6.0	5.5	6.0	8.5	8.0	8.5	12.0	10.0	11.0	---	---	---
29	---	---	---	9.5	8.5	9.0	13.5	11.5	12.5	---	---	---
30	---	---	---	9.0	8.5	9.0	13.5	13.0	13.0	---	---	---
31	---	---	---	8.5	8.0	8.5	---	---	---	---	---	---
MONTH	7.5	.0	4.0	9.5	5.5	8.0	15.5	8.0	12.0	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1				---	---	---	21.0	20.5	20.5	21.0	20.0	20.5
2				---	---	---	21.0	20.0	20.5	21.0	19.5	20.0
3				---	---	---	21.5	20.0	21.0	20.5	19.0	20.0
4				---	---	---	22.5	21.0	21.5	21.0	19.5	20.0
5				---	---	---	23.5	22.0	23.0	21.0	19.5	20.5
6				---	---	---	24.5	22.5	23.5	21.0	19.5	20.5
7				---	---	---	25.5	23.5	24.5	21.0	19.5	20.5
8				---	---	---	25.5	24.0	24.5	21.0	19.5	20.5
9				---	---	---	25.0	23.5	24.0	21.0	20.0	21.0
10				---	---	---	23.5	22.5	23.0	21.0	20.0	21.0
11				---	---	---	23.5	22.0	23.0	21.0	20.0	21.0
12				---	---	---	23.5	22.0	23.0	21.0	19.5	20.5
13				---	---	---	23.5	22.0	23.0	21.0	19.5	20.5
14				---	---	---	23.5	22.0	23.0	21.0	19.5	20.5
15				---	---	---	23.0	22.0	22.5	21.0	19.5	20.5
16				---	---	---	23.0	22.0	22.5	20.5	19.5	20.0
17				---	---	---	23.0	22.0	22.5	20.0	19.0	19.5
18				22.5	21.5	22.0	22.5	21.5	22.0	19.0	18.0	18.5
19				23.5	22.0	22.5	23.0	22.0	22.5	19.0	17.5	18.0
20				23.0	22.0	22.0	23.0	22.5	23.0	18.5	17.0	17.5
21				22.5	21.0	21.5	23.0	22.0	22.5	18.5	17.0	18.0
22				23.0	22.0	22.0	22.5	22.0	22.5	19.0	17.5	18.5
23				23.0	21.5	22.5	22.0	21.5	21.5	19.0	18.0	18.5
24				23.0	21.5	22.5	22.0	21.0	21.5	19.5	18.5	19.0
25				23.5	21.5	22.5	21.5	20.0	21.0	19.5	18.5	19.0
26				23.5	22.0	22.5	22.0	20.5	21.5	19.5	19.0	19.0
27				22.5	21.5	22.0	22.0	21.0	21.5	19.0	18.5	19.0
28				23.5	21.5	22.5	22.5	21.0	21.5	18.5	17.5	18.0
29				23.5	22.0	22.5	22.5	21.0	21.5	18.5	17.5	18.0
30				22.0	21.0	21.5	21.0	20.0	20.5	17.5	17.0	17.5
31				21.5	21.0	21.0	21.0	20.0	20.5	---	---	---
MONTH				---	---	---	25.5	20.0	22.0	21.0	17.0	19.5

UMPUA RIVER BASIN

14321400 ELK CREEK NEAR ELKHEAD, OR

LOCATION.--Lat 43°35'45", long 123°11'35", in NW 1/4 SE 1/4 sec.5, T.23 S., R.4 W., Douglas County, Hydrologic Unit 17100303, on right bank downstream side of Milltown Hill Bridge, 1.5 mi upstream from Adams Creek, 4.0 mi north of Elkhead, and at mile 37.7.

DRAINAGE AREA.--28.7 mi².

PERIOD OF RECORD.--January to August 1968 (gage heights and discharge measurements only), September 1968 to June 1972, October 1986 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 463.99 ft above National Geodetic Vertical Datum of 1929 (Douglas County Highway Department bench mark). Prior to Sept. 1, 1968, nonrecording gage at site 20 ft upstream at datum 1.70 ft lower.

REMARKS.--Records for flows greater than 10 ft³/s good; those below fair, and estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--6 years (water years 1969-71, 1987-89), 53.9 ft³/s, 25.50 in/yr, 39,050 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,320 ft³/s Jan. 10, 1988, gage height, 6.77 ft, from crest-stage gage; maximum gage height, 7.74 ft Dec 21, 1969; minimum discharge, 0.36 ft³/s Sept. 9, 1971.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 820 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	0730	875	4.62	Jan. 10	0400	(a)	*6.98
Jan. 10	0400	*2,270	5.83				

Minimum discharge, 1.2 ft³/s Oct. 3, Sept. 15-17, 24-26.

(a) From crest-stage gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	3.6	56	124	34	42	90	22	e10	e4.5	e1.9	3.1
2	1.4	7.1	42	87	32	66	106	18	e9.0	e3.3	e1.9	2.6
3	1.3	17	34	74	29	59	98	17	e8.0	e2.9	e2.0	2.3
4	1.4	15	28	65	e24	55	84	17	e7.0	e2.7	e1.9	2.2
5	1.7	9.7	24	79	e24	105	71	15	e6.0	e2.6	e1.8	1.9
6	1.8	21	22	85	e23	162	59	14	e6.6	e2.5	e1.7	1.8
7	1.8	12	20	81	e24	123	49	14	e5.0	e2.4	e1.6	1.8
8	1.9	9.8	17	80	e19	92	42	12	e4.2	e2.3	e1.6	1.8
9	2.0	8.0	16	375	e19	81	38	12	e4.0	e2.3	e1.6	1.6
10	1.7	12	15	1170	23	72	34	14	e3.8	e2.3	e1.8	1.6
11	1.9	12	14	289	24	67	30	12	e3.7	e2.4	e1.8	1.6
12	2.0	12	13	162	29	60	28	11	e3.6	e2.3	e1.7	1.5
13	2.0	15	12	148	32	147	26	e9.0	e3.4	e2.1	e1.5	1.4
14	2.0	12	11	141	33	207	23	e8.4	e3.7	e2.0	e1.5	1.4
15	2.1	12	11	132	31	195	22	e7.6	e4.8	e2.2	e1.4	1.4
16	2.1	35	9.9	121	77	310	21	e7.2	e7.0	e2.5	e1.4	1.2
17	2.0	102	9.5	103	176	196	20	e7.0	e6.2	e3.2	e1.4	1.5
18	2.1	53	9.1	82	192	204	18	e7.4	e5.2	e4.2	e1.5	2.0
19	2.3	31	11	69	156	159	18	e7.6	e4.3	3.5	e1.6	1.8
20	2.5	23	16	57	114	123	18	e6.6	e3.8	2.9	e1.6	1.7
21	2.5	93	111	86	86	132	18	e6.0	e3.4	2.8	e1.7	1.7
22	2.9	670	275	125	115	119	17	e5.4	e3.1	2.8	e1.7	1.7
23	3.0	377	339	105	128	100	18	e7.6	e2.8	2.5	e3.5	1.5
24	3.0	259	242	85	103	88	19	e22	e2.6	2.2	e6.6	1.4
25	3.1	155	151	68	75	109	65	e19	e2.5	2.1	e4.0	1.2
26	3.0	122	91	55	62	96	57	e16	e2.4	e2.1	e3.0	1.4
27	3.2	94	73	47	50	115	37	e13	e2.3	e2.0	e2.4	1.6
28	3.2	159	63	41	45	169	29	e20	e2.4	e2.0	e2.0	1.6
29	3.2	102	53	36	---	144	25	e17	e2.9	e2.1	e2.4	1.6
30	3.1	73	101	32	---	117	22	e15	e3.9	e2.0	3.1	1.8
31	3.0	---	185	32	---	104	---	e13	---	e1.8	4.7	---
TOTAL	70.7	2526.2	2074.5	4236	1779	3818	1202	392.8	137.6	79.5	68.3	51.7
MEAN	2.28	84.2	66.9	137	63.5	123	40.1	12.7	4.59	2.56	2.20	1.72
MAX	3.2	670	339	1170	192	310	106	22	10	4.5	6.6	3.1
MIN	1.3	3.6	9.1	32	19	42	17	5.4	2.3	1.8	1.4	1.2
AC-FT	140	5010	4110	8400	3530	7570	2380	779	273	158	135	103
CFSM	.08	2.93	2.33	4.76	2.21	4.29	1.40	.44	.16	.09	.08	.06
IN.	.09	3.27	2.69	5.49	2.31	4.95	1.56	.51	.18	.10	.09	.07

CAL YR 1988 TOTAL 16492.27 MEAN 45.1 MAX 1400 MIN .57 AC-FT 32710 CFSM 1.57 IN. 21.38
WTR YR 1989 TOTAL 16436.3 MEAN 45.0 MAX 1170 MIN 1.2 AC-FT 32600 CFSM 1.57 IN. 21.30

e Estimated

COOS RIVER BASIN

241

14324580 PONY CREEK AT COOS BAY, OR

LOCATION.--Lat 43°22'50", long 124°14'25", in NE 1/4 NE 1/4 sec.28, T.25 S., R.13 W., Coos County, Hydrologic Unit 17100304, at the downstream end of culvert under Ocean Boulevard, in Coos Bay, and at mile 2.2.

DRAINAGE AREA.--3.90 mi².

PERIOD OF RECORD.--July 1975 to current year.

GAGE.--Water-stage recorder. Datum of gage is at 12.23 ft above National Geodetic Vertical Datum of 1929 (Coos Bay-North Bend Water Board bench mark). Oct. 1, 1982, to September 30, 1987, gage at site 260 ft upstream set at National Geodetic Vertical Datum of 1929.

REMARKS.--Records good above 1.0 ft³/s, poor below. Flow regulated by Upper and Lower Pony Creek Reservoirs (stations 14324550 and 14324560), diversion upstream from station from Lower Pony Creek Reservoir to municipal water supply of Coos Bay-North Bend (station 14323570) and diversion into the basin from Joe Ney Creek (station 14324590). Approximately 5.5 ft³/s is diverted to the Coos Bay-North Bend water treatment plant, maximum capacity, 10.8 ft³/s.

AVERAGE DISCHARGE.--14 years, 10.5 ft³/s, 36.56 in/yr, 7,610 acre-ft/yr, adjusted for Joe Ney diversion into Pony Creek, Coos Bay-North Bend diversion, and change in contents in Upper and Lower Pony Creek Reservoirs.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 181 ft³/s Dec. 6, 1981, gage height, 6.19 ft; no flow July 28, Sept. 15, 29, Oct. 4-8, Oct. 26 to Nov. 2, 1988, during construction of new dam for Lower Pony Creek Reservoir.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 100 ft³/s Jan. 10, gage height, 4.67 ft; no flow Oct. 4-8, Oct. 26 to Nov. 2.

MONTHLY DISCHARGE OF PONY CREEK, JOE NEY CREEK DIVERSION, PONY CREEK DIVERSION AND MONTHLY CHANGE IN CONTENTS OF RESERVOIRS NEAR COOS BAY, OR, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

	14324590 Diversion from Joe Ney Creek into Pony Creek (acre-feet)	14324580 Pony Creek at Coos Bay (acre-feet)	14324570 Diversion from Lower Pony Creek Reservoir to City of Coos Bay (acre-feet)	14324560 Lower Pony Creek Reservoir Change in Contents (acre-feet)	14324550 Upper Pony Creek Reservoir Change in Contents (acre-feet)	Pony Creek adjusted for diversion and change in contents (acre-feet)	(inches)
October.....	-16.1	4.9	241.1	+257.0	-436.0	50.9	0.24
November.....	0	5.2	234.8	+30.6	+693.0	964	4.64
December.....	0	4.1	251.6	-0.8	+497.0	752	3.62
CAL YR 1988...	480.1	2,478.1	3,531.7	+168.4	+316.0	6,010	28.90
January.....	0	1,070.4	247.7	+20.1	+68.0	1,410	6.78
February.....	0	377.5	323.6	-2.5	+31.0	730	3.51
March.....	0	1,343.6	314.5	+9.0	+25.0	1,690	8.13
April.....	0	319.9	347.1	-17.6	-62.0	587	2.82
May.....	0	86.0	304.0	-2.5	-2.0	386	1.86
June.....	-32.0	4.7	375.9	-61.2	-66.0	221	1.06
July.....	-121.6	3.4	522.0	+44.0	-307.0	141	0.68
August.....	-126.5	2.6	434.3	-45.7	-166.0	98.7	0.47
September.....	-97.5	5.0	361.4	-1.4	-183.0	84.5	0.41
WTR YR 1989...	-393.7	3,207.7	3,958.0	+229.1	+92.0	7,090	34.10

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.01	.06	.08	7.5	7.4	14	1.6	.71	.06	.06	.05
2	.01	.01	.05	.18	8.4	13	13	.10	.19	.06	.05	.05
3	.01	.07	.05	.71	8.0	12	12	.09	.06	.06	.05	.05
4	.01	.09	.04	1.2	6.4	10	11	1.2	.05	.07	.03	.05
5	.01	.16	.04	10	4.6	16	10	.94	.07	.08	.03	.05
6	.01	.08	.05	19	3.6	20	8.2	.86	.05	.06	.03	.05
7	.01	.06	.04	18	3.1	16	7.4	.41	.05	.04	.03	.05
8	.0	.07	.04	18	2.8	14	6.7	.47	.04	.04	.04	.05
9	.01	.12	.03	34	2.4	16	5.7	.19	.06	.05	.03	.05
10	.02	.08	.03	89	1.2	21	5.3	.23	.05	.04	.03	.05
11	.02	.06	.03	60	.56	29	4.6	.38	.05	.05	.03	.06
12	.02	.07	.03	29	.45	33	4.3	.13	.06	.04	.03	.08
13	.02	.06	.04	24	1.9	39	3.9	.10	.07	.04	.03	.08
14	.01	.05	.04	21	2.8	37	4.1	.03	.06	.04	.02	.08
15	.01	.09	.03	21	3.2	39	4.0	.03	.04	.04	.03	.09
16	.01	.13	.03	20	5.6	33	3.6	.02	.04	.05	.02	.09
17	.01	.08	.03	18	8.5	28	3.2	.03	.03	.09	.03	.10
18	.01	.06	.03	15	9.2	37	2.3	.04	.03	.07	.02	.12
19	.01	.05	.07	13	12	26	1.9	.05	.03	.06	.05	.12
20	.01	.07	.11	12	11	22	2.6	.14	.03	.05	.06	.13
21	.01	.12	.11	14	9.2	21	3.0	.02	.06	.05	.07	.13
22	.01	.14	.09	17	14	17	3.4	.08	.06	.05	.07	.13
23	.01	.12	.07	14	15	14	5.9	1.3	.06	.04	.06	.12
24	.01	.20	.18	12	13	14	7.0	5.7	.06	.05	.05	.12
25	1.7	.10	.10	11	11	23	6.0	5.4	.06	.04	.06	.14
26	.51	.08	.07	8.6	9.5	23	2.8	3.1	.05	.08	.06	.13
27	.0	.17	.09	9.3	8.6	20	1.7	3.9	.06	.07	.06	.13
28	.00	.08	.07	8.2	6.8	21	1.6	5.6	.06	.07	.05	.09
29	.00	.07	.06	7.2	---	17	1.2	5.2	.08	.06	.05	.05
30	.00	.07	.24	7.6	---	16	.89	4.1	.07	.05	.05	.05
31	.0	---	.13	7.6	---	13	---	1.9	---	.06	.05	---
TOTAL	2.49	2.62	2.08	539.67	190.31	667.4	161.29	43.34	2.39	1.71	1.33	2.54
MEAN	.080	.087	.067	17.4	6.80	21.5	5.38	1.40	.080	.055	.043	.085
MAX	1.7	.20	.24	89	15	39	14	5.7	.71	.09	.07	.14
MIN	.00	.01	.03	.08	.45	7.4	.89	.02	.03	.04	.02	.05
AC-FT	4.9	5.2	4.1	1070	377	1320	320	86	4.7	3.4	2.6	5.0
CAL YR 1988	TOTAL 1249.36			MEAN 3.41	MAX 107	MIN .00	AC-FT 2480					
WTR YR 1989	TOTAL 1617.17			MEAN 4.43	MAX 89	MIN .00	AC-FT 3210					

COQUILLE RIVER BASIN

243

14325000 SOUTH FORK COQUILLE RIVER AT POWERS, OR

LOCATION.--Lat 42°53'30", long 124°04'10", in SE 1/4 sec.12, T.31 S., R.12 W., Coos County, Hydrologic Unit 17100305, on left bank 0.6 mi downstream from highway bridge at Powers, 0.9 mi upstream from Woodward Creek, and at mile 64.5.

DRAINAGE AREA.--169 mi².

PERIOD OF RECORD.--September 1916 to September 1926, October 1928 to current year.

REVISED RECORDS.--WSP 1184: 1946(M). WSP 1448: 1917-18(M), 1919, 1920(M), 1925.

GAGE.--Water-stage recorder. Datum of gage is 197.42 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 17, 1938, nonrecording gage at various sites within 1 mi of present site at different datums.

REMARKS.--Records good except those for July 5 to Sept. 30, which are fair. No regulation. Small diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--70 years (water years 1917-26, 1930-89), 789 ft³/s, 63.40 in/yr, 571,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,900 ft³/s Dec. 22, 1964, gage height, 26.51 ft, from floodmarks, from rating curve extended above 19,000 ft³/s on basis of contracted-opening measurement at gage height 18.14 ft and slope-area measurement of peak flow; minimum discharge, 8.8 ft³/s Sept. 28, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 9,300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	1800	*12,000	*10.95	Jan. 10	0400	10,400	10.07

Minimum discharge, 12 ft³/s Oct. 26 to Nov. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	13	913	1500	882	569	1290	e340	357	108	36	31
2	19	45	701	1090	750	639	1790	e310	306	90	36	28
3	17	554	561	1000	635	549	1610	e290	266	81	36	27
4	17	228	460	1040	522	530	1350	e270	239	77	34	26
5	18	119	396	1180	444	4300	e1100	e250	213	72	33	25
6	19	544	366	1160	435	4640	e1000	e240	197	69	31	24
7	19	256	321	1090	371	2540	e900	e230	182	65	31	24
8	18	229	283	1020	344	1740	e800	e215	169	63	33	23
9	17	182	256	1960	331	2770	e720	e205	159	61	34	22
10	16	1160	235	7170	335	3790	e640	205	149	61	32	21
11	16	726	214	3160	349	3970	e600	194	140	58	31	21
12	15	594	197	1940	395	3490	e560	174	134	56	29	20
13	15	1180	185	1680	412	4210	e520	161	128	56	28	20
14	16	1210	171	1400	380	3080	e480	153	128	54	27	19
15	16	984	159	1540	347	2420	e430	146	146	54	28	18
16	16	1620	149	1690	407	2370	e400	138	126	52	28	18
17	15	3730	140	1580	762	2470	e380	134	114	53	28	22
18	15	1840	133	1370	872	4470	e360	143	108	53	29	27
19	15	1060	143	1200	1180	3150	e330	143	105	50	30	24
20	15	875	228	1160	951	2130	e310	127	101	47	30	23
21	15	1880	758	1410	876	2570	e300	121	95	47	31	22
22	14	8340	1420	1760	2310	2180	e290	120	90	45	35	21
23	14	5190	1190	1340	2410	1650	e310	294	86	43	43	20
24	14	2890	1200	1050	1630	1360	e400	1110	83	41	43	19
25	14	2810	1050	840	1190	2950	e620	714	79	41	38	18
26	14	2450	767	712	920	2460	e620	520	77	40	35	18
27	13	1910	609	658	750	1880	e500	519	77	40	35	25
28	13	2870	593	628	642	1970	e450	648	75	38	33	30
29	13	1820	520	587	---	1730	e410	619	82	37	30	27
30	13	1250	1980	691	---	1410	e370	507	130	38	32	29
31	13	---	2400	838	---	1290	---	422	---	36	34	---
TOTAL	485	48559	18698	45444	21832	75277	19840	9662	4341	1726	1013	692
MEAN	15.6	1619	603	1466	780	2428	661	312	145	55.7	32.7	23.1
MAX	21	8340	2400	7170	2410	4640	1790	1110	357	108	43	31
MIN	13	13	133	587	331	530	290	120	75	36	27	18
AC-FT	962	96320	37090	90140	43300	149300	39350	19160	8610	3420	2010	1370
CFSM	.09	9.58	3.57	8.67	4.61	14.4	3.91	1.84	.86	.33	.19	.14
IN.	.11	10.69	4.12	10.00	4.81	16.57	4.37	2.13	.96	.38	.22	.15

CAL YR 1988 TOTAL 203734 MEAN 557 MAX 11800 MIN 13 AC-FT 404100 CFSM 3.29 IN. 44.85
WTR YR 1989 TOTAL 247569 MEAN 678 MAX 8340 MIN 13 AC-FT 491100 CFSM 4.01 IN. 54.49

e Estimated

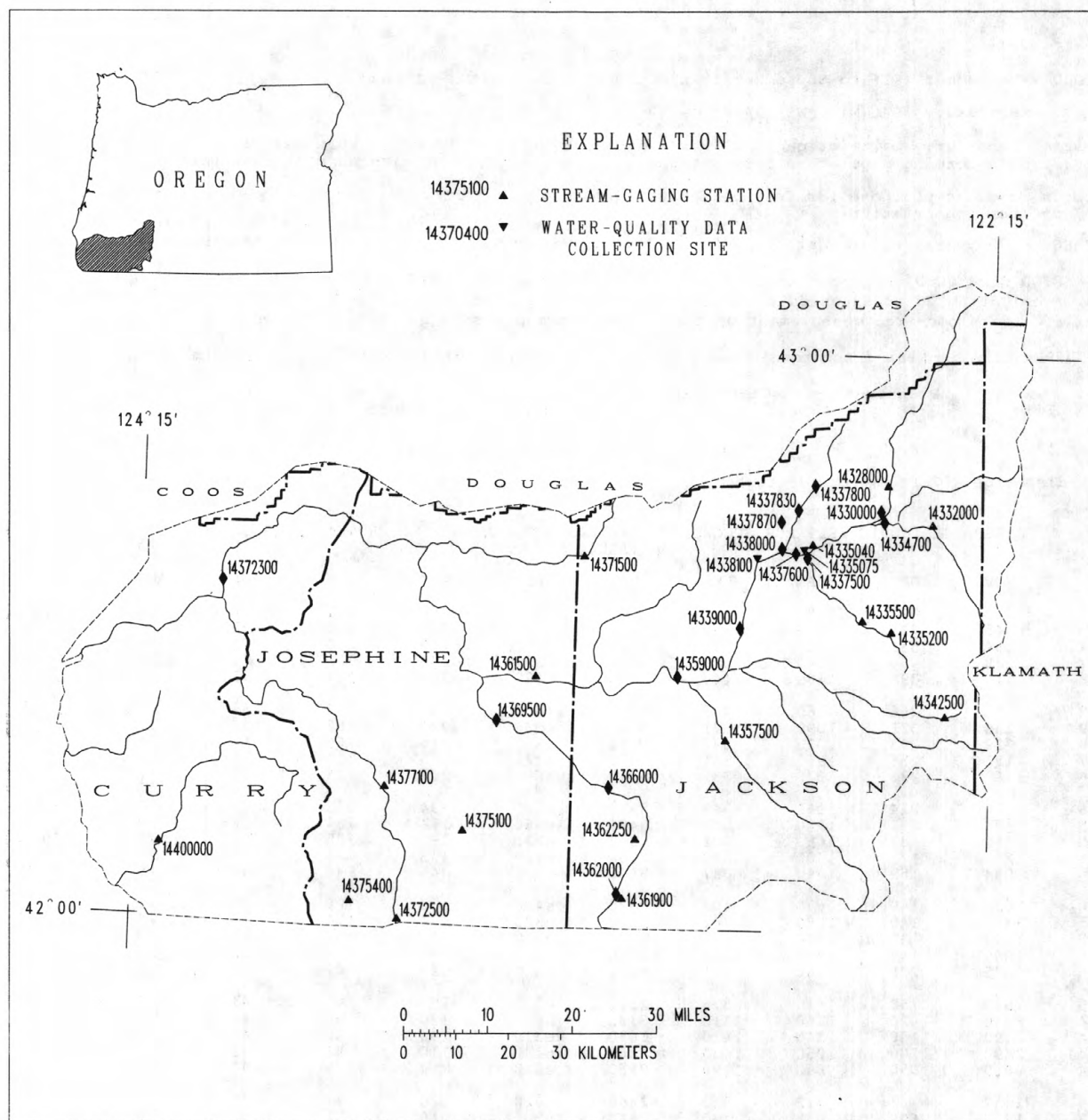


Figure 7.--Location of surface-water and water-quality stations in the Rogue River, Applegate River, Illinois River, and Chetco River basins.

UPPER ROGUE RIVER BASIN

245

14328000 ROGUE RIVER ABOVE PROSPECT, OR

LOCATION.--Lat 42°46'30", long 122°29'55", in SE 1/4 NE 1/4 sec.19, T.32 S., R.3 E., Jackson County, Hydrologic Unit 17100307, Rogue River National Forest, on left bank 1.4 mi upstream from Pacific Power and Light Co. diversion dam, 1.8 mi northwest of Prospect, and at mile 173.4.

DRAINAGE AREA.--312 mi².

PERIOD OF RECORD.--January 1908 to February 1912, October 1923 to current year. Monthly discharge only for some periods, published in WSP 1318. Prior to October 1925, published as "near Prospect."

REVISED RECORDS.--WSP 1248: 1925, 1927(M). WSP 1738: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 2,620 ft, from river-profile map. Prior to Feb. 17, 1912, nonrecording gage at several sites within a few hundred feet upstream at various datums.

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--69 years (water years 1909-11, 1924-89), 825 ft³/s, 35.91 in/yr, 597,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,400 ft³/s Dec. 22, 1964, gage height, 11.55 ft, from floodmark, from rating curve extended above 9,000 ft³/s on basis of slope-area measurement at 16,600 ft³/s; minimum observed discharge, 200 ft³/s Nov. 20, 1931.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,700 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 21	1730	*3,400	*4.36	No other peak greater than base discharge.			
Minimum discharge, 275 ft ³ /s Oct. 25 to Nov. 1.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	292	277	578	397	712	634	1740	1380	1130	649	458	424
2	289	361	559	416	649	642	1600	1360	1220	625	467	417
3	287	585	544	461	612	575	1390	1340	1270	610	469	417
4	291	387	535	482	e600	560	1270	1460	1290	600	459	417
5	304	325	530	525	e580	705	1350	1780	1290	591	458	412
6	294	472	606	498	e560	1500	1630	2080	1260	580	453	411
7	292	366	653	473	e550	1480	2010	2170	1200	573	448	406
8	288	339	603	471	e550	1250	2280	2200	1140	566	456	405
9	287	331	580	581	e550	1730	2380	2360	1090	560	491	403
10	285	429	648	1460	e540	2250	2360	2240	1030	557	441	399
11	283	435	676	889	e530	2170	2210	1820	991	547	435	399
12	283	464	659	727	e520	2120	2230	1570	982	539	429	399
13	283	481	651	669	e510	1890	2280	1420	974	532	428	399
14	286	432	627	610	e500	1510	2410	1350	938	528	428	397
15	283	422	574	583	e480	1360	2410	1270	967	523	426	394
16	283	465	543	557	458	1350	2370	1290	949	521	423	395
17	283	520	517	553	506	1210	2270	1320	862	570	422	409
18	283	411	489	554	669	1270	2280	1300	830	533	420	429
19	283	374	494	545	788	1410	2460	1130	811	515	417	407
20	283	392	485	552	689	1250	2420	1080	781	505	417	400
21	280	472	464	577	666	2680	2290	1110	754	497	417	399
22	279	1530	461	591	756	2590	1940	1110	738	490	460	395
23	279	1670	450	516	875	1950	1660	1170	737	484	495	394
24	279	833	446	533	800	1690	1450	1080	728	480	462	391
25	276	695	432	526	731	2220	1410	1130	714	475	436	390
26	275	604	408	509	684	1900	1280	1080	703	469	428	394
27	275	567	427	506	659	1620	1220	1100	689	465	423	413
28	275	883	446	505	637	2010	1210	1150	671	462	418	399
29	275	714	420	505	---	2060	1240	1110	665	460	420	397
30	275	622	441	557	---	1710	1350	1050	679	458	478	445
31	275	---	417	664	---	1970	---	1060	---	458	435	---
TOTAL	8785	16858	16363	17992	17361	49266	56400	44070	28083	16422	13717	12156
MEAN	283	562	528	580	620	1589	1880	1422	936	530	442	405
MAX	304	1670	676	1460	875	2680	2460	2360	1290	649	495	445
MIN	275	277	408	397	458	560	1210	1050	665	458	417	390
AC-FT	17430	33440	32460	35690	34440	97720	111900	87410	55700	32570	27210	24110
CFSM	.91	1.80	1.69	1.86	1.99	5.09	6.03	4.56	3.00	1.70	1.42	1.30
IN.	1.05	2.01	1.95	2.15	2.07	5.87	6.72	5.25	3.35	1.96	1.64	1.45

CAL YR 1988 TOTAL 216656 MEAN 592 MAX 1670 MIN 275 AC-FT 429700 CFSM 1.90 IN. 25.83
WTR YR 1989 TOTAL 297473 MEAN 815 MAX 2680 MIN 275 AC-FT 590000 CFSM 2.61 IN. 35.47

e Estimated

UPPER ROGUE RIVER BASIN

14330000 ROGUE RIVER BELOW PROSPECT, OR

LOCATION.--Lat 42°43'50", long 122°30'55", in SE 1/4 NW 1/4 sec.6, T.33 S., R.3 E., Jackson County, Hydrologic Unit 17100307, on right bank 600 ft downstream from Prospect No. 1 powerplant, 1.4 mi downstream from Mill Creek, 2.0 mi southwest of Prospect, 2.1 mi upstream from South Fork Rogue River, and at mile 169.4.

DRAINAGE AREA.--379 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1913 to September 1930, October 1968 to current year.

REVISED RECORDS.--WSP 1518: 1914-23, 1924(M), 1925, 1928.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,964.56 ft above National Geodetic Vertical Datum of 1929 (Pacific Power and Light Co. bench mark). Prior to September 1927 nonrecording gage at site 1,000 ft upstream, above powerplants, at different datum, also concurrent nonrecording gage on headrace to obtain equivalent combined flow.

REMARKS.--Water-discharge records good except for estimated daily discharges, which are fair. Fluctuations caused by powerplant 600 ft upstream from station. Small diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--38 years, 1,300 ft³/s, 941,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,900 ft³/s Jan. 18, 1971, gage height, 7.62 ft, from high-water mark; minimum discharge, 205 ft³/s Sept. 17, 22, 24, 1980, caused by regulation of diversion gates upstream.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1890, 12.4 ft Dec. 22, 1964, from floodmarks, discharge, 25,000 ft³/s, from records for station upstream from Prospect (station 14328000) and for station downstream from South Fork Rogue River near Prospect (station 14335000) after adjusting for estimated intervening tributary inflow.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,390 ft³/s Mar. 22, gage height 4.68 ft, caused by regulation of diversion gates upstream; maximum gage height, 5.46 ft, from crest-stage gage; minimum discharge, 272 ft³/s Aug. 29, caused by regulation of diversion gates upstream.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	799	749	1120	922	e1300	e1020	2520	2270	e1900	1390	1110	1030
2	793	870	1140	947	e1200	e1050	2410	2260	e2000	1360	1120	1020
3	786	1180	1110	1000	e1150	e1000	2200	2190	e2100	1340	1120	1010
4	798	958	1100	1030	e1050	e980	2090	2320	e2130	1330	1100	1010
5	816	862	1080	1090	e1000	e1000	2140	2610	e2100	1320	1100	994
6	800	1010	1180	1070	e990	e2400	2400	2880	e2000	1310	1080	994
7	799	899	1230	1030	e980	e2300	2740	2950	1960	1290	1080	990
8	793	891	1180	1040	e980	2020	2990	3000	1950	1280	1080	985
9	785	856	1150	1150	e970	2500	3090	3160	1940	1280	1150	980
10	782	970	1220	2160	e960	2990	3090	3060	1880	1270	1080	969
11	775	1030	1250	1560	e950	2880	2940	2700	1830	1250	1070	914
12	782	1020	1240	1380	e950	2850	2960	2460	1710	1240	1060	876
13	785	1040	1210	1300	e940	2660	3010	2300	1720	1230	1050	870
14	781	983	1200	1230	e920	2300	3150	2220	1650	1230	1050	867
15	780	997	1130	1190	e870	2140	3140	2170	1730	1210	1040	862
16	783	1050	1080	1160	e840	2130	3120	2170	1680	1200	1040	863
17	783	1090	1060	1160	e940	1980	3010	2200	1660	1260	1030	898
18	779	984	1030	1160	e1100	2020	3030	2170	1600	1220	1030	926
19	781	940	1040	1130	e1300	2180	3180	2020	1590	1190	1020	887
20	779	980	997	1150	e1150	2020	3170	1980	1450	1180	1020	876
21	779	1070	1000	1180	e1100	3220	3060	1990	1370	1180	1020	860
22	772	2100	994	e1100	e1200	3080	2740	e1950	1340	1170	1100	864
23	770	2390	978	e1100	e1400	2640	2500	e2000	1370	1160	1150	854
24	773	1490	977	e1000	e1280	2430	2270	e2050	1450	1150	1110	852
25	761	1280	961	e950	e1150	2910	2350	e2000	1420	1150	1050	851
26	769	1190	884	e940	e1100	2640	2200	e2100	1300	1120	1040	852
27	768	1160	896	e920	e1050	2390	2070	e2200	1280	1130	1030	878
28	775	1510	957	e900	e1000	2720	2090	e2000	1400	1100	1020	855
29	763	1290	941	e900	---	2780	2140	e1900	1430	1100	992	856
30	763	1180	976	e1000	---	2460	2230	e1800	1430	1090	1120	954
31	754	---	943	e1200	---	2700	---	e1800	---	1100	1050	---
TOTAL	24206	34019	33254	35049	29820	70390	80030	70880	50370	37830	33112	27497
MEAN	781	1134	1073	1131	1065	2271	2668	2286	1679	1220	1068	917
MAX	816	2390	1250	2160	1400	3220	3180	3160	2130	1390	1150	1030
MIN	754	749	884	900	840	980	2070	1800	1280	1090	992	851
AC-FT	48010	67480	65960	69520	59150	139600	158700	140600	99910	75040	65680	54540

CAL YR 1988 TOTAL 438680 MEAN 1199 MAX 2790 MIN 749 AC-FT 870100
WTR YR 1989 TOTAL 526457 MEAN 1442 MAX 3220 MIN 749 AC-FT 1044000

e Estimated

247

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1976 to September 1981.

pH: November 1976 to September 1981.

WATER TEMPERATURE: October 1968 to current year.

DISSOLVED OXYGEN: October 1979 to September 1981.

SUSPENDED SEDIMENT DISCHARGE: November 1976 to September 1981 (October to April only, 1980 water year, November to April only, 1981 water year).

INSTRUMENTATION.--Water-quality monitor since November 1976. Automatic pumping sediment sampler November 1976 to April 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 73 microsiemens Sept. 22, 1980; minimum recorded, 28 microsiemens Jan. 13, 1980, may have been lower during period of missing record Jan. 14-17, 1980.

pH: Maximum recorded, 8.3 units Aug. 10, 1981, may have been higher during period of no record in July and

August 1981; minimum, 7.0 units Nov. 30, 1976.

WATER TEMPERATURE: Maximum, 20.5°C July 20, 1979 (result of regulation); minimum, 0.0°C at times most years.

DISSOLVED OXYGEN: Maximum, 13.6 mg/L Dec. 8, 1980, Feb. 21, 1981; minimum, 7.2 mg/L June 21, 1980, result of regulation.

SEDIMENT CONCENTRATION: Maximum daily mean (water years 1977-79), 1,270 mg/L (estimated) Jan. 11, 1979; minimum, 0 mg/L on many days each year. Maximum daily mean (period October 1979 to April 1981), 716 mg/L Oct. 25, 1979; minimum daily mean, 0 mg/L on several days in October and December 1979, Nov. 15-21, 28, Dec. 1, 1980, Jan. 19, 1981.

SEDIMENT DISCHARGE: Maximum daily (water years 1977-79), 17,790 tons Dec. 15, 1977; minimum daily, 0 tons on many days each year. Maximum daily (period October 1979 to April 1981), 5,570 tons Jan. 13, 1980; minimum daily, 0 tons on several days in October and December 1979. Nov. 15-21, 28, Dec. 1, 1980, Jan. 19, 1981.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 14.5°C July 12-14, 19, 20, 24-26, Aug. 7; minimum, not determined, probably occurred during period Feb. 4-8.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN		MAX	MIN	MEAN		MAX	MIN	MEAN		MAX	MIN	MEAN
	OCTOBER				NOVEMBER				DECEMBER				JANUARY		
1					---	---	---		3.0	2.0	2.5		---	---	---
2					---	---	---		3.5	2.5	3.0		---	---	---
3					7.0	6.5	6.5		3.5	3.0	3.0		---	---	---
4					---	---	---		3.0	2.5	3.0		---	---	---
5					---	---	---		3.5	2.5	3.0		3.0	2.0	2.5
6					---	---	---		4.5	3.5	4.0		2.0	1.5	2.0
7					---	---	---		4.0	3.5	4.0		2.0	1.5	1.5
8					---	---	---		3.5	3.0	3.0		2.0	.5	1.5
9					---	---	---		3.5	3.0	3.5		1.5	1.0	1.0
10					---	---	---		4.0	3.5	3.5		2.0	1.0	1.5
11					---	---	---		3.5	3.0	3.5		2.5	2.0	2.5
12					---	---	---		3.5	3.0	3.5		2.5	2.0	2.0
13					5.0	4.5	5.0		4.0	3.5	3.5		---	---	---
14					---	---	---		3.5	2.0	3.0		---	---	---
15					---	---	---		2.0	1.5	2.0		---	---	---
16					---	---	---		2.0	1.0	1.5		---	---	---
17					3.0	1.5	2.5		---	---	---		---	---	---
18					2.5	2.0	2.5		2.0	1.0	1.5		---	---	---
19					---	---	---		---	---	---		---	---	---
20					3.5	2.5	3.0		---	---	---		---	---	---
21					3.5	3.0	3.5		1.5	.5	1.0		---	---	---
22					4.5	3.5	4.0		1.0	1.0	1.0		---	---	---
23					4.5	3.5	4.0		1.0	1.0	1.0		---	---	---
24					3.5	2.5	3.0		1.0	1.0	1.0		---	---	---
25					2.5	1.5	2.0		---	---	---		---	---	---
26					3.0	2.0	2.5		---	---	---		---	---	---
27					4.0	2.5	3.0		---	---	---		---	---	---
28					4.0	3.5	3.5		---	---	---		---	---	---
29					3.5	2.5	3.0		---	---	---		---	---	---
30					2.5	2.0	2.5		---	---	---		---	---	---
31					---	---	---		---	---	---		---	---	---
MONTH					---	---	---		---	---	---		---	---	---

UPPER ROGUE RIVER BASIN

14330000 ROGUE RIVER BELOW PROSPECT, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	3.0	2.5	3.0	5.0	4.5	4.5	7.5	5.5	6.5
2	---	---	---	2.5	1.5	2.0	4.5	4.0	4.5	7.0	6.5	7.0
3	---	---	---	2.5	1.5	2.0	5.5	4.0	4.5	7.0	6.5	6.5
4	---	---	---	2.0	1.5	2.0	6.5	5.0	5.5	8.5	6.5	7.0
5	---	---	---	3.5	2.0	2.5	7.0	5.0	6.0	9.0	7.5	8.0
6	---	---	---	4.0	2.5	3.5	7.0	5.5	6.5	9.0	7.0	8.0
7	---	---	---	4.5	3.5	4.0	7.0	5.0	6.0	8.5	6.5	8.0
8	---	---	---	4.5	4.0	4.0	7.0	5.0	6.0	8.5	6.5	8.0
9	---	---	---	5.0	4.0	4.5	7.0	5.0	6.0	8.5	6.0	7.0
10	---	---	---	5.0	3.5	4.0	6.5	5.0	6.0	7.0	5.5	6.0
11	---	---	---	5.0	4.5	4.5	7.0	5.0	6.0	7.0	6.0	6.5
12	---	---	---	5.0	4.0	4.5	7.0	5.0	6.0	7.0	6.0	6.5
13	---	---	---	4.5	4.0	4.0	7.0	5.0	6.5	7.5	6.0	7.0
14	---	---	---	4.5	3.5	4.0	7.0	5.5	6.0	7.5	6.5	7.0
15	---	---	---	5.0	4.0	4.5	7.0	5.5	6.5	8.0	6.5	7.5
16	---	---	---	5.0	4.5	4.5	7.0	5.0	6.5	9.0	7.5	8.0
17	2.5	1.5	2.0	4.5	4.0	4.5	7.0	5.5	6.5	8.5	7.5	8.0
18	3.0	2.0	2.5	5.0	4.5	4.5	7.5	5.5	6.5	7.5	5.5	7.0
19	3.5	2.5	3.0	5.5	4.5	5.0	7.5	6.0	7.0	7.5	5.0	6.0
20	4.5	3.0	3.5	5.0	4.0	4.5	7.5	5.5	6.5	8.5	7.0	7.5
21	4.0	3.5	3.5	5.0	4.5	5.0	6.5	5.5	5.5	9.0	8.0	8.5
22	4.0	3.5	3.5	5.5	4.0	4.5	5.5	4.5	5.0	8.5	7.0	8.0
23	4.0	3.0	3.5	5.0	4.0	4.5	5.0	4.0	4.5	7.0	5.0	6.0
24	4.0	3.0	3.5	5.5	5.0	5.0	6.0	4.0	5.0	6.0	5.0	5.5
25	4.0	3.0	3.5	5.5	4.5	5.0	5.0	3.5	4.0	7.5	6.0	7.0
26	3.5	2.5	3.0	4.5	4.0	4.0	6.0	3.5	4.5	8.0	6.5	7.5
27	3.5	2.0	2.5	5.0	4.0	4.5	6.5	4.5	5.5	8.5	7.5	8.0
28	3.5	2.0	3.0	5.5	5.0	5.0	7.0	5.0	6.0	7.5	6.5	7.0
29	---	---	---	5.5	4.5	5.0	7.5	6.0	7.0	7.0	6.0	6.5
30	---	---	---	5.0	4.5	5.0	7.5	6.5	7.0	8.5	6.5	7.5
31	---	---	---	6.0	4.5	5.0	---	---	---	10.0	8.0	9.0
MONTH	---	---	---	6.0	1.5	4.0	7.5	3.5	6.0	10.0	5.0	7.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	11.0	9.5	10.0	11.0	9.0	10.0	11.0	9.0	10.0	10.5	8.5	9.5
2	10.5	10.0	10.5	11.5	8.5	10.0	11.0	9.5	10.0	10.5	8.0	9.0
3	10.0	9.5	9.5	13.0	9.5	11.0	12.0	9.0	10.5	11.0	8.0	9.5
4	10.5	9.0	10.0	13.0	10.0	11.5	13.0	9.5	11.0	11.5	8.5	10.0
5	11.0	9.5	10.0	13.0	10.0	11.5	13.5	10.5	12.0	12.0	9.0	10.0
6	11.0	9.5	10.0	14.0	10.5	12.0	14.0	11.0	12.5	11.0	8.5	9.5
7	11.0	9.5	10.0	14.0	11.0	12.5	14.5	11.5	12.5	11.0	8.0	9.0
8	11.0	9.5	10.0	13.5	10.5	12.0	13.0	11.5	12.5	11.0	8.0	9.5
9	11.0	9.5	10.0	12.5	10.0	11.5	13.5	10.5	12.0	11.0	8.5	10.0
10	11.0	9.5	10.0	13.0	10.0	11.5	14.0	11.0	12.0	11.0	8.5	10.0
11	11.5	10.0	10.5	13.5	10.0	11.5	13.5	11.0	12.0	---	---	---
12	12.0	10.0	11.0	14.5	11.0	12.5	13.5	11.0	12.0	---	---	---
13	11.5	10.5	11.0	14.5	11.5	13.0	13.0	10.0	11.5	---	---	---
14	11.0	10.0	10.5	14.5	11.5	13.0	13.0	10.0	11.5	---	---	---
15	10.5	9.0	10.0	14.0	12.0	13.0	12.5	10.0	11.0	---	---	---
16	10.0	8.5	9.0	12.5	10.5	11.5	12.5	9.5	11.0	---	---	---
17	11.0	9.0	9.5	12.0	10.0	11.0	12.5	9.5	11.0	---	---	---
18	11.5	9.0	10.0	14.0	10.5	12.0	12.5	10.0	11.0	---	---	---
19	11.0	9.5	10.0	14.5	11.5	13.0	13.0	10.0	11.5	---	---	---
20	11.5	8.5	10.0	14.5	11.5	13.0	13.0	10.5	11.5	---	---	---
21	12.0	9.0	10.5	14.0	11.0	12.5	12.5	10.5	11.5	---	---	---
22	13.0	9.5	11.5	14.0	10.5	12.0	12.0	10.5	11.5	---	---	---
23	14.0	10.5	12.0	13.5	11.0	12.5	11.0	10.0	10.5	---	---	---
24	13.5	11.0	12.0	14.5	11.0	12.5	11.0	9.0	10.0	---	---	---
25	13.5	11.0	12.0	14.5	11.5	12.5	11.5	8.5	10.0	---	---	---
26	14.0	11.0	12.5	14.5	11.5	13.0	12.0	9.0	10.5	---	---	---
27	12.5	10.5	11.5	13.5	11.0	12.0	12.0	9.5	10.5	---	---	---
28	10.5	9.5	10.0	13.5	10.5	12.0	12.0	9.5	10.5	---	---	---
29	9.5	9.0	9.5	13.5	10.5	12.0	12.0	9.5	10.5	---	---	---
30	11.0	8.5	9.5	13.5	11.0	12.5	11.0	9.5	10.5	---	---	---
31	---	---	---	12.5	10.5	11.5	11.0	8.5	9.5	---	---	---
MONTH	14.0	8.5	10.5	14.5	8.5	12.0	14.5	8.5	11.0	---	---	---

UPPER ROGUE RIVER BASIN

249

14332000 SOUTH FORK ROGUE RIVER NEAR PROSPECT, OR

LOCATION.--Lat 42°42'30", long 122°23'30", in SE 1/4 SW 1/4 sec.7, T.33 S., R.4 E., Jackson County, Hydrologic Unit 17100307, in Rogue River National Forest, on left bank 0.3 mi downstream from South Fork dam and intake of South Fork power canal, 0.31 mi downstream from Imnaha Creek, 5.6 mi southeast of Prospect, and at mile 10.2.

DRAINAGE AREA.--83.8 mi². Drainage area at site upstream from Imnaha Creek was used October 1931 to September 1949, 61.3 mi²; and Imnaha Creek near Prospect, 22.2 mi².

PERIOD OF RECORD.--April 1924 to September 1931, October 1949 to current year. Equivalent records for period October 1931 to September 1949 may be obtained by combining flow of South Fork Rogue River above Imnaha Creek, near Prospect and Imnaha Creek near Prospect. Records for period October 1949 to September 1983 included flow of South Fork power canal.

REVISED RECORDS.--WSP 1318: 1925(M), 1927(M), 1930(M). WSP 1738: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 3,300 ft, from topographic map. Prior to Sept. 10, 1965, at site 1,000 ft upstream at different datum.

REMARKS.--Records good except for estimated daily discharges and flows less than 6.0 ft³/s, which are fair. All records given herein do not include flow in South Fork power canal (completed in March 1932) which diverts 1,500 ft upstream from station and returns water to Rogue River upstream from South Fork Rogue River; practically no storage upstream from diversion dam.

AVERAGE DISCHARGE.--59 years (water years 1925-83), 178 ft³/s, 129,000 acre-ft/yr (includes flow of South Fork power canal).

EXTREMES FOR PERIOD OF RECORD.--River only, maximum discharge, 7,010 ft³/s Dec. 22, 1964, gage height, 11.1 ft, from floodmark, from rating curve extended above 410 ft³/s on basis of measurement of flow over dam of 3,180 ft³/s; no flow Jan. 31, 1950, Sept. 29, 30, 1967 (entire flow diverted to canal).

Combined flow, maximum discharge, 7,010 ft³/s Dec. 22, 1964 (no flow in canal); minimum daily, about 38 ft³/s Aug. 1-31, 1931.

EXTREMES FOR CURRENT YEAR.--River only, maximum discharge, 621 ft³/s May 9, gage height, 3.92 ft; minimum discharge recorded, 2.8 ft³/s Dec. 31 to Jan. 2, Jan. 8, but may have been less during period of no gage-height record Oct. 1 to Nov. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e4.2	e4.5	5.7	2.8	3.5	e160	369	252	191	37	12	12
2	e4.2	e5.6	5.2	3.1	3.5	e170	357	246	234	32	12	12
3	e4.1	13	4.9	3.6	3.4	e120	299	246	261	28	12	12
4	e4.2	4.0	4.7	3.5	3.6	e80	269	279	286	24	12	12
5	e4.4	3.8	4.6	3.6	3.9	25	275	339	287	20	11	12
6	e4.3	7.3	4.7	3.3	4.0	67	294	393	266	17	12	12
7	e4.2	3.7	4.8	3.0	8.0	82	335	409	245	15	12	12
8	e4.1	3.8	4.6	3.0	e160	77	369	425	226	13	12	11
9	e4.1	3.7	4.4	9.6	e155	137	397	576	208	13	13	12
10	e4.1	5.3	4.4	85	e150	213	407	497	190	12	12	12
11	e4.2	5.3	4.4	38	e145	225	379	373	178	13	11	63
12	e4.1	11	4.4	24	e140	242	390	309	176	13	11	83
13	e4.0	8.5	4.4	17	e135	259	405	272	172	11	11	83
14	e4.1	5.1	4.2	11	e130	215	427	249	154	11	11	83
15	e4.2	4.9	4.2	6.4	e125	195	443	227	189	12	12	82
16	e4.0	6.5	4.0	4.6	e135	186	436	236	187	12	12	83
17	e4.0	6.5	3.8	4.4	e150	160	427	251	138	12	12	94
18	e4.0	4.5	3.8	4.4	e160	164	428	275	119	12	11	92
19	e3.9	4.3	3.8	4.2	e180	216	479	186	110	12	12	82
20	e3.8	5.4	3.8	4.2	e175	198	445	174	99	11	12	79
21	e3.8	10	3.7	4.1	e180	448	428	189	89	11	12	78
22	e3.9	213	3.6	4.1	e190	473	362	204	84	12	20	77
23	e3.9	206	3.4	4.0	e210	373	312	243	80	14	18	76
24	e3.8	54	3.6	3.9	e200	332	275	197	74	13	13	75
25	e4.0	23	3.6	3.7	e190	355	259	194	68	13	12	75
26	e4.0	7.8	3.3	3.6	e180	306	227	167	62	25	12	77
27	e4.0	6.1	3.2	3.6	e170	274	207	216	56	14	12	77
28	e3.9	55	3.1	3.5	e160	344	197	220	50	13	12	75
29	e4.0	22	3.0	3.2	---	329	209	177	47	13	12	76
30	e4.3	9.7	3.1	3.0	---	300	237	159	45	12	12	79
31	e4.3	---	3.0	3.1	---	422	---	162	---	12	12	---
TOTAL	126.1	723.3	125.4	278.5	3449.9	7147	10343	8342	4571	482	382	1708
MEAN	4.07	24.1	4.05	8.98	123	231	345	269	152	15.5	12.3	56.9
MAX	4.4	213	5.7	85	210	473	479	576	287	37	20	94
MIN	3.8	3.7	3.0	2.8	3.4	25	197	159	45	11	11	11
AC-FT	250	1430	249	552	6840	14180	20520	16550	9070	956	758	3390

CAL YR 1988 TOTAL 7342.7 MEAN 20.1 MAX 213 MIN 3.0 AC-FT 14560
WTR YR 1989 TOTAL 37678.2 MEAN 103 MAX 576 MIN 2.8 AC-FT 74730

e Estimated

UPPER ROGUE RIVER BASIN

14334700 SOUTH FORK ROGUE RIVER, SOUTH OF PROSPECT, OR

LOCATION.--Lat 42°42'45", long 122°30'20", in NW 1/4 SE 1/4 sec.7, T.33 S., R.3 E., Jackson County, Hydrologic Unit 17100307, on right bank 200 ft upstream from unnamed tributary, 0.6 mi upstream from Smith Creek, 1.2 mi downstream from Beaver Creek, 2.8 mi southwest of Prospect, and at mile 2.4.

DRAINAGE AREA.--246 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2,030 ft, from topographic map.

REMARKS.--Water-discharge records good. Some regulation by South Fork canal dam upstream. Power diversions upstream from station from South Fork Rogue River, Middle Fork Rogue River, and Red Blanket Creek divert water to Rogue River via Main Canal. During summer months, most of base flow is diverted for power except that required for fish life. Base flow at station is principally from springs downstream from power diversions.

AVERAGE DISCHARGE.--21 years, 388 ft³/s, 281,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,880 ft³/s Mar. 3, 1972, gage height, 12.71 ft, from floodmark; minimum discharge, 54 ft³/s Sept. 24-30, 1970, but may have been lower during period of no record Sept. 24-30, 1970, Aug. 16-19, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1890, 20.1 ft, Dec. 22, 1964, from floodmarks at gage, discharge, 28,500 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,510 ft³/s Mar. 21, gage height, 8.03 ft; maximum gage height, 8.21 ft Mar. 21, from crest-stage gage; minimum discharge, 73 ft³/s Oct. 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82	83	301	127	283	445	1290	732	765	300	135	117
2	81	112	243	138	276	461	1250	707	874	284	137	116
3	80	203	227	164	265	417	1120	701	795	274	135	114
4	82	120	214	168	e230	380	1020	763	857	263	131	112
5	87	97	206	202	e210	402	1000	908	1060	248	129	112
6	82	189	221	177	e210	703	1040	1050	1060	240	127	111
7	82	113	223	168	e225	736	1130	1110	944	231	127	110
8	81	108	214	175	e290	643	1210	1170	847	221	138	110
9	81	104	203	340	286	983	1260	1500	722	210	136	109
10	81	142	205	1030	258	1230	1270	1350	680	205	128	109
11	83	128	205	655	247	1220	1170	1030	650	200	126	156
12	82	168	198	456	243	1170	1160	864	766	196	124	199
13	79	209	194	388	236	1210	1170	768	756	191	121	199
14	83	165	186	335	230	1010	1210	713	752	187	120	199
15	83	138	177	309	225	934	1230	667	828	186	121	199
16	78	180	169	294	237	930	1220	682	867	186	120	200
17	79	265	163	283	275	818	1200	718	607	198	119	230
18	78	175	157	273	329	793	1180	747	557	179	118	237
19	77	120	164	267	398	970	1240	594	534	173	117	210
20	77	148	169	268	391	878	1180	563	580	167	118	203
21	76	172	172	282	401	1850	1140	592	587	157	118	200
22	75	981	169	301	497	2000	984	623	602	154	150	199
23	78	1110	162	281	583	1490	869	709	578	155	155	199
24	75	520	162	268	556	1290	835	616	477	152	133	198
25	80	439	153	256	518	1400	810	605	452	148	124	198
26	80	355	144	248	489	1210	758	556	551	158	121	204
27	81	277	137	243	466	1100	745	658	527	145	119	206
28	77	588	123	236	448	1260	668	681	349	154	117	196
29	80	451	123	231	---	1220	672	591	304	156	126	200
30	85	370	139	239	---	1120	712	550	323	156	129	219
31	81	---	136	262	---	1420	---	555	---	147	119	---
TOTAL	2486	8230	5659	9064	9302	31693	31743	24073	20251	6021	3938	5171
MEAN	80.2	274	183	292	332	1022	1058	777	675	194	127	172
MAX	87	1110	301	1030	583	2000	1290	1500	1060	300	155	237
MIN	75	83	123	127	210	380	668	550	304	145	117	109
AC-FT	4930	16320	11220	17980	18450	62860	62960	47750	40170	11940	7810	10260

CAL YR 1988 TOTAL 78401 MEAN 214 MAX 1110 MIN 75 AC-FT 155500
WTR YR 1989 TOTAL 157631 MEAN 432 MAX 2000 MIN 75 AC-FT 312700

e Estimated

UPPER ROGUE RIVER BASIN

251

14334700 SOUTH FORK ROGUE RIVER SOUTH OF PROSPECT, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1968 to current year.

SEDIMENT RECORDS: October 1976 to April 1981 (October to April only 1980 water year, November to April only 1981 water year).

INSTRUMENTATION.--Water temperature recorder since October 1968.

EXTREMES OR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 20.0°C July 18, 19, 1979; minimum, 0.0°C on several days during winter periods.

SEDIMENT CONCENTRATION: Maximum daily, 654 mg/L Nov. 26, 1977; minimum daily, 0 mg/L on several days each year.

SEDIMENT DISCHARGE: Maximum daily, 6,180 tons Nov. 26, 1977; minimum daily, 0 tons on several days each year.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 17.0°C Aug. 7; minimum, 0.0°C Feb. 4-8.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	11.0	9.5	10.5	7.5	6.0	6.5	4.0	3.0	3.5	3.5	3.0	3.0
2	11.0	9.0	10.0	7.5	7.5	7.5	5.0	4.0	4.5	4.5	3.0	3.5
3	10.5	8.0	9.5	8.0	7.5	8.0	4.5	3.5	4.0	4.5	3.5	4.0
4	10.0	8.5	9.5	8.5	7.5	8.0	4.0	3.5	3.5	4.5	4.0	4.0
5	11.0	9.5	10.0	9.0	8.5	8.5	5.0	4.0	4.5	4.0	3.5	3.5
6	10.5	8.5	9.5	8.5	7.0	7.5	6.0	5.0	5.5	3.5	3.0	3.5
7	10.5	9.0	10.0	6.5	5.5	6.0	5.5	4.5	5.0	3.5	3.0	3.5
8	10.5	9.0	10.0	7.0	6.0	6.5	4.0	3.5	4.0	3.5	2.5	3.0
9	10.5	8.5	9.5	6.0	5.0	5.5	5.0	4.0	4.5	3.5	2.5	3.5
10	10.0	8.5	9.5	6.5	6.0	6.5	5.0	4.5	4.5	3.5	2.0	3.0
11	10.5	9.0	9.5	7.0	6.0	6.5	4.5	3.5	4.0	4.0	3.5	3.5
12	10.0	8.5	9.5	7.0	6.0	7.0	5.0	4.0	4.5	3.5	2.5	3.0
13	10.0	9.0	9.5	6.0	5.5	5.5	5.0	4.5	4.5	3.0	2.0	3.0
14	9.5	8.5	9.0	6.0	5.0	5.5	4.0	3.0	4.0	3.5	3.0	3.5
15	10.0	9.0	9.5	6.0	6.0	6.0	3.0	1.5	2.0	3.5	3.5	3.5
16	10.0	8.5	9.0	6.0	5.0	5.5	3.0	2.0	2.5	5.0	3.5	4.0
17	9.5	8.0	9.0	5.0	4.5	4.5	2.5	2.0	2.5	5.0	4.0	4.5
18	9.5	8.0	9.0	4.5	4.0	4.5	3.0	1.5	2.5	4.0	3.0	3.5
19	9.5	8.5	9.0	5.0	4.0	4.5	4.0	3.0	3.5	4.0	3.0	3.5
20	9.5	7.5	8.0	6.0	5.0	5.0	3.5	3.0	3.5	4.0	3.0	3.5
21	8.5	7.0	8.0	5.5	4.5	5.0	3.0	2.0	2.5	4.0	3.0	4.0
22	8.5	7.5	8.0	5.5	5.5	5.5	2.5	2.5	2.5	4.0	3.0	3.5
23	8.5	6.5	7.5	5.5	4.5	5.0	3.5	2.5	3.0	3.0	1.5	2.0
24	8.0	6.5	7.0	5.0	4.0	4.5	3.5	3.0	3.0	3.5	1.5	2.5
25	8.0	6.5	7.5	4.0	3.0	3.5	3.5	3.0	3.0	3.0	2.0	3.0
26	8.0	6.5	7.0	5.0	4.0	4.5	3.0	2.0	2.0	3.5	2.5	3.0
27	7.5	6.0	6.5	5.5	4.5	5.0	2.5	1.0	1.5	3.5	2.5	3.0
28	7.5	5.5	6.5	5.5	4.5	5.0	3.5	2.5	3.0	3.5	2.5	3.0
29	7.5	7.0	7.0	4.0	3.5	4.0	3.5	3.5	3.5	4.0	3.0	3.5
30	7.5	6.5	7.0	3.5	3.0	3.5	4.0	3.5	3.5	4.0	3.0	3.5
31	7.0	5.5	6.5	---	---	---	4.0	3.5	4.0	5.0	4.0	4.5
MONTH	11.0	5.5	8.5	9.0	3.0	5.5	6.0	1.0	3.5	5.0	1.5	3.5

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	4.5	2.0	3.0	4.5	3.0	4.0	6.0	5.0	5.5	10.0	6.0	8.0
2	2.5	1.5	2.0	4.0	2.5	3.0	5.5	5.0	5.5	9.0	6.0	8.0
3	2.5	1.0	2.0	4.0	2.5	3.5	6.5	5.0	5.5	8.0	7.0	7.5
4	1.0	.0	.5	4.0	3.0	3.5	8.5	5.5	7.0	10.5	7.0	8.5
5	.0	.0	.0	5.0	4.0	4.5	9.0	5.5	7.0	11.0	7.0	9.0
6	.5	.0	.0	6.0	4.5	5.0	9.0	5.5	7.5	10.0	7.0	8.5
7	1.0	.0	.5	6.0	4.5	5.5	9.0	5.5	7.5	10.5	6.5	8.5
8	1.5	.0	1.0	6.0	5.0	5.5	9.0	5.5	7.0	10.0	6.5	8.0
9	2.5	1.0	1.5	6.5	5.0	5.5	9.0	5.5	7.0	8.0	6.5	7.0
10	3.0	2.0	2.5	6.5	4.5	5.5	8.5	5.5	7.0	7.5	6.0	6.5
11	3.5	2.5	3.0	6.5	5.0	6.0	9.0	5.0	7.0	8.5	6.0	7.0
12	4.0	3.5	4.0	6.5	5.0	5.5	9.0	5.5	7.0	8.0	5.0	6.5
13	4.0	3.0	3.5	5.5	4.5	5.0	9.0	5.5	7.0	9.0	6.0	7.5
14	3.5	3.0	3.0	6.0	4.5	5.0	8.0	6.0	7.0	9.0	6.0	7.5
15	3.5	2.0	3.0	7.5	5.0	6.0	9.0	6.0	7.5	10.0	6.0	8.0
16	4.0	3.5	3.5	6.0	5.0	5.5	9.0	5.5	7.0	10.5	6.5	8.5
17	4.5	4.0	4.0	6.0	4.5	5.5	8.5	5.5	7.0	10.0	6.5	8.5
18	5.0	4.0	4.5	6.5	5.5	6.0	9.5	6.0	7.5	8.0	6.0	7.0
19	5.0	4.0	4.5	7.0	5.0	6.0	9.0	6.0	7.5	9.5	4.5	7.0
20	5.5	4.5	5.0	7.0	4.0	5.5	8.5	6.0	7.0	10.5	6.0	8.5
21	5.5	4.5	5.0	6.5	5.0	6.0	6.5	6.0	6.0	10.5	7.0	9.0
22	5.0	4.5	5.0	6.5	4.5	5.5	6.5	5.0	5.5	9.5	6.5	8.0
23	5.5	3.5	4.5	6.5	4.5	5.5	6.0	5.0	5.5	7.5	5.5	6.5
24	5.0	4.0	4.5	6.5	5.5	6.0	6.5	4.0	5.5	7.5	6.0	6.5
25	5.0	3.0	4.0	6.5	5.0	6.0	5.5	3.0	4.5	9.5	6.5	8.0
26	5.0	3.0	4.0	5.5	4.5	5.0	7.5	5.0	6.0	10.0	6.0	8.0
27	4.5	2.5	3.5	6.5	5.5	6.0	9.0	4.5	6.5	9.0	7.0	8.0
28	5.0	3.0	4.0	7.0	5.5	6.0	9.5	5.0	7.0	8.0	6.0	7.0
29	---	---	---	7.0	5.0	6.0	10.0	6.0	8.0	8.0	6.0	7.0
30	---	---	---	6.0	5.0	6.0	8.0	7.0	7.5	10.5	6.0	8.0
31	---	---	---	7.0	5.5	6.0	---	---	---	11.5	7.0	9.5
MONTH	5.5	.0	3.0	7.5	2.5	5.5	10.0	3.0	6.5	11.5	4.5	8.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	11.5	7.5	9.5	12.0	9.0	10.5	12.5	10.0	11.5	12.5	10.0	11.5
2	11.5	7.5	9.5	14.0	9.0	11.5	13.5	11.5	12.5	12.0	9.0	10.5
3	10.5	7.5	9.5	14.5	10.0	12.0	14.5	10.5	12.5	12.5	9.5	11.0
4	11.5	8.0	9.5	14.5	10.0	12.5	15.5	11.0	13.5	13.0	10.0	11.5

UPPER ROGUE RIVER BASIN

253

14335040 LOST CREEK LAKE NEAR MCLEOD, OR

LOCATION.--Lat 42°40'16", long 122°40'25", in SW 1/4 sec.26, T.33 S., R. 1 E., Jackson County, Hydrologic Unit 17100307, in outlet structure of Lost Creek Dam on Rogue River, 1.0 mi northeast of McLeod and at mile 157.2.

DRAINAGE AREA.--686 mi².

PERIOD OF RECORD.--February 1977 to current year.

REVISED RECORDS.--WDR OR-85-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Nov. 28, 1977, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earthfill dam completed in October 1976. Storage began in February 1977. Total capacity, 465,000 acre-ft between elevations 1,551.0 ft and 1,872.0 ft, maximum pool elevation. Elevation of gated spillway crest, 1,823.0 ft. Usable storage, 315,000 acre-ft between elevation 1,751.0 ft and 1,872.0 ft. Water is used for flood control, recreation, power generation, pollution abatement, domestic use and other purposes.

COOPERATION.--Record is provided by Corps of Engineers, Lost Creek Control Center, and supplemented by Geological Survey. Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 465,800 acre-ft June 1, 2, 1988, elevation, 1,872.24 ft; minimum contents since first filling, 100,800 acre-ft Oct. 29, 1977, elevation, 1,720.50 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 465,600 acre-ft June 16, elevation, 1,872.17 ft; minimum contents, 271,600 acre-ft Nov. 9, elevation, 1,806.78 ft.

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

1,720	100,100	1,850	393,100
1,750	148,200	1,872	465,000
1,800	254,600	1,899	562,900

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1812.81	1806.87	1811.57	1812.34	1823.38	1837.17	1859.81	1870.99	1871.75	1868.30	1852.51	1828.34
2	1812.50	1806.84	1811.57	1812.49	1823.66	1837.88	1860.22	1871.08	1871.88	1867.96	1852.00	1827.40
3	1812.26	1807.07	1811.54	1812.69	1823.97	1838.45	1860.48	1871.13	1871.95	1867.45	1851.46	1826.40
4	1812.10	1807.03	1811.55	1812.94	1824.19	1839.01	1860.78	1871.25	1871.93	1867.03	1850.91	1825.47
5	1811.96	1806.94	1811.57	1813.28	1824.33	1839.98	1861.11	1871.25	1871.96	1866.60	1850.35	1824.50
6	1811.78	1807.00	1811.69	1813.55	1824.48	1841.71	1861.54	1871.22	1871.95	1866.15	1849.79	1823.46
7	1811.61	1807.00	1811.87	1813.75	1824.61	1843.40	1861.96	1871.15	1871.87	1865.68	1849.21	1822.46
8	1811.44	1806.87	1811.96	1814.02	1824.66	1844.88	1862.33	1871.02	1871.84	1865.20	1848.67	1821.44
9	1811.24	1806.78	1811.99	1814.69	1824.75	1846.96	1862.73	1871.15	1871.90	1864.71	1848.14	1820.45
10	1811.07	1806.80	1812.05	1816.74	1825.03	1849.33	1863.07	1871.20	1871.91	1864.21	1847.62	1819.32
11	1810.90	1806.84	1812.11	1817.47	1825.45	1851.58	1863.40	1871.05	1871.85	1863.71	1846.85	1818.34
12	1810.71	1806.89	1812.12	1817.53	1825.83	1853.56	1863.77	1870.98	1871.90	1863.19	1846.00	1817.44
13	1810.53	1807.00	1812.13	1817.52	1826.19	1855.36	1864.10	1871.00	1871.99	1862.66	1845.21	1816.65
14	1810.35	1807.04	1812.11	1817.37	1826.52	1856.78	1864.51	1871.00	1872.04	1862.15	1844.28	1815.92
15	1810.27	1807.09	1812.06	1817.47	1826.83	1858.04	1864.89	1871.12	1872.15	1861.66	1843.40	1815.31
16	1809.98	1807.30	1812.10	1817.87	1827.23	1859.25	1865.26	1871.43	1872.11	1861.30	1842.51	1814.79
17	1809.78	1807.64	1812.14	1818.26	1827.70	1859.55	1865.58	1871.80	1871.97	1860.75	1841.64	1814.44
18	1809.61	1807.72	1812.13	1818.68	1828.34	1859.59	1866.00	1871.93	1871.87	1860.27	1840.82	1814.14
19	1809.42	1807.72	1812.15	1819.03	1829.18	1859.65	1866.80	1871.87	1871.74	1859.77	1839.85	1813.93
20	1809.23	1807.71	1812.15	1819.40	1829.90	1859.61	1867.66	1871.85	1871.56	1859.25	1838.94	1813.71
21	1809.04	1807.87	1812.11	1819.84	1830.60	1860.53	1868.31	1871.86	1871.33	1858.71	1838.00	1813.53
22	1808.85	1810.07	1812.05	1820.12	1831.56	1860.19	1868.54	1872.02	1871.10	1858.17	1837.21	1813.43
23	1808.66	1811.66	1812.00	1820.39	1832.63	1858.87	1868.80	1872.03	1870.88	1857.62	1836.42	1813.21
24	1808.47	1811.66	1812.00	1820.73	1833.59	1857.96	1869.07	1871.93	1870.63	1857.06	1835.56	1813.01
25	1808.28	1811.64	1812.00	1821.05	1834.41	1858.11	1869.73	1871.95	1870.36	1856.50	1834.63	1812.84
26	1808.08	1811.58	1811.97	1821.34	1835.13	1857.94	1869.83	1871.95	1870.08	1855.91	1833.71	1812.62
27	1807.86	1811.63	1811.99	1821.62	1835.80	1858.10	1870.15	1871.96	1869.83	1855.34	1832.81	1812.47
28	1807.69	1811.89	1812.02	1821.86	1836.45	1858.62	1870.33	1871.95	1869.40	1854.75	1831.87	1812.27
29	1807.49	1811.73	1812.04	1822.12	---	1858.90	1870.54	1871.87	1869.05	1854.18	1830.98	1812.10
30	1807.26	1811.61	1812.16	1822.43	---	1859.20	1870.84	1871.81	1868.78	1853.64	1830.12	1812.00
31	1807.05	---	1812.26	1822.84	---	1859.57	---	1871.75	---	1853.08	1829.30	---
MAX	1812.81	1811.89	1812.26	1822.84	1836.45	1860.53	1870.84	1872.03	1872.15	1868.30	1852.51	1828.34
MIN	1807.05	1806.78	1811.54	1812.34	1823.38	1837.17	1859.81	1870.98	1868.78	1853.08	1829.30	1812.00
(†)	272200	284000	285700	313900	352300	423500	461000	464100	454000	402700	331800	285000
(‡)	-15800	+11800	+1700	+28200	+38400	+71200	+37500	+3100	-10100	-51300	-70900	-46800

CAL YR 1988 MAX 1872.24 MIN 1806.78 AC-FT† +4900
WTR YR 1989 MAX 1872.15 MIN 1806.78 AC-FT† -3000

† Contents, in acre-feet, at 2400, on last day of month.
‡ Change in contents, in acre-feet.

UPPER ROGUE RIVER BASIN

14335075 ROGUE RIVER AT MCLEOD, OR

LOCATION.--Lat 42°39'35", long 122°41'30", in SW 1/4 NW 1/4 sec.34, T.33 S., R.1 E., Jackson County, Hydrologic Unit 17100307, on right bank 0.3 mi upstream from Big Butte Creek, 0.1 southwest of McLeod, and at mile 155.6.

DRAINAGE AREA.--689 mi².

PERIOD OF RECORD.--May 1973 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1976 to September 1981.

pH: November 1976 to September 1981.

WATER TEMPERATURE: November 1976 to current year.

DISSOLVED OXYGEN: November 1976 to September 1981.

SUSPENDED SEDIMENT DISCHARGE: October 1976 to September 1981 (October to April only, 1980 water year, November to April only, 1981 water year).

INSTRUMENTATION.--Water-quality monitor since November 1976. Automatic pumping sediment sampler November 1976 to April 1981.

REMARKS.--Water-discharge records, obtained by subtracting Big Butte Creek near McLeod (station 14337500) from Rogue River near McLeod (station 14337600), were used for computation of daily sediment loads.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 76 microsiemens Nov. 11, 1977; minimum, 45 microsiemens Dec. 24, 25, 1977.

pH: Maximum, 9.2 units May 8, 9, 11, 12, 1981; minimum, 6.7 units Nov. 8-13, 1978.

WATER TEMPERATURE: Maximum, 15.5°C June 23, 1985; minimum, 0.5°C Jan. 9, 1977; minimum since full operation of Lost Creek Lake, 3.5°C several days in February 1979, February 1985, February and March 1989. The minimum may have been lower during period of missing record Feb. 1-20, 1985.

DISSOLVED OXYGEN: Maximum, 15.7 mg/L Jan. 8, 1977; minimum, 6.8 mg/L Aug. 20, 1977.

SEDIMENT CONCENTRATION: Maximum recorded daily mean, 75 mg/L Dec. 14, 1977; minimum daily, 0 mg/L many days.

SEDIMENT DISCHARGE: Maximum recorded daily, 1,570 tons Dec. 14, 1977; minimum daily, 0 tons many days.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 13.5°C Aug. 20, 23-25; minimum, 3.5°C on several days in February and March.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	7.0	6.0	6.5	7.0	6.5	6.5	7.0	7.0	7.0	5.5	5.0	5.0
2	7.0	6.0	6.5	7.0	6.5	7.0	7.0	7.0	7.0	5.5	5.0	5.5
3	7.0	6.0	6.5	7.0	7.0	7.0	7.0	6.5	7.0	5.5	5.0	5.0
4	6.5	6.0	6.5	7.5	7.0	7.0	7.0	6.5	7.0	5.5	5.0	5.0
5	7.0	6.0	6.5	7.5	7.0	7.0	7.0	6.5	6.5	5.5	5.0	5.0
6	6.5	6.0	6.0	7.5	7.0	7.0	7.0	6.5	7.0	5.5	5.0	5.0
7	6.5	6.0	6.0	7.0	7.0	7.0	7.0	6.5	6.5	5.5	5.0	5.0
8	7.0	6.0	6.0	7.5	7.0	7.0	6.5	6.5	6.5	5.0	5.0	5.0
9	7.0	6.0	6.5	7.5	7.0	7.0	6.5	6.5	6.5	5.0	5.0	5.0
10	7.0	6.0	6.5	7.5	7.0	7.0	6.5	6.5	6.5	5.5	5.0	5.0
11	6.5	6.0	6.5	7.5	7.0	7.0	6.5	6.5	6.5	5.5	5.0	5.0
12	6.5	6.0	6.0	7.5	7.0	7.5	6.5	6.5	6.5	5.0	5.0	5.0
13	6.0	6.0	6.0	7.5	7.0	7.5	6.5	6.5	6.5	5.0	5.0	5.0
14	6.5	5.5	6.0	7.5	7.0	7.5	6.5	6.0	6.5	5.0	5.0	5.0
15	6.5	6.0	6.0	7.5	7.0	7.5	6.5	6.0	6.0	5.0	5.0	5.0
16	6.5	6.0	6.0	7.5	7.0	7.0	6.5	6.0	6.0	5.0	5.0	5.0
17	6.5	6.0	6.0	7.5	7.0	7.0	6.5	6.0	6.0	5.5	5.0	5.0
18	6.5	6.0	6.0	7.5	7.0	7.0	6.0	6.0	6.0	5.0	4.5	5.0
19	6.5	6.0	6.0	7.5	7.0	7.0	6.0	6.0	6.0	5.0	4.5	5.0
20	6.5	6.0	6.0	7.5	7.0	7.0	6.0	6.0	6.0	5.0	4.5	4.5
21	6.5	6.0	6.0	7.5	7.0	7.0	---	5.5	---	5.0	4.5	4.5
22	6.5	6.0	6.5	7.5	7.0	7.5	---	---	---	5.0	4.5	4.5
23	6.5	6.0	6.5	7.5	7.0	7.5	---	---	---	5.0	4.5	4.5
24	6.5	6.0	6.0	7.5	7.0	7.5	---	---	---	5.0	4.5	4.5
25	7.0	6.0	6.5	7.5	7.0	7.0	---	---	---	5.0	4.5	4.5
26	7.0	6.0	6.5	7.5	7.0	7.0	---	---	---	5.0	4.5	4.5
27	6.5	6.0	6.5	7.5	7.0	7.0	---	---	---	5.0	4.5	4.5
28	7.0	6.0	6.5	7.5	7.0	7.0	---	---	---	5.0	4.5	4.5
29	7.0	6.0	6.5	7.5	7.0	7.0	5.5	---	---	5.0	4.5	4.5
30	7.0	6.5	6.5	7.0	7.0	7.0	5.5	5.5	5.5	5.0	4.5	4.5
31	7.0	6.5	6.5	---	---	---	5.5	5.0	5.5	4.5	4.5	4.5
MONTH	7.0	5.5	6.5	7.5	6.5	7.0	---	---	---	5.5	4.5	5.0

UPPER ROGUE RIVER BASIN

255

14335075 ROGUE RIVER AT MCLEOD, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	4.5	4.0	4.5	4.0	3.5	3.5	5.5	5.0	5.0	---	---	---
2	4.5	4.0	4.0	4.0	3.5	3.5	5.5	5.0	5.0	---	---	---
3	4.5	4.0	4.0	4.5	3.5	4.0	5.5	5.0	5.0	---	---	---
4	4.5	4.0	4.5	4.0	3.5	3.5	6.0	5.5	5.5	7.5	7.0	7.5
5	4.5	3.5	4.0	4.0	3.5	4.0	6.0	5.5	5.5	9.0	7.5	8.0
6	4.5	3.5	4.0	4.5	4.0	4.0	6.0	5.5	5.5	8.5	8.0	8.5
7	4.5	4.0	4.0	5.0	4.0	4.0	6.0	5.5	6.0	9.0	8.5	8.5
8	4.5	4.0	4.0	4.5	4.0	4.0	6.0	5.5	6.0	9.0	8.0	8.0
9	4.5	4.0	4.0	4.5	4.0	4.5	6.0	5.5	6.0	8.0	7.5	8.0
10	4.5	4.0	4.0	5.0	4.0	4.5	6.0	5.5	6.0	8.5	7.5	7.5
11	5.0	4.0	4.5	4.5	4.0	4.5	6.0	5.5	6.0	8.0	7.5	7.5
12	4.5	4.0	4.5	4.5	4.0	4.5	6.5	5.5	6.0	8.0	7.0	7.5
13	4.5	4.0	4.0	4.5	4.0	4.0	6.5	6.0	6.0	8.0	7.5	7.5
14	4.5	4.0	4.0	4.5	4.0	4.5	6.5	6.0	6.5	8.0	7.5	8.0
15	4.5	3.5	4.0	5.0	4.5	4.5	6.5	6.0	6.0	8.5	7.5	8.0
16	4.0	4.0	4.0	5.0	4.5	4.5	6.5	6.0	6.0	9.0	8.0	8.5
17	4.5	4.0	4.0	4.5	4.5	4.5	6.5	6.0	6.0	9.0	7.5	8.5
18	4.5	4.0	4.0	5.0	4.5	4.5	6.5	6.0	6.5	8.5	7.5	8.0
19	4.5	4.0	4.0	5.0	4.5	5.0	7.0	6.0	6.5	8.0	7.5	8.0
20	4.5	4.0	4.0	5.0	4.5	5.0	7.0	6.0	6.5	8.5	7.5	8.0
21	4.5	4.0	4.0	5.0	5.0	5.0	6.5	6.0	6.5	8.5	7.5	8.0
22	4.0	4.0	4.0	5.5	5.0	5.0	7.0	7.0	7.0	8.5	7.5	8.0
23	5.0	3.5	4.0	5.0	5.0	5.0	7.5	6.5	7.0	8.0	7.5	8.0
24	4.5	3.5	4.0	5.0	5.0	5.0	7.5	6.5	7.0	8.0	7.5	8.0
25	4.5	3.5	4.0	5.5	5.0	5.0	---	---	---	8.5	7.5	8.0
26	4.5	3.5	4.0	5.5	5.0	5.0	---	---	---	8.5	7.5	8.0
27	4.5	3.5	4.0	5.5	5.0	5.0	---	---	---	8.5	7.5	8.0
28	4.5	3.5	4.0	5.5	5.0	5.0	---	---	---	8.5	7.5	8.0
29	---	---	---	5.5	5.0	5.0	---	---	---	8.5	8.0	8.0
30	---	---	---	5.5	5.0	5.0	---	---	---	8.5	8.0	8.0
31	---	---	---	5.5	5.0	5.0	---	---	---	8.5	7.5	8.5
MONTH	5.0	3.5	4.0	5.5	3.5	4.5	---	---	---	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	9.0	8.0	8.5	9.0	8.5	9.0	11.5	10.0	11.0	12.0	10.5	11.5
2	9.0	8.5	9.0	9.0	8.5	9.0	11.5	11.0	11.5	11.0	10.5	11.0
3	9.5	8.5	9.0	9.5	8.5	9.0	12.0	11.0	11.5	11.5	10.5	11.0
4	9.5	8.5	9.0	9.5	8.5	9.0	12.0	11.0	11.5	11.5	11.0	11.5
5	9.5	8.5	9.0	9.5	8.5	9.0	12.0	11.0	11.5	11.5	10.5	11.5
6	9.5	8.5	9.0	9.5	8.5	9.0	12.5	11.0	12.0	12.0	11.0	11.5
7	9.5	8.5	9.0	9.0	8.5	9.0	12.5	11.0	12.0	11.5	11.0	11.5
8	9.5	8.5	9.0	9.0	8.5	9.0	12.5	11.5	12.0	11.5	10.0	10.5
9	9.5	8.5	9.0	9.0	8.5	9.0	12.5	11.5	12.0	10.5	10.0	10.0
10	9.5	8.5	9.0	9.0	8.5	9.0	12.5	11.5	12.0	10.5	10.0	10.5
11	9.5	9.0	9.5	9.0	8.5	9.0	12.5	11.0	12.0	10.5	10.0	10.5
12	10.0	8.5	9.0	9.5	8.5	9.0	12.5	11.5	12.0	10.5	9.5	10.0
13	9.0	8.5	9.0	9.5	8.5	9.0	12.5	11.5	12.0	10.5	9.5	10.0
14	9.0	8.5	9.0	9.5	8.5	9.0	12.5	11.5	12.0	10.5	10.0	10.0
15	9.0	8.5	9.0	11.0	8.5	10.0	12.5	12.0	12.5	10.0	8.5	9.5
16	9.0	8.5	9.0	11.0	10.5	10.5	13.0	12.0	12.5	9.0	8.0	8.5
17	9.5	8.5	9.0	11.5	10.5	11.0	13.0	12.0	12.5	9.0	8.0	8.5
18	9.5	8.5	9.0	11.5	10.5	11.0	13.0	12.0	12.5	9.0	8.0	8.5
19	9.5	8.5	9.0	11.5	10.5	11.0	13.0	12.0	12.5	8.5	7.5	8.0
20	9.5	8.5	9.0	11.0	9.5	10.5	13.5	12.0	13.0	9.0	7.5	8.5
21	9.5	8.5	9.0	10.5	10.0	10.5	13.0	12.5	13.0	9.0	8.0	8.5
22	9.5	9.0	9.0	10.5	10.0	10.5	13.0	12.5	13.0	9.0	7.5	8.5
23	10.0	9.0	9.5	10.5	10.0	10.5	13.5	12.5	13.0	8.0	7.0	7.5
24	10.0	9.0	9.5	11.0	10.0	10.5	13.5	12.5	13.0	7.5	7.0	7.5
25	10.0	9.0	9.5	11.0	10.0	10.5	13.5	11.5	12.5	8.0	7.5	7.5
26	9.5	8.0	9.0	11.0	10.0	10.5	12.0	11.0	11.5	8.0	7.5	7.5
27	9.0	8.5	8.5	10.5	10.0	10.5	12.0	11.0	12.0	8.0	7.5	7.5
28	9.0	8.5	8.5	10.5	9.5	10.0	12.0	11.5	12.0	8.0	7.5	7.5
29	9.0	8.5	8.5	10.5	9.5	10.0	12.5	11.0	12.0	8.0	7.5	7.5
30	9.0	8.0	8.5	10.5	9.5	10.5	12.0	11.5	12.0	8.0	7.5	7.5
31	---	---	---	10.5	10.0	10.5	12.5	11.5	12.0	---	---	---
MONTH	10.0	8.0	9.0	11.5	8.5	10.0	13.5	10.0	12.0	12.0	7.0	9.5

UPPER ROGUE RIVER BASIN

14335200 SOUTH FORK BIG BUTTE CREEK ABOVE WILLOW CREEK, NEAR BUTTE FALLS, OR

LOCATION.--Lat 42°31'15", long 122°29'05", in SE 1/4 sec.17, T.35 S., R.3 E., Jackson County, Hydrologic Unit 17100307, on right bank about 200 ft upstream from Willow Creek, 4.0 mi east of town of Butte Falls, and at mile 18.4.

DRAINAGE AREA.--67.6 mi².

PERIOD OF RECORD.--October 1985 to current year. Records prior to October 1978 published by the Oregon State Water Resources Department. Records for October 1978 to September 1985 available at the Oregon Water Resources Department, Salem, OR.

GAGE.--Water-stage recorder. May 1935 to October 1949, nonrecording gage and October 1949 to December 1964, water-stage recorder at different datum.

AVERAGE DISCHARGE.--52 years (1936-50, 1952-64, 1966-89), 79.7 ft³/s, 57,740 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,560 ft³/s Mar. 3, 1972, gage height, 7.03 ft; minimum discharge, 20 ft³/s Jan. 1, Aug. 24, 25, 29, Sept. 2-4, 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 21	1500	*330	*3.87	No other peak greater than base discharge.			
Minimum discharge, 22 ft ³ /s Oct. 1-3.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	23	43	30	70	97	244	150	79	50	44	40
2	24	30	41	37	67	104	254	139	78	50	43	40
3	23	34	39	42	65	93	244	133	80	49	42	40
4	25	28	37	41	55	89	220	129	81	48	42	39
5	25	27	35	54	51	137	208	131	80	48	40	38
6	25	37	37	45	e49	187	204	132	77	47	39	38
7	25	31	35	42	e47	195	207	129	73	48	39	38
8	25	33	33	42	e46	189	213	132	70	47	43	37
9	25	30	32	87	e45	241	218	200	68	47	44	34
10	25	36	32	189	e45	250	215	192	65	47	40	34
11	24	33	31	128	e44	235	198	154	61	47	40	35
12	25	35	30	101	e43	229	195	133	59	46	40	35
13	25	39	30	90	e42	249	193	122	57	45	41	34
14	25	34	29	80	e41	211	192	112	57	46	40	35
15	24	37	28	74	e40	195	189	103	69	45	40	36
16	24	38	28	72	52	204	183	95	70	46	40	36
17	23	53	27	70	67	185	174	91	60	48	40	48
18	23	37	26	67	73	180	165	89	57	47	39	47
19	23	33	29	65	93	217	163	82	56	46	39	40
20	23	44	32	64	98	200	158	77	55	46	40	38
21	25	47	32	72	101	287	172	74	54	47	39	37
22	24	142	32	84	139	293	153	77	53	46	44	37
23	24	120	31	74	161	254	158	108	52	45	48	37
24	23	63	31	70	140	234	161	94	50	45	44	37
25	23	55	30	67	122	250	193	90	50	44	41	37
26	23	50	27	65	110	218	173	81	50	44	40	37
27	24	45	26	64	103	198	153	92	51	44	40	37
28	23	82	29	62	98	234	143	102	51	44	40	37
29	23	57	29	60	---	224	144	97	52	44	40	37
30	23	48	33	61	---	209	150	88	52	44	40	38
31	23	---	31	66	---	254	---	82	---	43	40	---
TOTAL	743	1401	985	2165	2107	6342	5637	3510	1867	1433	1271	1133
MEAN	24.0	46.7	31.8	69.8	75.2	205	188	113	62.2	46.2	41.0	37.8
MAX	25	142	43	189	161	293	254	200	81	50	48	48
MIN	23	23	26	30	40	89	143	74	50	43	39	34
AC-FT	1470	2780	1950	4290	4180	12580	11180	6960	3700	2840	2520	2250

CAL YR 1988 TOTAL 16094 MEAN 44.0 MAX 149 MIN 21 AC-FT 31920
WTR YR 1989 TOTAL 28594 MEAN 78.3 MAX 293 MIN 23 AC-FT 56720

e Estimated

UPPER ROGUE RIVER BASIN

257

14335500 SOUTH FORK BIG BUTTE CREEK NEAR BUTTE FALLS, OR

LOCATION.--Lat 42°32'25", long 122°33'15", in NE 1/4 SW 1/4 sec.11, T.35 S., R.2 E., Jackson County, Hydrologic Unit 17100307, on right bank 10 ft downstream from Ginger Creek, 0.6 mi east of town of Butte Falls, and at mile 14.0.

DRAINAGE AREA.--138 mi².

PERIOD OF RECORD.--September 1910 to October 1911 (published as "at Butte Falls"), August to October 1915, October 1917 to September 1922, March 1925 to current year. Monthly discharge only August, September 1915, published in WSP 1318.

REVISED RECORDS.--WSP 1288: 1911, 1918-19, 1921-22, 1929. WSP 1318: 1918-19. WSP 1738: Drainage area. WDR OR-86-2: 1984(P,M), 1985(P,M).

GAGE.--Water-stage recorder. Concrete control since Oct. 1, 1968. Elevation of gage is 2,360 ft, from river-profile map. Sept. 21, 1910, to Sept. 30, 1922, nonrecording gage at site 300 ft upstream at different datum.

REMARKS.--Records good except those above 300 ft³/s, which are fair. Flow slightly regulated since 1952 by Willow Creek Reservoir, capacity, 7,320 acre-ft. Diversions for irrigation upstream from station and for municipal water supply for Medford (since 1927) and Butte Falls.

AVERAGE DISCHARGE.--70 years (water years 1911, 1918-22, 1926-89), 153 ft³/s, 110,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,600 ft³/s Dec. 22, 1964, gage height, 7.65 ft, from rating curve extended above 1,600 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 26 ft³/s Oct. 28, 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 450 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	2030	478	2.03	Mar. 13	0200	714	2.36
Jan. 10	0600	600	2.21	Mar. 21	1500	*738	*2.39
Mar. 10	0200	706	2.35	Apr. 3	0830	644	2.26

Minimum discharge, 26 ft³/s Oct. 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	38	89	62	115	203	563	318	161	107	96	92
2	39	44	84	69	e110	228	595	297	158	106	95	91
3	39	49	79	78	e105	194	586	282	156	105	93	90
4	39	42	75	76	97	182	523	268	154	103	93	88
5	42	41	72	98	98	295	491	253	152	102	90	88
6	41	51	72	88	93	445	461	247	145	100	88	87
7	40	44	71	85	89	489	446	238	140	100	94	87
8	40	46	69	82	87	458	438	234	135	100	107	82
9	39	47	69	142	86	621	433	335	132	100	104	83
10	39	60	69	458	85	658	414	327	128	101	100	84
11	39	56	69	272	84	597	378	280	124	101	100	85
12	40	57	64	201	86	546	365	248	121	98	99	84
13	39	63	59	174	81	622	355	227	118	98	99	85
14	39	57	58	148	81	504	344	215	117	99	98	86
15	39	61	56	134	81	443	331	203	129	98	99	87
16	39	64	55	125	80	460	317	192	132	98	98	101
17	40	86	55	120	104	421	304	186	121	101	98	114
18	40	68	53	115	116	399	291	181	115	99	97	91
19	39	59	58	109	159	509	282	172	111	97	97	87
20	39	72	62	108	171	482	273	164	109	96	98	86
21	39	78	66	120	178	648	295	158	107	97	98	85
22	39	264	65	152	276	675	276	159	104	97	109	85
23	40	251	62	134	393	586	292	203	102	95	108	84
24	38	130	62	125	357	533	308	186	98	95	101	85
25	39	111	61	118	301	564	386	179	97	95	93	88
26	38	102	57	117	258	510	383	166	100	95	90	89
27	38	90	54	111	231	466	351	175	110	95	89	87
28	38	155	58	104	212	525	330	189	109	95	90	87
29	38	116	59	102	---	517	324	186	111	96	91	e70
30	38	99	62	99	---	495	324	175	112	95	93	e54
31	38	---	64	105	---	579	---	166	---	94	92	---
TOTAL	1214	2501	2008	4031	4214	14854	11459	6809	3708	3058	2997	2592
MEAN	39.2	83.4	64.8	130	150	479	382	220	124	98.6	96.7	86.4
MAX	42	264	89	458	393	675	595	335	161	107	109	114
MIN	38	38	53	62	80	182	273	158	97	94	88	54
AC-FT	2410	4960	3980	8000	8360	29460	22730	13510	7350	6070	5940	5140

CAL YR 1988 TOTAL 29433 MEAN 80.4 MAX 264 MIN 38 AC-FT 58380
WTR YR 1989 TOTAL 59445 MEAN 163 MAX 675 MIN 38 AC-FT 117900

e Estimated

UPPER ROGUE RIVER BASIN

14337500 BIG BUTTE CREEK NEAR MCLEOD, OR

LOCATION.--Lat 42°39'05", long 122°41'25", in NE 1/4 NW 1/4 sec.3, T.34 S., R.1 E., Jackson County, Hydrologic Unit 17100307, on right bank 225 ft upstream from county road bridge, 0.9 mi south of McLeod, and at mile 0.64.

DRAINAGE AREA.--245 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1945 to September 1957. October 1967 to current year.

REVISED RECORDS.--WSP 1738: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,525.95 ft above National Geodetic Vertical Datum of 1929. Oct. 9, 1945, to Sept. 30, 1957, nonrecording gage at site 260 ft downstream at datum 0.53 ft higher.

REMARKS.--Records good. Slight regulation by fish hatchery 600 ft upstream from station. Several diversions in the vicinity of Butte Falls, the two largest being the city of Medford diversion and Eagle Point Irrigation District Canal.

AVERAGE DISCHARGE.--34 years, 273 ft³/s, 197,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,950 ft³/s Dec. 22, 1955, gage height, 12.75 ft, site and datum then in use, from rating curve extended above 3,300 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 6.4 ft³/s June 23, 24, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 22, 1964, reached a stage of 18.6 ft, present site, from floodmark by local resident, discharge, 16,800 ft³/s, from rating curve, at former site, extended above 9,000 ft³/s and field estimate of overflow.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	1900	3,180	8.47	Mar. 5	1430	1,880	6.72
Jan. 10	0400	*4,020	*9.37				

Minimum discharge, 42 ft³/s Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	52	180	139	332	452	867	495	162	73	60	59
2	103	62	158	160	325	623	944	423	153	71	61	57
3	103	75	140	193	307	527	1010	376	147	69	58	57
4	105	61	124	232	276	478	854	351	147	68	57	56
5	108	61	115	548	241	1030	774	319	137	69	56	56
6	106	136	116	370	244	1080	699	303	130	68	54	55
7	103	115	115	312	230	1000	655	289	124	64	53	57
8	103	95	120	328	220	949	622	274	117	64	61	57
9	104	63	116	776	e215	1440	592	417	113	66	67	55
10	104	80	113	2040	e210	1280	553	409	105	66	62	55
11	104	77	108	869	e208	1130	495	333	99	65	61	56
12	106	77	97	621	e204	999	461	290	89	63	59	58
13	106	89	80	520	e200	1120	435	262	87	63	59	59
14	105	86	77	439	e198	899	410	243	87	65	59	64
15	103	97	76	417	195	800	396	216	95	63	59	68
16	103	134	71	415	211	893	374	203	109	64	60	62
17	90	263	70	375	313	795	352	193	92	65	59	87
18	79	186	68	347	363	745	328	190	85	64	59	111
19	53	183	73	322	451	909	312	184	79	62	58	75
20	53	214	95	315	451	816	302	168	78	60	58	71
21	75	277	158	417	452	1280	331	161	75	60	57	68
22	52	1700	226	628	690	1160	327	155	73	60	64	67
23	52	905	184	450	855	975	345	223	71	59	74	66
24	55	478	160	385	748	882	440	206	67	58	67	71
25	77	470	141	348	633	994	883	189	66	58	63	71
26	51	378	114	323	555	851	690	170	65	58	57	75
27	52	320	97	307	497	803	596	174	72	58	56	80
28	57	535	100	289	458	879	578	201	73	58	56	77
29	70	284	107	275	---	819	550	198	77	58	61	104
30	50	216	178	273	---	782	534	179	81	58	70	132
31	51	---	178	292	---	938	---	168	---	58	62	---
TOTAL	2533	7769	3755	13725	10282	28328	16709	7962	2955	1955	1867	2086
MEAN	81.7	259	121	443	367	914	557	257	98.5	63.1	60.2	69.5
MAX	108	1700	226	2040	855	1440	1010	495	162	73	74	132
MIN	50	52	68	139	195	452	302	155	65	58	53	55
AC-FT	5020	15410	7450	27220	20390	56190	33140	15790	5860	3880	3700	4140
CAL YR 1988	TOTAL 46291	MEAN 126	MAX 1700	MIN 37	AC-FT 91820							
WTR YR 1989	TOTAL 99926	MEAN 274	MAX 2040	MIN 50	AC-FT 198200							

e Estimated

UPPER ROGUE RIVER BASIN

259

14337500 BIG BUTTE CREEK NEAR MCLEOD, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: August 1970 to current year.

INSTRUMENTATION.--Temperature recorder since August 1970.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 24.0°C at times in 1973, 1977, 1979-81; minimum, 0.0°C at times most years.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 21.0°C July 18, 19, 25, Aug. 6, 7; minimum, 0.0°C Feb. 5, 6.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	14.5	10.5	12.5	8.5	7.0	8.0	4.5	3.0	4.0	3.5	2.5	3.5
2	13.5	10.0	11.5	9.5	8.5	9.0	5.5	4.0	5.0	5.0	3.5	4.0
3	13.0	9.0	11.0	10.0	9.0	9.5	6.0	4.5	5.0	5.0	4.0	4.5
4	11.0	9.0	10.5	10.5	9.0	10.0	5.0	3.5	4.5	5.5	4.5	5.0
5	13.0	10.0	11.0	10.0	9.0	9.5	6.0	4.0	5.0	5.0	3.5	4.0
6	13.0	9.5	11.0	9.5	8.0	9.0	7.5	6.0	7.0	4.5	3.5	3.5
7	13.0	9.5	11.5	7.5	7.0	7.0	7.5	6.0	6.5	4.5	3.5	4.0
8	13.5	10.0	11.5	9.0	7.0	7.5	5.5	4.5	5.0	4.0	3.5	3.5
9	13.0	9.5	11.0	7.0	5.5	6.5	6.0	4.0	5.0	5.0	3.5	4.0
10	12.5	9.0	10.5	8.5	7.5	8.0	6.5	4.5	5.5	5.0	3.0	4.0
11	12.5	9.5	11.0	8.5	7.5	8.0	5.5	4.0	5.0	5.0	4.0	4.5
12	12.0	9.0	10.5	8.5	8.0	8.5	5.5	4.5	5.0	4.0	3.0	3.5
13	10.5	10.0	10.5	7.5	7.0	7.5	6.0	5.0	5.5	3.5	2.5	3.5
14	11.5	8.5	10.0	7.5	6.5	7.0	5.5	3.5	5.0	4.5	3.5	4.0
15	12.0	9.0	10.5	7.5	7.0	7.0	3.5	2.0	3.0	4.5	4.0	4.5
16	12.0	9.0	10.5	7.5	7.0	7.0	3.5	1.5	2.5	5.5	4.5	5.0
17	12.0	9.0	10.5	7.0	6.0	6.5	3.5	2.0	3.0	6.0	5.0	5.5
18	12.0	9.0	10.5	6.0	5.0	5.5	3.5	2.0	3.0	5.0	4.0	4.5
19	12.5	9.5	11.0	6.0	5.0	5.5	5.5	3.5	4.5	4.5	3.5	4.0
20	11.5	8.5	10.0	7.0	6.0	6.5	5.0	3.5	4.0	4.5	3.5	4.0
21	11.0	8.0	9.5	7.0	5.5	6.0	3.5	2.5	3.0	5.0	3.5	4.5
22	11.5	8.5	10.0	7.5	7.0	7.0	3.0	2.5	3.0	4.5	3.0	4.0
23	11.0	8.0	9.5	7.0	6.0	6.5	4.0	3.0	3.5	3.5	2.0	3.0
24	10.5	7.5	9.0	6.0	5.0	6.0	4.0	3.0	3.5	4.0	2.5	3.0
25	10.5	7.5	9.0	6.0	5.0	5.5	4.0	3.0	3.5	4.0	3.0	3.5
26	10.0	7.5	9.0	6.5	5.5	6.0	3.0	2.0	2.5	4.5	3.0	3.5
27	9.0	7.0	8.0	6.5	5.5	6.0	3.0	1.5	2.0	4.5	3.0	4.0
28	9.0	6.5	8.0	6.5	5.5	6.5	4.5	3.0	3.5	4.5	3.0	4.0
29	10.0	7.5	9.0	5.5	4.0	5.0	3.5	3.5	3.5	5.0	3.5	4.0
30	10.0	7.5	8.5	4.5	3.5	4.0	4.0	3.5	3.5	5.0	3.5	4.5
31	9.5	6.5	8.0	---	---	---	4.0	3.0	3.5	6.5	4.5	5.5
MONTH	14.5	6.5	10.0	10.5	3.5	7.0	7.5	1.5	4.0	6.5	2.0	4.0

UPPER ROGUE RIVER BASIN

14337500 BIG BUTTE CREEK NEAR MCLEOD, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	5.5	3.0	4.5	5.5	4.5	5.0	8.0	6.5	7.5	13.0	9.5	11.0
2	3.5	2.5	3.0	4.0	3.0	3.5	7.5	7.0	7.5	12.0	9.5	11.0
3	3.5	2.0	3.0	5.0	2.5	4.0	8.0	6.0	7.0	12.0	10.5	11.5
4	2.0	1.0	1.5	5.0	3.5	4.5	11.0	7.0	9.0	15.5	11.5	13.0
5	1.0	.0	.5	6.5	5.0	5.5	11.5	7.5	9.5	16.5	12.5	14.5
6	2.0	.0	1.0	7.5	6.0	6.5	12.0	8.0	10.5	16.5	13.5	15.0
7	2.0	.5	1.5	7.0	5.5	6.5	12.0	8.5	10.5	16.5	8.5	14.0
8	2.5	.5	1.5	7.5	6.0	7.0	12.5	9.0	11.0	16.5	13.0	14.5
9	4.0	1.5	3.0	8.5	6.5	7.5	12.5	9.0	11.0	14.5	11.5	13.0
10	4.0	3.0	3.5	8.5	6.0	7.5	11.5	9.0	10.5	12.0	10.5	11.0
11	5.5	4.0	4.5	8.5	7.0	8.0	12.0	8.5	10.5	12.0	9.5	11.0
12	5.0	4.0	4.5	8.0	6.5	7.5	12.5	9.0	11.0	11.0	8.5	10.0
13	4.5	3.0	4.0	7.0	5.5	6.5	13.0	9.5	11.5	13.5	9.0	11.0
14	5.0	3.5	4.0	7.5	5.5	6.5	12.5	10.5	12.0	13.0	9.5	11.5
15	5.0	3.0	4.0	9.0	6.5	7.5	13.5	10.5	12.0	14.0	9.5	12.0
16	5.0	4.5	5.0	8.5	6.0	7.0	13.5	10.0	12.0	14.0	10.5	11.5
17	6.0	4.5	5.0	7.0	5.5	6.5	13.0	10.0	12.0	14.5	10.5	12.5
18	6.5	5.0	6.0	8.0	6.5	7.0	14.0	10.5	12.5	12.0	10.0	11.0
19	6.5	5.5	6.0	8.5	6.5	8.0	15.0	11.5	13.0	13.5	---	---
20	7.0	5.5	6.0	---	---	---	13.0	11.0	12.0	14.5	9.5	11.5
21	7.0	5.5	6.5	---	---	---	11.5	9.0	10.0	---	11.5	---
22	6.5	6.0	6.5	8.5	6.5	8.0	9.5	8.5	9.0	14.0	10.5	12.0
23	6.0	4.5	5.5	8.5	5.5	7.0	9.5	7.5	8.5	12.0	9.5	10.5
24	6.5	4.5	5.5	9.0	7.5	8.0	9.5	7.0	8.5	11.5	9.0	10.0
25	6.0	4.0	5.5	8.5	7.0	8.0	9.0	6.5	7.5	13.0	9.5	11.0
26	6.0	4.0	5.0	7.0	5.5	6.5	10.5	7.5	8.5	---	9.5	---
27	5.5	3.5	5.0	8.0	6.5	7.0	11.5	7.0	9.5	---	11.5	---
28	6.0	3.5	5.0	9.0	7.0	8.0	12.0	8.0	10.0	12.0	10.0	11.0
29	---	---	---	8.5	6.5	7.5	12.0	9.0	11.0	12.0	9.5	11.0
30	---	---	---	8.0	7.0	7.5	12.0	10.0	10.5	14.0	9.0	11.5
31	---	---	---	9.5	7.0	8.5	---	---	---	15.0	10.5	13.0
MONTH	7.0	.0	4.0	---	---	---	15.0	6.0	10.0	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	17.5	12.0	14.5	16.0	12.0	14.0	16.0	12.0	14.0	15.0	12.0	13.5
2	17.0	13.0	15.0	18.0	11.5	14.5	17.5	13.5	15.0	16.0	10.0	12.5
3	---	13.0	---	19.0	13.0	15.5	19.0	13.0	15.5	16.5	11.0	13.5
4	17.5	12.5	14.5	18.5	13.5	16.0	19.5	13.5	16.0	17.0	12.0	14.0
5	---	12.5	---	19.0	13.0	16.0	20.5	14.0	17.0	16.0	12.0	13.5
6	---	13.0	---	20.0	13.5	16.5	21.0	15.0	17.5	---	11.0	---
7	---	12.5	---	20.0	14.0	17.0	21.0	15.5	18.0	16.0	10.5	13.0
8	17.0	12.0	14.5	19.0	13.5	16.0	18.5	15.0	17.0	16.5	11.0	13.5
9	---	12.0	---	17.0	13.0	15.0	20.0	14.5	16.5	16.5	11.0	13.5
10	---	11.5	---	18.5	12.0	15.0	20.0	15.0	17.5	16.5	11.5	13.5
11	---	12.5	---	19.5	13.0	16.0	20.0	14.5	17.0	16.5	11.5	13.5
12	---	13.5	---	20.5	14.5	17.5	19.5	14.5	17.0	15.5	10.5	13.0
13	---	14.0	---	20.5	14.5	17.5	19.0	13.5	16.0	15.5	10.0	12.5
14	16.0	14.0	15.0	20.5	14.5	17.5	18.5	13.5	16.0	15.5	10.5	13.0
15	15.0	13.0	14.5	20.0	15.5	17.0	18.5	13.0	15.5	15.5	11.0	13.0
16	17.0	11.5	12.5	16.0	14.5	15.0	18.0	12.5	15.5	13.5	11.5	12.5
17	---	12.0	---	19.5	13.5	16.0	19.0	13.0	16.0	12.5	11.0	11.5
18	18.5	12.5	15.0	21.0	15.0	17.5	18.5	13.5	16.0	14.0	10.0	11.5
19	16.0	12.5	14.5	21.0	15.5	18.0	19.0	14.0	16.5	14.0	10.0	11.5
20	17.0	12.0	---	20.0	15.0	17.5	19.0	14.0	16.5	13.5	10.0	12.0
21	17.5	11.5	14.5	19.5	14.0	16.5	18.0	13.5	16.0	15.0	10.0	12.0
22	19.0	13.0	15.5	19.5	13.5	16.5	18.0	15.0	16.5	15.5	10.0	12.5
23	19.5	13.5	16.5	19.0	14.5	17.0	16.0	13.5	14.5	15.5	11.0	13.0
24	20.0	14.0	17.0	20.0	14.5	17.0	16.5	12.0	14.0	13.5	12.0	13.0
25	20.0	14.5	17.0	21.0	14.5	17.5	17.0	11.5	14.0	14.0	---	---
26	19.5	14.5	17.0	20.5	15.0	17.5	18.0	12.5	15.0	13.5	11.0	12.5
27	17.5	13.5	15.5	20.0	14.0	16.5	18.0	13.0	15.0	14.5	11.5	13.0
28	15.0	13.0	13.5	20.0	13.5	16.5	17.5	13.0	15.0	13.0	10.0	12.0
29	13.5	12.0	12.5	20.0	14.0	17.0	17.0	13.0	14.5	14.5	11.5	12.5
30	18.0	12.0	14.5	19.5	15.0	17.0	15.5	13.5	14.5	12.0	11.0	12.0
31	---	---	---	17.0	14.0	15.5	16.5	10.0	13.5	---	---	---
MONTH	---	11.5	---	21.0	11.5	16.5	21.0	10.0	16.0	---	---	---

261

LOCATION.--Lat 42°39'20", long 122°42'50", in SW 1/4 sec.33, T.33 S., R.1 E., Jackson County, Hydrologic Unit 17100307, on left bank at Obstinate J Ranch, 1.3 mi downstream from Big Butte Creek, 1.6 mi southwest of McLeod, and at mile 154.0.

WATER-DISCHARGE RECORDS

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,489.08 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Water-discharge records excellent. Flow regulated since February 1977 by Lost Creek Lake (station 14335040). Diversions for irrigation upstream from station; most of low flow of Big Butte Creek is diverted near Butte Falls.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,000 ft³/s Mar. 3, 1972, gage height, 12.24 ft; minimum discharge, 468 ft³/s Feb. 18, 1977, result of closure of Lost Creek Dam, minimum prior to that time, 604 ft³/s Sept. 5, 1968.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1928, 20.35 ft Dec. 22, 1964, from floodmarks, discharge, 74,300 ft³/s, from slope-area measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,640 ft³/s Mar. 22, gage height, 5.77 ft; maximum gage height, 5.82 ft Mar. 22, from crest-stage gage; minimum discharge, 886 ft³/s Feb. 14.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1300	1110	1700	1120	1330	1160	4450	3310	2800	2470	2170	2440
2	1350	1110	1540	1120	1560	1350	4230	3330	2790	2470	2180	2440
3	1260	1120	1520	1170	1440	1250	4130	3310	3050	2430	2180	2440
4	1140	1120	1450	1230	1310	1200	3610	3350	3220	2390	2170	2440
5	1150	1120	1370	1660	1280	1810	3450	3920	3210	2390	2160	2430
6	1160	1190	1330	1400	1290	1850	3540	4380	3200	2400	2160	2440
7	1160	1180	1320	1310	1320	1750	3920	4580	3180	2400	2170	2440
8	1160	1140	1350	1340	1440	1660	4340	4800	2970	2390	2170	2440
9	1160	1130	1390	1910	1440	2180	4470	5040	2740	2390	2190	2450
10	1160	1110	1430	3530	1190	2200	4480	4920	2740	2390	2180	2450
11	1150	1130	1460	2400	934	2300	4180	4350	2730	2380	2370	2380
12	1150	1120	1480	2590	949	2200	4080	3730	2510	2380	2510	2240
13	1150	1140	1470	2470	931	2310	4160	3380	2410	2380	2450	2100
14	1150	1150	1470	2360	917	2080	4220	3200	2430	2320	2430	1990
15	1150	1130	1430	1970	913	1970	4280	2880	2490	2280	2450	1870
16	1150	1170	1250	1470	932	2190	4220	2490	2790	2260	2450	1740
17	1140	1310	1190	1420	1040	3240	4160	2480	2630	2270	2440	1640
18	1130	1240	1220	1380	1100	3760	3870	2920	2440	2270	2450	1580
19	1100	1240	1280	1360	1190	4200	3520	2910	2440	2260	2450	1380
20	1100	1240	1340	1350	1180	3950	3360	2740	2450	2250	2460	1320
21	1120	1330	1490	1510	1180	5240	3610	2740	2450	2270	2460	1320
22	1100	2760	1580	2000	1430	7090	3820	2570	2440	2280	2450	1300
23	1100	2620	1450	1670	1600	7430	3410	3000	2440	2280	2470	1320
24	1100	2600	1360	1440	1470	6340	3280	3030	2440	2280	2480	1320
25	1110	2380	1310	1400	1350	5320	3530	2810	2430	2280	2470	1330
26	1100	2080	1210	1350	1280	5160	3570	2790	2420	2270	2470	1340
27	1120	1790	1100	1330	1230	4250	3320	2780	2440	2260	2460	1340
28	1120	2430	1140	1330	1180	4210	3230	3010	2460	2240	2450	1340
29	1130	2280	1190	1320	---	4570	3090	2950	2470	2200	2460	1360
30	1100	1950	1260	1310	---	4070	3110	2800	2480	2200	2480	1390
31	1100	---	1190	1310	---	4630	---	2810	---	2190	2470	---
TOTAL	35570	45420	42270	50530	34406	102920	114640	103310	79690	71920	73310	56010
MEAN	1147	1514	1364	1630	1229	3320	3821	3333	2656	2320	2365	1867
MAX	1350	2760	1760	3530	1600	7430	4480	5040	3220	2470	2510	245

UPPER ROGUE RIVER BASIN

14337600 ROGUE RIVER NEAR MCLEOD, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: August 1970 to current year.

INSTRUMENTATION.--Temperature recorder since August 1970.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 18.0°C July 17, 18, Aug. 7, 1973; minimum, 0.5°C Jan. 3-5, 14, 15, 1971. Maximum since full operation of Lost Creek Lake, 15.0°C July 1, 1980; minimum, 3.0°C Feb. 2, 1979, Feb. 6, 7, 1989.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 14.0°C Aug. 18-25; minimum, 3.0°C Feb. 6, 7.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	8.0	7.5	8.0	7.5	7.0	7.5	7.0	7.0	7.0	5.0	5.0	5.0
2	8.0	7.5	8.0	7.5	7.5	7.5	7.0	7.0	7.0	5.0	5.0	5.0
3	8.0	7.5	8.0	7.5	7.5	7.5	7.0	6.5	7.0	5.5	5.0	5.0
4	8.0	7.5	8.0	7.5	7.5	7.5	6.5	6.5	6.5	5.5	5.0	5.5
5	8.0	7.5	8.0	7.5	7.5	7.5	6.5	6.5	6.5	5.5	5.0	5.0
6	8.0	7.5	8.0	8.0	7.5	7.5	7.0	6.5	7.0	5.0	5.0	5.0
7	8.0	7.5	8.0	7.5	7.5	7.5	7.0	7.0	7.0	5.0	5.0	5.0
8	8.0	7.5	8.0	7.5	7.5	7.5	7.0	6.5	6.5	5.0	5.0	5.0
9	8.0	7.5	8.0	7.5	7.5	7.5	6.5	6.5	6.5	5.0	4.5	5.0
10	8.0	7.5	7.5	7.5	7.5	7.5	6.5	6.5	6.5	5.0	4.5	5.0
11	7.5	7.5	7.5	8.0	7.5	7.5	6.5	6.5	6.5	5.0	4.5	5.0
12	7.5	7.5	7.5	7.5	7.5	7.5	6.5	6.5	6.5	5.0	5.0	5.0
13	7.5	7.5	7.5	7.5	7.5	7.5	6.5	6.5	6.5	5.0	5.0	5.0
14	7.5	7.0	7.5	7.5	7.5	7.5	6.5	6.5	6.5	5.0	5.0	5.0
15	7.5	7.0	7.5	7.5	7.5	7.5	6.5	6.0	6.0	5.0	5.0	5.0
16	7.5	7.0	7.5	7.5	7.5	7.5	6.0	6.0	6.0	5.0	5.0	5.0
17	7.5	7.0	7.5	7.5	7.5	7.5	6.0	5.5	6.0	5.0	5.0	5.0
18	7.5	7.0	7.5	7.5	7.0	7.5	5.5	5.5	5.5	5.0	5.0	5.0
19	7.5	7.0	7.5	7.5	7.0	7.0	6.0	5.5	6.0	5.0	4.5	4.5
20	7.5	7.0	7.0	7.5	7.0	7.5	6.0	6.0	6.0	4.5	4.5	4.5
21	7.5	7.0	7.0	7.5	7.0	7.0	6.0	5.5	6.0	4.5	4.5	4.5
22	7.5	7.0	7.0	7.5	7.0	7.5	6.0	5.5	5.5	4.5	4.5	4.5
23	7.0	7.0	7.0	7.5	7.5	7.5	5.5	5.5	5.5	4.5	4.0	4.5
24	7.0	7.0	7.0	7.5	7.5	7.5	5.5	5.5	5.5	4.5	4.0	4.0
25	7.5	7.0	7.0	7.5	7.0	7.5	5.5	5.5	5.5	4.5	4.0	4.5
26	7.0	7.0	7.0	7.5	7.0	7.5	5.5	5.0	5.5	4.5	4.0	4.0
27	7.0	7.0	7.0	7.5	7.0	7.0	5.0	5.0	5.0	4.5	4.0	4.5
28	7.0	7.0	7.0	7.5	7.0	7.5	5.5	5.0	5.0	4.5	4.0	4.5
29	7.5	7.0	7.0	7.0	7.0	7.0	5.5	5.0	5.5	4.5	4.0	4.5
30	7.5	7.0	7.0	7.0	7.0	7.0	5.5	5.0	5.5	4.5	4.0	4.5
31	7.5	7.0	7.0	---	---	---	5.0	5.0	5.0	4.5	4.5	4.5
MONTH	8.0	7.0	7.5	8.0	7.0	7.5	7.0	5.0	6.0	5.5	4.0	5.0

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	4.5	4.5	4.5	4.5	4.0	4.5	5.5	5.5	5.5	7.5	7.5	7.5
2	4.5	4.0	4.0	4.5	4.0	4.0	5.5	5.5	5.5	7.5	7.5	7.5
3	4.0	4.0	4.0	4.0	3.5	4.0	5.5	5.5	5.5	7.5	7.5	7.5
4	4.0	3.5	4.0	4.0	4.0	4.0	6.0	5.5	6.0	8.0	7.5	7.5
5	3.5	3.5	3.5	4.5	4.0	4.5	6.0	6.0	6.0	8.5	8.0	8.0
6	3.5	3.0	3.5	5.0	4.5	5.0	6.5	6.0	6.0	8.5	8.5	8.5
7	3.5	3.0	3.5	5.5	5.0	5.0	6.5	6.0	6.0	9.0	8.5	8.5
8	3.5	3.5	3.5	5.5	5.0	5.5	6.5	6.0	6.5	9.0	8.5	8.5
9	4.0	3.5	3.5	6.0	5.5	5.5	6.5	6.0	6.5	8.5	8.5	8.5
10	4.0	4.0	4.0	6.0	5.5	6.0	6.5	6.0	6.0	8.5	8.0	8.0
11	4.0	4.0	4.0	6.0	5.5	6.0	6.0	6.0	6.0	8.5	8.0	8.0
12	4.5	4.0	4.0	6.0	5.5	5.5	6.5	6.0	6.0	8.0	8.0	8.0
13	4.0	4.0	4.0	5.5	5.5	5.5	6.5	6.0	6.5	8.5	8.0	8.0
14	4.0	4.0	4.0	5.5	5.0	5.5	6.5	6.0	6.5	8.5	8.0	8.5
15	4.0	3.5	4.0	5.5	5.5	5.5	6.5	6.0	6.5	9.0	8.5	8.5
16	4.0	4.0	4.0	5.5	5.5	5.5	6.5	6.5	6.5	9.0	8.5	9.0
17	4.5	4.0	4.0	5.5	5.0	5.5	6.5	6.5	6.5	9.0	9.0	9.0
18	4.5	4.5	4.5	5.5	5.0	5.0	6.5	6.5	6.5	9.0	8.5	8.5
19	4.5	4.5	4.5	5.5	5.0	5.5	7.0	6.5	6.5	8.5	8.5	8.5
20	5.0	4.5	4.5	5.5	5.0	5.5	7.0	7.0	7.0	9.0	8.5	8.5
21	5.0	4.5	5.0	5.5	5.0	5.5	7.0	6.5	7.0	9.0	8.5	9.0
22	5.0	5.0	5.0	5.5	5.5	5.5	7.0	6.5	7.0	9.0	8.5	9.0
23	5.0	4.5	5.0	5.5	5.5	5.5	7.0	7.0	7.0	9.0	8.5	8.5
24	5.0	4.5	5.0	5.5	5.5	5.5	7.0	7.0	7.0	8.5	8.5	8.5
25	5.0	4.5	4.5	5.5	5.5	5.5	7.0	7.0	7.0	9.0	8.5	8.5
26	4.5	4.5	4.5	5.5	5.5	5.5	7.0	7.0	7.0	9.0	8.5	9.0
27	4.5	4.0	4.5	5.5	5.5	5.5	7.5	7.0	7.0	9.0	8.5	9.0
28	4.5	4.0	4.5	5.5	5.5	5.5	7.5	7.0	7.5	9.0	9.0	9.0
29	---	---	---	5.5	5.5	5.5	7.5	7.5	7.5	9.0	9.0	9.0
30	---	---	---	5.5	5.5	5.5	7.5	7.5	7.5	9.0	9.0	9.0
31	---	---	---	6.0	5.5	5.5	---	---	---	9.0	9.0	9.0
MONTH	5.0	3.0	4.0	6.0	3.5	5.5	7.5	5.5	6.5	9.0	7.5	8.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	9.5	9.0	9.0	10.0	10.0	10.0	12.0	11.5	11.5	13.0	13.0	13.0
2	9.5	9.5	9.5	10.5	10.0	10.0	12.5	12.0	12.5	12.5	12.5	12.5
3	9.5	9.5	9.5	10.5	10.0	10.0	12.5	12.0	12.5	12.5	12.5	12.5
4	10.0	9.5	9.5	10.5	10.0	10.5	13.0	12.5	12.5	12.5	12.5	12.5
5	10.0	9.5	9.5	10.5	10.0	10.5	13.0	12.5	12.5	12.5	12.5	12.5
6	10.0	9.5	9.5	10.5	10.0	10.5	13.0	12.5	13.0	13.0	12.5	12.5
7	10.0	9.5	10.0	10.5	10.0	10.0	13.0	12.5	13.0	13.0	12.5	13.0
8	10.0	9.5	10.0	10.5	10.0	10.0	13.0	13.0	13.0	13.0	12.0	12.5
9	10.0	9.5	10.0	10.5	10.0	10.0	13.0	13.0	13.0	12.0	11.5	12.0
10	10.0	10.0	10.0	10.5	10.0	10.0	13.5	13.0	13.0	12.0	11.5	12.0
11	10.0	10.0	10.0	10.5	10.0	10.5	13.0	13.0	13.0	12.0	11.5	12.0
12	10.0	10.0	10.0	10.5	10.0	10.5	13.5	13.0	13.0	12.0	11.5	11.5
13	10.0	9.5	10.0	10.5	10.0	10.5	13.5	13.0	13.0	11.5	11.5	11.5
14	10.0	9.5	10.0	10.5	10.0	10.5	13.5	13.0	13.5	11.5	11.5	11.5
15	10.0	9.5	10.0	11.0	10.5	10.5	13.5	13.5	13.5	11.5	11.0	11.5
16	10.0	9.5	10.0	11.5	11.0	11.5	13.5	13.5	13.5	11.0	10.5	10.5
17	10.0	10.0	10.0	12.0	11.5	11.5	13.5	13.5	13.5	10.5	10.5	10.5
18	10.0	10.0	10.0	12.0	11.5	12.0	14.0	13.5	13.5	10.5	10.5	10.5
19	10.0	10.0	10.0	12.0	12.0	12.0	14.0	13.5	13.5	10.5	10.0	10.0
20	10.0	10.0	10.0	12.0	12.0	12.0	14.0	13.5	14.0	10.5	10.0	10.0
21	10.5	10.0	10.0	12.0	11.5	11.5	14.0	13.5	14.0	10.5	10.0	10.0
22	10.5	10.0	10.0	12.0	11.5	11.5	14.0	14.0	14.0	10.5	10.0	10.0
23	10.5	10.0	10.5	11.5	11.5	11.5	14.0	14.0	14.0	10.0	9.5	9.5
24	10.5	10.5	10.5	12.0	11.5	11.5	14.0	14.0	14.0	9.5	9.0	9.5
25	10.5	10.5	10.5	12.0	11.5	11.5	14.0	13.5	14.0	9.5	9.0	9.0
26	10.5	10.5	10.5	12.0	11.5	12.0	13.5	13.0	13.5	9.5	9.0	9.5
27	10.5	10.0	10.0	12.0	11.5	12.0	13.5	13.0	13.0	9.5	9.0	9.5
28	10.0	10.0	10.0	12.0	11.5	11.5	13.5	13.0	13.0	9.5	9.0	9.5
29	10.0	10.0	10.0	12.0	11.5	11.5	13.5	13.0	13.0	9.5	9.0	9.5
30	10.0	10.0	10.0	12.0	11.5	11.5	13.0	13.0	13.0	9.5	9.5	9.5
31	---	---	---	12.0	11.5	11.5	13.5	13.0	13.0	---	---	---
MONTH	10.5	9.0	10.0	12.0	10.0	11.0	14.0	11.5	13.0	13.0	9.0	11.0
YEAR	14.0	3.0	8.0									

UPPER ROGUE RIVER BASIN

14337800 ELK CREEK NEAR CASCADE GORGE, OR

LOCATION.--Lat 42°46'25", long 122°40'15", in NW 1/4 sec.23, T.32 S., R.1 E., Jackson County, Hydrologic Unit 17100307, on right bank 0.1 mi downstream from Sugarpine Creek, 6.5 mi northwest of town of Cascade Gorge, and at mile 10.7.

DRAINAGE AREA.--78.8 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1973 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,813.83 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Water-discharge records good. No regulation. Many diversions upstream from station for irrigation.

AVERAGE DISCHARGE.--16 years, 145 ft³/s, 24.99 in/yr, 105,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,780 ft³/s Jan. 15, 1974, gage height, 8.9 ft, from floodmark; minimum daily discharge, 0.72 ft³/s Aug. 24, 1973.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,600 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	1900	2,360	6.36	Mar. 9	unknown	unknown	unknown
Jan. 10	0400	*2,870	*6.74	Mar. 21	1000	1,870	5.94

Minimum discharge, 1.9 ft³/s Oct. 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	2.6	157	104	413	172	e390	248	80	14	4.3	4.6
2	2.6	6.3	154	115	289	165	e380	205	73	12	4.6	4.7
3	2.5	17	139	190	213	148	e380	183	67	11	4.8	4.5
4	2.6	10	124	227	e160	138	e380	170	60	11	4.6	4.2
5	3.0	6.7	111	293	e140	458	e360	161	56	11	4.0	3.9
6	2.8	21	116	214	e130	869	358	156	52	9.6	4.1	3.5
7	2.7	13	115	160	e110	e610	373	147	47	8.8	3.7	3.4
8	2.6	10	98	140	e95	e450	374	138	44	9.0	4.8	3.3
9	2.5	9.8	86	492	76	894	352	162	42	8.5	13	3.5
10	2.3	20	88	1590	74	e1100	319	153	40	9.2	5.1	3.5
11	2.3	22	87	536	72	793	274	133	36	8.4	4.3	3.4
12	2.3	26	79	319	72	e580	258	117	34	6.7	3.9	3.3
13	2.2	37	74	238	69	e500	242	108	33	6.3	3.3	3.1
14	2.4	41	68	180	62	e380	233	100	32	6.4	3.3	2.8
15	2.3	47	57	149	61	e350	217	92	33	6.4	3.3	3.3
16	2.4	90	50	151	79	e390	200	84	33	6.3	3.4	3.4
17	2.4	159	44	192	208	e340	186	80	30	8.5	3.4	4.7
18	2.5	81	39	241	386	494	176	77	27	7.5	3.3	7.1
19	2.4	47	41	251	462	e560	168	72	25	6.1	3.4	5.7
20	2.3	60	46	328	359	e400	155	65	25	5.7	3.1	5.0
21	2.3	147	61	380	347	e1300	148	62	24	6.0	3.1	4.7
22	2.5	1280	75	429	592	e850	142	59	22	5.8	4.1	4.2
23	2.3	687	71	307	614	e520	133	79	22	5.5	7.1	3.8
24	2.2	261	70	222	424	e420	143	83	19	5.2	6.5	3.3
25	2.3	211	63	170	315	e440	296	82	18	4.4	5.4	3.3
26	2.4	257	55	146	249	e340	369	82	18	4.2	4.5	4.5
27	2.5	240	51	156	211	e300	386	80	18	4.6	4.2	6.1
28	2.6	476	48	171	186	e540	383	89	17	4.2	4.0	5.5
29	2.8	280	50	183	---	e610	351	107	17	4.0	4.0	5.7
30	2.6	182	103	314	---	e390	297	101	16	4.2	5.8	6.7
31	2.4	---	124	457	---	e390	---	90	---	4.5	5.6	---
TOTAL	76.7	4747.4	2544	9045	6468	15891	8423	3565	1060	225.0	142.0	128.7
MEAN	2.47	158	82.1	292	231	513	281	115	35.3	7.26	4.58	4.29
MAX	3.0	1280	157	1590	614	1300	390	248	80	14	13	7.1
MIN	2.2	2.6	39	104	61	138	133	59	16	4.0	3.1	2.8
AC-FT	152	9420	5050	17940	12830	31520	16710	7070	2100	446	282	255
CFSM	.03	2.01	1.04	3.70	2.93	6.51	3.56	1.46	.45	.09	.06	.05
IN.	.04	2.24	1.20	4.27	3.05	7.50	3.98	1.68	.50	.11	.07	.06

CAL YR 1988 TOTAL 30460.7 MEAN 83.2 MAX 1280 MIN 1.9 AC-FT 60420 CFSM 1.06 IN. 14.38
WTR YR 1989 TOTAL 52315.8 MEAN 143 MAX 1590 MIN 2.2 AC-FT 103800 CFSM 1.82 IN. 24.70

e Estimated

UPPER ROGUE RIVER BASIN
14337800 ELK CREEK NEAR CASCADE GORGE, OR--Continued
WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: August 1973 to October 1976, August 1977 to current year.

INSTRUMENTATION.--Temperature recorder August 1973 to October 1976 and since August 1977.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum recorded, 28.5°C July 29, 30, 1973, Aug. 9-11, 1981; minimum, 0.0°C at times during most winter periods.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 24.5°C July 25, Aug. 7; minimum, 0.0°C Feb. 4-9, 15.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	9.0	6.5	8.0	5.5	4.0	4.5	4.0	3.0	3.5
2	---	---	---	9.5	9.0	9.0	6.0	5.0	5.5	5.0	3.0	4.0
3	16.0	---	---	10.5	9.5	10.0	6.0	4.5	5.0	5.0	4.0	4.0
4	13.5	10.5	12.5	11.0	9.5	10.0	5.5	4.0	4.5	5.5	4.5	5.0
5	16.5	12.5	14.0	11.0	9.5	10.0	6.0	4.5	5.5	5.0	4.0	4.5
6	16.0	11.0	13.5	10.0	7.5	9.0	7.5	6.0	6.5	4.5	4.0	4.0
7	16.0	11.0	13.5	7.5	6.5	7.0	6.5	5.5	6.0	4.5	4.0	4.5
8	16.5	11.0	13.5	8.0	7.0	7.5	5.5	4.0	4.5	4.0	2.0	3.0
9	16.0	10.5	13.0	7.0	5.5	6.5	6.0	4.0	5.0	4.5	2.5	3.5
10	15.5	10.0	12.5	9.0	7.0	8.0	6.5	4.5	5.5	5.5	3.0	5.0
11	15.0	10.5	12.5	8.5	7.0	7.5	5.5	4.0	5.0	6.0	5.0	5.5
12	15.0	10.0	12.5	8.5	7.5	8.0	5.5	4.0	5.0	5.0	4.0	4.5
13	13.0	11.0	12.0	7.5	6.5	7.0	6.5	4.0	5.0	4.5	3.0	4.0
14	14.0	10.0	12.0	8.0	6.0	6.5	4.5	2.0	3.0	4.5	3.5	4.0
15	15.0	11.0	12.5	7.5	6.5	7.0	2.5	.5	1.5	4.5	4.0	4.0
16	14.5	10.0	12.0	7.0	5.5	6.5	2.5	.5	1.0	5.5	4.0	4.5
17	14.5	10.0	12.0	6.0	5.5	5.5	2.0	.5	1.0	5.5	4.5	5.0
18	14.0	10.0	12.0	6.5	5.5	6.0	2.0	.5	1.0	5.5	4.0	4.5
19	14.0	10.0	11.5	6.0	4.5	5.5	3.0	1.0	2.0	5.5	4.0	4.5
20	13.5	8.5	11.0	7.0	5.0	6.0	2.5	1.0	1.5	5.5	4.5	5.0
21	12.5	8.0	10.0	7.0	5.0	6.0	1.5	.5	.5	5.5	4.5	5.0
22	13.0	8.5	10.5	8.0	6.5	7.5	1.5	.5	.5	5.5	4.0	5.0
23	11.5	7.5	9.5	7.5	6.0	7.0	2.5	1.0	2.0	4.0	3.0	3.5
24	11.0	7.0	9.0	6.5	5.0	6.0	2.5	1.5	2.0	4.5	3.0	3.5
25	11.5	7.0	9.0	5.5	4.0	5.0	3.5	1.5	2.5	4.5	2.5	3.5
26	11.0	7.0	9.0	7.0	5.5	6.0	2.0	.5	1.0	4.5	2.5	3.5
27	10.0	6.5	8.5	6.5	5.5	6.0	1.5	.5	1.0	4.5	3.0	3.5
28	10.5	6.5	8.0	7.0	6.0	6.5	3.0	1.0	2.0	5.0	3.0	4.0
29	10.5	7.5	9.0	6.0	5.0	5.5	2.5	1.0	2.0	5.0	3.5	4.0
30	10.0	6.5	8.0	5.5	4.0	4.5	3.0	2.0	2.5	5.5	4.0	4.5
31	9.5	6.0	7.5	---	---	---	4.5	2.5	3.5	6.0	4.5	5.0
MONTH	---	---	---	11.0	4.0	7.0	7.5	.5	3.0	6.0	2.0	4.0

UPPER ROGUE RIVER BASIN

14337800 ELK CREEK NEAR CASCADE GORGE, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	4.5	3.0	4.0	4.5	2.0	3.5	6.0	5.0	5.5	11.5	7.0	8.5
2	3.0	2.0	2.5	4.0	1.5	2.5	5.5	5.0	5.5	11.0	7.0	9.0
3	3.0	1.0	2.0	4.5	1.0	2.5	7.0	5.0	6.0	10.0	8.5	9.0
4	1.5	.0	.5	4.0	2.0	3.0	9.5	5.5	7.0	14.0	8.5	11.0
5	.0	.0	.0	4.5	3.0	3.5	10.5	5.5	7.5	15.5	10.0	12.0
6	.0	.0	.0	6.0	4.5	5.5	11.0	6.0	8.0	14.5	11.0	12.5
7	.0	.0	.0	6.5	5.0	5.5	11.0	6.0	8.0	16.0	10.5	13.0
8	.5	.0	.0	6.0	4.5	5.5	11.0	6.5	8.5	16.0	10.5	12.5
9	2.5	.0	1.0	6.0	5.0	5.5	11.0	6.0	8.0	12.5	9.5	11.0
10	3.0	.5	2.0	6.5	5.0	5.5	10.5	6.5	8.0	11.5	8.5	9.5
11	5.0	1.5	2.5	7.0	5.5	6.0	11.5	6.0	8.5	11.0	7.0	9.0
12	3.5	1.5	2.5	6.5	5.0	5.5	12.0	6.5	8.5	10.5	6.0	8.5
13	3.5	1.5	2.5	5.5	4.5	5.0	12.0	7.0	9.0	12.5	7.5	9.5
14	4.0	1.0	2.0	5.5	4.5	5.0	11.0	8.0	9.5	12.0	7.5	9.5
15	4.0	.0	2.0	7.0	4.5	5.5	12.5	7.5	9.5	14.5	7.5	10.5
16	2.0	1.0	2.0	6.0	4.5	5.0	13.0	7.5	9.5	15.5	8.5	11.5
17	4.0	2.0	3.0	5.5	4.5	5.0	12.5	7.5	10.0	14.5	8.5	11.0
18	4.5	3.5	4.0	6.0	5.0	5.5	14.0	8.0	10.5	10.5	7.5	9.0
19	5.0	4.0	4.5	7.0	5.0	5.5	14.0	9.0	11.0	13.5	5.5	9.0
20	6.0	4.0	5.0	6.5	4.0	5.5	12.5	9.0	10.5	15.0	7.5	11.0
21	5.5	4.0	4.5	6.5	5.5	6.0	9.5	7.5	8.5	14.5	9.5	11.5
22	5.0	4.5	4.5	7.0	5.0	6.0	9.0	6.5	7.5	13.5	8.5	10.5
23	6.0	4.0	4.5	7.0	4.5	5.5	8.5	6.0	7.0	9.5	8.0	8.5
24	6.0	4.0	4.5	7.0	5.5	6.5	8.5	5.5	7.0	11.0	7.5	9.0
25	5.5	3.0	4.0	7.0	4.5	6.0	7.0	3.0	4.5	13.0	8.0	10.0
26	6.0	3.0	4.0	5.5	3.5	4.5	8.5	5.5	6.5	13.0	7.0	10.0
27	5.5	2.5	3.5	6.0	4.5	5.5	10.0	5.5	7.5	12.5	9.0	10.5
28	5.5	2.5	3.5	7.0	5.5	6.0	10.0	6.0	8.0	11.0	8.0	9.0
29	---	---	---	7.0	5.0	6.0	11.0	6.5	8.5	10.5	6.5	8.5
30	---	---	---	6.0	5.0	5.5	9.0	7.5	8.5	14.0	7.0	10.0
31	---	---	---	7.5	5.0	6.0	---	---	---	15.5	8.5	11.5
MONTH	6.0	.0	2.5	7.5	1.0	5.0	14.0	3.0	8.0	16.0	5.5	10.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	17.0	10.0	13.0	16.5	11.5	14.0	16.5	12.5	15.0	18.5	12.5	15.0
2	17.5	11.0	14.0	19.0	11.0	14.5	18.5	14.5	16.0	18.0	11.0	14.0
3	17.0	11.5	14.0	20.0	13.0	16.0	21.0	12.5	16.5	18.5	11.0	14.5
4	19.0	12.0	15.0	19.5	13.0	16.0	22.5	13.5	17.5	19.5	12.5	15.5
5	19.5	12.0	15.5	20.0	12.0	16.0	23.5	15.0	19.0	19.0	12.5	15.0
6	19.5	12.0	15.0	21.5	13.0	17.0	24.0	16.0	19.5	17.5	11.5	14.0
7	19.0	11.5	15.0	21.5	14.0	17.5	24.5	16.5	20.5	17.5	10.5	14.0
8	19.0	11.0	14.5	20.0	13.5	16.5	23.0	17.5	---	18.0	11.5	14.5
9	18.5	11.5	14.5	18.5	13.0	15.5	---	---	---	18.5	12.0	15.0
10	19.0	11.0	14.5	20.0	12.5	16.0	---	---	---	18.5	12.0	15.0
11	19.5	12.0	15.5	21.0	13.0	17.0	---	---	---	18.0	12.0	14.5
12	19.5	13.0	16.0	22.5	14.5	18.0	---	---	---	17.0	10.5	13.5
13	18.0	13.5	16.0	23.0	15.0	18.5	---	---	---	17.5	10.5	13.5
14	18.0	14.5	16.0	22.0	15.0	18.0	---	---	---	17.5	10.5	14.0
15	15.5	13.0	14.5	22.5	16.0	18.5	---	---	---	18.0	11.5	14.5
16	18.0	11.0	14.0	17.5	15.5	16.5	---	---	---	15.5	12.5	14.0
17	18.0	11.0	14.5	21.5	15.5	18.0	---	---	---	14.0	12.0	13.0
18	19.0	11.5	15.0	23.5	16.0	19.5	---	---	---	15.0	10.0	12.5
19	15.5	11.5	13.5	23.5	16.0	19.5	---	---	---	15.5	9.5	12.5
20	17.5	11.0	14.0	22.5	15.5	18.5	---	---	---	16.0	10.0	13.0
21	18.5	10.5	14.5	21.5	14.0	17.5	---	---	---	16.5	10.5	13.0
22	19.5	12.0	15.5	22.5	14.0	18.0	---	---	---	17.0	10.5	13.5
23	20.5	13.0	16.5	22.0	15.0	18.0	---	---	---	17.0	11.0	14.0
24	21.0	13.5	17.0	23.5	15.5	19.0	---	---	---	16.0	12.5	14.0
25	21.5	14.0	17.5	24.5	15.5	19.5	---	---	---	16.0	11.5	13.5
26	21.0	14.0	17.5	24.0	16.0	19.0	---	---	---	16.0	12.5	14.0
27	17.5	13.0	15.5	23.0	14.5	18.0	---	---	---	17.5	12.5	14.5
28	15.0	12.5	14.0	23.0	14.0	18.0	20.0	---	---	16.0	11.5	14.0
29	14.0	13.0	13.5	22.5	15.0	18.0	20.5	14.0	16.5	17.0	13.5	14.5
30	18.5	12.5	15.0	22.5	16.0	18.5	18.0	14.0	15.5	14.0	13.0	13.5
31	---	---	---	19.5	15.5	17.0	18.5	11.5	15.0	---	---	---
MONTH	21.5	10.0	15.0	24.5	11.0	17.5	---	---	---	19.5	9.5	14.0

UPPER ROGUE RIVER BASIN

267

14337830 ELK CREEK BELOW ALCO CREEK, NEAR TRAIL, OR

LOCATION.--Lat 42°40'46", long 122°42'37", in NW 1/4 sec.4, T.33 S., R.1 E., Jackson County, Hydrologic Unit 17100307, on Corps of Engineers' Land, on right bank 500 ft downstream from Alco Creek, and 7.5 mi northeast of Trail.

DRAINAGE AREA.--111 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1986 to current year (operated as a low-flow station only).

GAGE.--Water-stage recorder. Elevation of gage is 1,680 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are poor. No regulation. Some diversions upstream from station for irrigation. Operated as a low-flow station only. Discharges above 585 ft³/s not estimated.

EXTREMES FOR PERIOD OF RECORD.--Minimum discharge recorded, 0.60 ft³/s Aug. 16, 17, 1986.

EXTREMES FOR CURRENT YEAR.--Minimum discharge, 1.6 ft³/s Aug. 18, 19, 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	3.2	216	151	e480	221	557	273	78	14	3.9	e5.4
2	4.0	6.9	204	173	e360	228	---	218	70	14	4.4	e5.2
3	3.6	25	180	332	e280	196	---	190	64	11	5.1	e5.2
4	3.7	18	155	392	e230	186	509	173	60	11	3.5	e4.7
5	4.1	12	134	519	e200	---	449	163	56	9.9	2.9	e4.3
6	4.4	27	137	358	e170	---	440	157	52	10	2.7	e4.0
7	4.8	22	137	246	e145	---	437	143	49	9.2	2.4	e3.8
8	4.7	17	114	203	127	---	425	133	45	9.8	2.5	e3.6
9	4.3	16	98	---	115	---	397	162	43	8.7	17	e3.5
10	4.2	29	100	---	106	---	352	154	41	9.0	7.7	e3.5
11	3.8	33	98	---	101	---	300	133	38	8.8	3.5	e3.8
12	3.4	36	88	---	102	---	280	118	35	6.8	3.4	e3.4
13	3.2	52	82	394	99	---	262	107	34	6.2	2.6	e3.0
14	3.3	59	74	293	93	---	252	97	33	5.6	2.2	e2.8
15	3.1	62	66	244	88	534	237	90	35	6.5	2.5	e3.3
16	3.4	114	60	250	109	---	217	83	33	7.2	2.4	e3.4
17	3.3	314	55	343	301	---	200	77	30	12	2.1	e4.5
18	3.4	147	51	447	---	---	192	75	27	8.6	2.0	e7.2
19	3.4	80	54	455	---	---	185	71	26	5.6	2.1	e6.2
20	3.3	92	59	---	---	---	169	65	25	5.4	2.9	e5.0
21	3.2	244	77	---	---	---	161	62	23	5.6	2.0	e4.8
22	3.4	---	99	---	---	---	154	60	22	4.7	3.0	e4.2
23	5.8	---	97	e400	---	---	150	76	20	4.8	5.9	e3.8
24	4.0	---	97	e320	---	---	167	82	18	5.0	8.3	e2.8
25	3.5	318	90	e260	433	---	367	82	15	4.0	e6.5	e2.5
26	3.3	421	e82	e230	330	485	---	78	15	3.4	e5.8	e2.5
27	3.4	384	e76	e200	272	485	---	79	16	3.8	e5.2	e4.5
28	3.5	---	72	e230	234	---	---	93	16	3.7	e4.8	e5.5
29	3.5	---	73	e250	---	---	442	110	17	3.0	e5.4	e6.0
30	3.5	264	142	e315	---	---	349	100	17	3.1	e7.0	e7.0
31	3.1	---	188	e540	---	---	---	88	---	3.9	e6.0	---
TOTAL	116.1	---	3255	---	---	---	---	3592	1053	224.3	137.7	129.4
MEAN	3.75	---	105	---	---	---	---	116	35.1	7.24	4.44	4.31
MAX	5.8	---	216	---	---	---	---	273	78	14	17	7.2
MIN	3.1	---	51	---	---	---	---	60	15	3.0	2.0	2.5
AC-FT	230	---	6460	---	---	---	---	7120	2090	445	273	257
CFSM	.03	---	.95	---	---	---	---	1.04	.32	.07	.04	.04
IN.	.04	---	1.09	---	---	---	---	1.20	.35	.08	.05	.04

e Estimated

UPPER ROGUE RIVER BASIN

14337830 ELK CREEK BELOW ALCO CREEK, NEAR TRAIL, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: April 1986 to current year.

INSTRUMENTATION.--Temperature recorder since April 1986.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 31.0°C July 13, 1987, July 26, 1988; minimum, at times during most winter periods.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 29.0°C Aug. 7; minimum, 0.0°C Dec. 16-18, 21, Feb. 4-9.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	22.0	15.0	18.0	11.0	9.0	10.0	5.5	4.0	5.0	4.5	3.5	4.0
2	21.0	15.0	18.0	11.0	10.5	11.0	6.5	5.0	5.5	5.5	3.5	4.5
3	20.5	14.0	17.0	11.5	10.5	11.0	6.0	4.5	5.5	5.0	4.0	4.5
4	17.0	14.0	16.0	12.5	10.5	11.5	5.0	4.0	4.5	5.5	4.5	5.0
5	20.5	15.5	17.5	12.5	11.0	11.5	6.0	4.5	5.0	5.5	4.5	5.0
6	20.5	14.5	17.5	12.0	9.5	11.0	7.5	6.5	7.0	5.0	4.0	4.5
7	21.0	15.0	17.5	9.0	7.5	8.5	7.0	6.0	6.5	4.5	4.0	4.5
8	21.0	15.0	17.5	10.5	8.0	9.0	6.0	5.0	5.5	4.0	2.5	3.5
9	20.5	14.5	17.0	9.0	7.0	8.0	6.0	4.0	5.0	5.0	2.5	4.0
10	19.5	13.5	16.5	9.5	8.0	8.5	6.5	4.5	5.5	6.0	3.5	5.0
11	19.5	14.0	16.5	9.0	8.0	8.5	5.5	4.0	5.0	6.0	4.5	5.5
12	18.5	13.5	16.0	9.5	8.5	9.0	5.5	4.5	5.0	5.0	3.5	4.5
13	16.0	14.0	15.0	8.5	7.5	8.0	6.0	4.5	5.5	4.0	3.0	3.5
14	17.5	12.5	15.0	8.0	6.5	7.5	4.5	2.5	3.5	4.5	3.5	4.0
15	19.0	13.5	16.0	8.0	7.0	7.5	2.0	.5	1.5	4.5	4.0	4.0
16	18.5	13.0	15.5	7.5	7.0	7.5	2.0	.0	1.0	5.5	4.0	4.5
17	18.5	13.0	15.5	7.0	6.0	6.5	1.5	.0	1.0	6.0	4.5	5.0
18	18.0	13.0	15.5	7.0	6.0	6.5	1.5	.0	1.0	5.5	4.0	4.5
19	18.0	13.0	15.5	6.5	5.5	6.0	3.0	1.5	2.5	5.5	4.0	4.5
20	17.5	12.0	14.5	7.5	6.0	6.5	3.0	1.5	2.0	6.0	4.0	5.0
21	16.5	11.5	14.0	7.0	5.5	6.0	1.5	.0	1.0	5.5	4.5	5.0
22	17.0	11.5	14.0	8.0	7.0	7.5	2.0	.5	1.0	6.0	4.5	5.0
23	16.0	11.0	13.0	8.0	6.5	7.5	3.5	2.0	3.0	4.0	2.5	3.5
24	15.5	10.5	13.0	7.0	5.5	6.5	3.0	2.5	3.0	5.0	3.0	4.0
25	15.5	10.0	12.5	6.0	4.5	5.5	4.0	2.5	3.0	4.5	3.0	3.5
26	15.0	10.0	12.0	7.5	6.0	6.5	2.5	1.0	2.0	4.5	2.5	3.5
27	12.5	9.5	11.0	7.0	6.0	6.5	2.0	.5	1.0	4.5	2.5	3.5
28	13.0	8.5	11.0	7.5	6.0	7.0	3.5	2.0	3.0	5.0	3.0	4.0
29	13.5	9.5	11.5	6.5	5.0	6.0	3.0	2.5	3.0	5.0	3.0	4.0
30	14.0	9.0	11.5	5.5	4.0	5.0	3.5	2.5	3.0	6.0	3.5	4.5
31	13.5	8.5	11.0	---	---	---	4.5	3.0	4.0	6.5	4.5	5.5
MONTH	22.0	8.5	15.0	12.5	4.0	8.0	7.5	.0	3.5	6.5	2.5	4.5

UPPER ROGUE RIVER BASIN

269

14337830 ELK CREEK BELOW ALCO CREEK, NEAR TRAIL, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	5.0	3.0	4.0	5.0	3.0	4.0	6.5	6.0	6.5	12.0	7.0	9.5
2	3.5	2.5	3.0	4.5	2.0	3.0	6.5	6.0	6.5	11.5	7.5	9.5
3	3.5	1.5	2.5	5.0	1.5	3.0	8.0	6.0	6.5	10.5	9.0	9.5
4	1.5	.0	1.0	4.5	2.5	3.5	10.5	6.5	8.0	15.0	9.0	11.5
5	.0	.0	.0	5.5	3.5	4.5	11.5	6.0	8.5	16.5	10.5	13.0
6	.0	.0	.0	7.0	5.5	6.0	12.0	6.5	9.0	15.5	11.5	13.5
7	.5	.0	.0	7.5	5.5	6.0	12.5	6.5	9.5	17.0	11.0	14.0
8	.5	.0	.0	7.0	5.5	6.0	12.5	7.0	9.5	16.0	11.0	13.5
9	2.0	.0	1.0	7.0	5.5	6.5	12.0	6.5	9.0	13.0	10.0	11.5
10	3.0	1.0	2.0	8.0	5.5	6.5	11.5	7.0	9.0	12.5	9.0	10.0
11	5.0	2.5	3.5	8.0	6.0	7.0	12.5	6.5	9.0	11.5	7.5	9.5
12	4.0	2.0	3.0	7.5	6.0	6.5	13.0	7.0	9.5	10.5	6.5	8.5
13	4.0	2.0	3.0	6.5	5.0	6.0	13.0	7.5	10.0	13.0	7.5	10.0
14	4.0	1.5	3.0	7.0	5.0	6.0	11.5	8.5	10.0	12.5	8.0	10.5
15	4.0	1.0	2.5	8.5	5.5	6.5	13.5	8.5	10.5	15.0	8.0	11.5
16	3.5	2.5	2.5	7.0	5.5	6.0	13.5	8.0	10.5	15.5	9.0	12.5
17	4.5	2.5	3.5	6.5	5.0	6.0	14.0	8.0	11.0	14.5	9.5	12.0
18	5.5	4.0	4.5	7.5	6.0	6.5	14.5	9.0	11.5	11.0	8.5	10.0
19	6.0	4.5	5.0	8.0	5.5	6.5	15.0	9.5	12.0	13.5	6.0	10.0
20	7.0	5.0	5.5	7.5	4.5	6.5	12.5	9.5	11.0	15.5	8.0	12.0
21	6.5	4.5	5.5	8.0	6.5	7.0	10.0	8.0	9.0	15.5	10.0	12.5
22	6.0	5.0	5.5	8.0	6.0	7.0	9.5	7.0	8.0	14.0	9.5	11.5
23	7.0	5.0	5.5	8.0	5.0	6.5	9.0	6.5	7.5	11.0	8.5	9.5
24	6.5	4.5	5.5	8.0	6.5	7.5	9.0	6.0	7.5	11.0	7.5	9.0
25	6.5	3.5	4.5	8.5	5.5	7.0	7.5	3.5	5.0	14.0	8.5	11.0
26	6.5	3.0	4.5	6.0	4.5	5.5	9.0	5.5	7.0	13.0	7.5	10.5
27	6.0	2.5	4.0	7.0	5.5	6.0	11.0	5.5	8.0	14.0	10.0	11.5
28	6.0	2.5	4.0	8.0	6.5	7.0	11.5	6.0	8.5	11.5	8.5	10.0
29	---	---	---	8.0	6.0	7.0	11.5	7.0	9.0	12.0	7.0	9.5
30	---	---	---	7.0	6.0	6.5	9.5	8.0	9.0	14.5	7.5	11.0
31	---	---	---	8.5	6.0	7.0	---	---	---	16.0	9.0	12.5
MONTH	7.0	.0	3.0	8.5	1.5	6.0	15.0	3.5	9.0	17.0	6.0	11.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	18.0	11.0	14.5	19.5	14.0	16.5	22.0	17.0	19.5	---	---	---
2	18.5	12.0	15.5	22.0	13.0	17.5	25.0	15.5	20.0	---	---	---
3	18.5	12.5	15.5	23.0	15.0	19.0	26.5	17.0	21.5	---	---	---
4	19.5	12.5	16.0	21.5	16.0	18.5	26.5	17.0	21.5	---	---	---
5	20.5	13.5	17.0	23.5	14.5	19.0	28.0	19.5	23.5	---	---	---
6	20.0	13.5	17.0	24.5	15.5	20.0	28.5	19.0	23.5	---	---	---
7	20.0	13.0	16.5	24.5	17.0	20.5	29.0	20.0	24.0	---	---	---
8	20.0	12.5	16.0	23.0	16.0	19.5	27.0	21.0	---	---	---	---
9	19.5	12.5	16.0	21.0	15.5	18.0	25.5	18.5	22.0	---	---	---
10	20.0	12.5	16.5	23.5	15.0	19.0	25.5	18.0	21.5	---	---	---
11	21.0	13.5	17.5	26.0	17.5	21.5	26.5	18.0	21.5	---	---	---
12	21.0	14.5	17.5	26.0	18.0	21.5	26.5	18.5	22.0	---	---	---
13	19.5	15.5	17.5	25.5	18.0	21.0	27.0	17.5	21.5	---	---	---
14	19.0	15.5	17.5	24.5	18.0	21.0	25.5	17.5	21.5	---	---	---
15	17.0	14.0	15.5	20.0	18.5	19.5	26.0	17.0	21.0	---	---	---
16	18.5	12.0	15.5	24.0	17.5	20.5	24.5	16.0	20.0	---	---	---
17	20.0	13.0	16.5	27.0	18.5	22.5	25.5	16.5	20.5	---	---	---
18	21.0	13.5	17.0	27.0	19.5	23.0	25.5	17.0	20.5	---	---	---
19	17.5	13.0	15.5	25.5	18.5	21.5	26.0	18.0	21.5	---	---	---
20	20.0	12.5	16.0	25.5	17.0	20.5	26.5	18.5	22.0	20.5	---	---
21	21.0	12.5	17.0	26.5	17.0	21.5	25.0	18.0	21.5	21.5	13.5	17.0
22	22.0	14.0	18.0	25.5	18.0	21.5	23.0	19.5	21.0	21.5	13.5	17.0
23	23.0	15.0	19.0	27.5	18.5	22.5	21.0	17.0	19.0	21.5	14.0	17.5
24	23.5	15.5	19.5	28.0	19.0	23.0	21.5	15.0	18.0	19.5	15.5	17.5
25	24.5	16.5	20.5	27.5	19.5	22.5	22.5	14.5	18.5	19.5	14.0	16.5
26	23.5	17.0	20.0	26.5	17.5	21.5	24.5	16.0	19.5	19.5	15.0	17.0
27	20.5	15.0	18.0	27.0	17.0	21.5	24.5	16.5	20.0	20.5	15.5	17.5
28	17.0	14.5	16.0	27.0	18.0	22.0	24.5	16.5	20.0	19.5	10.5	16.5
29	15.5	14.0	15.0	26.0	18.0	21.5	24.0	17.5	20.0	19.5	16.5	17.5
30	20.5	13.5	17.0	23.5	18.5	20.5	---	---	---	16.5	15.0	16.0
31	---	---	---	21.0	15.5	18.5	---	---	---	---	---	---
MONTH	24.5	11.0	17.0	28.0	13.0	20.5	---	---	---	---	---	---

UPPER ROGUE RIVER BASIN

14337870 WEST BRANCH ELK CREEK NEAR TRAIL, OR

LOCATION.--Lat 42°42'40", long 122°44'55", in SW 1/4 sec.7, T.33 S., R.1 E., Jackson County, Hydrologic Unit 17100307, on Bureau of Land Management land, on left bank 300 ft upstream from Spot Creek and 5.3 mi northeast of Trail.

DRAINAGE AREA.--14.2 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1973 to September 1976, October 1977 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,773.24 ft above National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark).

REMARKS.--Records good. No regulation or diversions upstream from station.

AVERAGE DISCHARGE.--15 years, 21.7 ft³/s, 20.75 in/yr, 15,720 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,410 ft³/s Jan. 15, 1974, gage height, 5.30 ft, from rating curve extended above 600 ft³/s on basis of slope-area measurement of peak flow; minimum, 0.26 ft³/s Sept. 16, 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	1730	413	2.94	Jan. 10	0300	(a)	*3.57
Jan. 10	0300	*493	3.17				

Minimum discharge, 0.62 ft³/s several days in October and November.

(a) From crest-stage gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.77	.71	17	12	60	21	63	29	5.8	1.8	1.3	1.5
2	.75	2.2	16	13	40	22	68	22	4.9	1.6	1.3	1.4
3	.72	3.7	13	34	27	17	81	18	4.4	1.5	1.3	1.3
4	.78	1.9	9.8	59	20	16	67	14	4.1	1.5	1.2	1.2
5	1.0	1.4	7.6	83	e14	98	54	13	3.6	1.5	1.1	1.2
6	1.0	3.4	6.8	51	e10	157	43	11	3.4	1.3	.93	1.2
7	.92	2.1	6.6	31	e9.1	105	36	9.7	3.2	1.2	.89	1.1
8	.83	2.3	5.3	24	e10	77	29	8.5	3.1	1.3	2.8	1.1
9	.77	2.0	4.4	92	9.3	112	25	13	3.0	1.3	3.4	1.1
10	.70	4.4	3.9	253	9.0	125	21	12	2.9	1.4	1.8	.97
11	.69	3.2	3.7	82	7.5	97	18	11	2.8	1.2	1.6	1.0
12	.68	4.1	3.3	44	7.5	76	15	9.5	2.5	1.1	1.4	.98
13	.70	5.2	2.8	34	7.5	66	14	8.6	2.4	1.1	1.3	.96
14	.80	5.8	2.6	26	7.5	53	13	8.2	2.6	1.1	1.2	.93
15	.79	7.5	2.5	22	6.8	50	11	7.3	2.8	1.2	1.2	.98
16	.71	16	2.3	22	7.7	65	11	6.2	2.8	1.2	1.2	1.0
17	.72	28	2.3	37	21	65	9.7	5.8	2.4	1.5	1.2	1.9
18	.73	12	2.2	52	57	84	9.0	5.9	2.2	1.2	1.2	2.2
19	.73	6.7	2.4	56	78	107	8.5	5.6	2.2	1.0	1.2	1.7
20	.73	8.5	3.1	80	59	78	7.8	5.0	2.2	1.1	1.0	1.4
21	.67	27	5.1	89	57	88	8.7	4.6	2.0	1.1	1.0	1.3
22	.69	244	6.4	99	106	90	9.7	4.8	1.9	1.1	1.3	1.1
23	.76	108	6.6	61	102	68	10	7.0	1.9	1.0	1.6	.95
24	.82	33	6.6	41	63	53	13	7.5	1.7	.92	1.4	.93
25	.73	25	6.0	28	45	48	40	6.5	1.6	.95	1.2	1.0
26	.67	32	4.8	22	33	40	62	5.8	1.6	.95	1.1	1.1
27	.65	31	4.3	28	28	42	87	6.0	1.6	1.0	1.1	1.5
28	.69	72	4.3	32	24	69	86	7.3	1.7	1.0	1.0	1.4
29	.66	39	4.3	32	---	73	59	10	2.0	.97	1.6	1.5
30	.67	22	10	58	---	60	41	9.0	2.2	1.0	2.8	2.0
31	.67	---	17	79	---	63	---	7.3	---	1.0	1.9	---
TOTAL	23.20	754.11	193.0	1676	925.9	2185	1020.4	299.1	81.5	37.09	44.52	37.90
MEAN	.75	25.1	6.23	54.1	33.1	70.5	34.0	9.65	2.72	1.20	1.44	1.26
MAX	1.0	244	17	253	106	157	87	29	5.8	1.8	3.4	2.2
MIN	.65	.71	2.2	12	6.8	16	7.8	4.6	1.6	.92	.89	.93
AC-FT	46	1500	383	3320	1840	4330	2020	593	162	74	88	75
CFSM	.05	1.77	.44	3.81	2.33	4.96	2.40	.68	.19	.08	.10	.09
IN.	.06	1.98	.51	4.39	2.43	5.72	2.67	.78	.21	.10	.12	.10

CAL YR 1988 TOTAL 3396.26 MEAN 9.28 MAX 244 MIN .50 AC-FT 6740 CFSM .65 IN. 8.90
WTR YR 1989 TOTAL 7277.72 MEAN 19.9 MAX 253 MIN .65 AC-FT 14440 CFSM 1.40 IN. 19.07

e Estimated

UPPER ROGUE RIVER BASIN
14337870 WEST BRANCH ELK CREEK NEAR TRAIL, OR--Continued
WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: August 1977 to current year.

INSTRUMENTATION.--Temperature recorder since August 1977.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 25.5°C Aug. 8, 1978; minimum, 0.0°C at times during most winter periods.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 21.0°C Aug. 7; minimum, 0.0°C Dec. 16-18, 21, 27, Feb. 4-9.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	16.5	11.5	13.5	9.0	7.0	8.0	5.0	3.5	4.5	3.5	3.0	3.5
2	16.0	11.5	13.5	9.5	9.0	9.0	6.0	5.0	5.5	4.5	3.0	4.0
3	16.0	11.0	13.0	10.0	9.5	9.5	5.5	4.5	5.0	4.5	4.0	4.0
4	14.0	11.0	12.5	10.5	9.0	10.0	4.5	3.5	4.0	5.0	4.0	4.5
5	15.5	12.5	13.5	10.5	9.0	10.0	6.0	4.0	5.0	5.0	4.5	4.5
6	15.0	11.0	13.0	9.5	7.0	9.0	7.5	6.0	6.5	4.5	4.0	4.0
7	15.5	11.5	13.0	7.5	6.0	7.0	6.5	5.5	6.0	4.0	3.5	3.5
8	16.0	11.5	13.5	8.0	6.0	7.0	5.5	4.0	4.5	3.5	2.0	3.0
9	15.0	11.0	12.5	7.0	5.0	6.0	5.5	3.5	4.5	5.0	3.0	4.0
10	15.0	10.5	12.5	8.0	7.0	7.5	6.0	4.0	5.0	6.0	4.5	5.5
11	15.0	11.0	12.5	8.0	6.5	7.5	5.0	3.5	4.5	5.5	4.5	5.0
12	14.0	10.5	12.0	8.0	7.0	7.5	5.5	4.0	4.5	4.5	3.5	4.0
13	12.5	11.0	12.0	7.0	6.0	7.0	5.5	3.5	5.0	4.0	2.5	3.5
14	14.0	10.0	11.5	7.0	5.5	6.5	3.5	1.5	3.0	4.0	3.5	3.5
15	14.5	11.0	12.0	7.0	6.0	6.5	1.5	.5	1.0	4.0	3.5	4.0
16	14.0	10.0	12.0	7.0	6.0	6.5	1.5	.0	1.0	5.0	4.0	4.5
17	14.0	10.0	12.0	6.0	5.5	6.0	1.5	.0	.5	5.0	4.5	5.0
18	13.5	10.0	12.0	6.0	5.0	5.5	1.5	.0	.5	5.0	4.0	4.5
19	13.5	10.0	11.5	5.5	4.0	5.0	3.0	1.5	2.5	5.0	4.0	4.5
20	13.0	9.5	11.0	6.5	5.0	5.5	2.5	1.0	1.5	6.0	4.5	5.0
21	12.5	8.5	10.5	7.0	4.5	6.0	2.0	.0	1.0	5.5	5.0	5.0
22	12.5	9.0	10.5	8.5	7.0	8.0	2.0	1.0	1.5	5.5	4.5	5.0
23	11.5	8.0	9.5	8.0	6.0	7.0	3.5	2.5	3.0	4.0	3.0	3.5
24	11.0	8.0	9.5	6.5	4.5	6.0	3.5	2.5	3.0	4.5	3.5	4.0
25	11.0	8.0	9.5	5.5	4.0	5.0	3.5	2.0	3.0	4.0	3.0	3.5
26	11.0	7.5	9.0	6.5	5.5	6.0	2.0	1.0	1.5	4.0	3.0	3.5
27	9.5	7.5	8.5	6.5	5.5	6.0	2.0	.0	1.0	4.5	3.0	4.0
28	9.5	7.0	8.0	7.0	5.5	6.5	3.0	1.5	2.5	4.5	3.5	4.0
29	10.5	8.0	9.0	5.5	4.5	5.5	2.5	2.0	2.5	5.0	3.5	4.0
30	10.0	7.0	8.5	4.5	4.0	4.5	3.5	2.5	3.0	5.5	4.0	5.0
31	9.0	6.5	8.0	---	---	---	4.0	3.5	3.5	6.5	5.0	5.5
MONTH	16.5	6.5	11.5	10.5	4.0	7.0	7.5	.0	3.0	6.5	2.0	4.0

14337870 WEST BRANCH ELK CREEK NEAR TRAIL, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	5.0	3.0	4.0	5.0	3.0	4.0	7.0	6.0	6.5	11.5	7.5	9.5
2	3.0	2.5	2.5	4.5	2.0	3.0	7.0	6.0	6.5	11.5	8.5	10.0
3	3.0	1.5	2.0	4.5	1.5	3.0	7.5	6.0	6.5	11.0	9.5	10.5
4	1.0	.0	.5	4.0	2.5	3.5	10.0	6.5	8.0	14.5	10.0	12.0
5	.0	.0	.0	5.5	3.5	4.5	11.0	7.0	8.5	16.0	11.0	13.0
6	.0	.0	.0	7.0	5.5	6.0	12.0	7.5	9.5	15.0	12.5	13.5
7	.0	.0	.0	7.0	6.0	6.5	13.0	8.0	10.0	16.5	12.0	14.0
8	.0	.0	.0	7.0	5.5	6.5	13.5	8.5	10.5	16.5	11.5	13.5
9	.5	.0	.0	7.5	6.0	6.5	13.5	8.0	10.5	13.0	10.5	11.5
10	2.5	1.0	1.5	8.0	6.0	7.0	12.5	8.0	10.0	11.5	9.0	10.0
11	3.0	2.0	2.5	8.0	6.5	7.5	14.0	7.5	10.5	11.0	8.0	9.0
12	3.5	2.0	2.5	7.5	6.5	7.0	14.5	8.0	11.0	10.5	7.0	9.0
13	3.5	2.0	2.5	6.5	5.0	6.0	14.5	9.0	11.5	12.0	8.0	10.0
14	3.5	1.5	2.0	6.5	5.0	6.0	14.0	10.5	12.0	12.5	8.0	10.0
15	3.0	1.0	2.0	8.5	5.5	7.0	15.5	10.0	12.5	13.5	8.5	11.0
16	2.5	2.0	2.5	7.0	5.5	6.0	15.5	9.5	12.0	14.5	9.0	11.5
17	4.0	2.5	3.5	7.0	5.5	6.0	15.0	9.5	12.0	14.0	9.0	11.0
18	5.5	4.0	4.5	7.5	6.5	7.0	16.0	10.5	13.0	10.0	7.5	9.0
19	6.0	4.5	5.0	8.0	6.0	6.5	16.5	11.5	13.5	12.5	6.0	9.0
20	6.5	5.0	5.5	7.5	5.0	6.5	14.5	11.0	12.5	13.5	7.5	10.5
21	6.5	5.0	5.5	9.0	6.5	7.5	11.0	8.5	10.0	12.5	9.5	11.0
22	6.0	5.0	5.5	8.0	6.0	7.0	10.0	7.5	8.5	12.5	8.5	10.5
23	6.5	5.0	5.5	8.0	5.5	7.0	9.5	7.0	8.0	9.0	8.0	8.5
24	6.5	4.5	5.5	9.0	7.0	8.0	9.0	6.5	8.0	9.5	7.5	8.5
25	6.0	4.0	5.0	8.5	6.0	7.5	7.5	3.5	5.5	11.5	8.0	9.5
26	6.0	3.5	4.5	6.5	4.5	5.5	8.5	6.0	7.0	12.0	7.0	9.5
27	5.5	3.0	4.0	7.5	5.5	6.5	10.0	6.5	8.0	12.0	9.0	10.5
28	5.5	3.0	4.0	8.5	6.5	7.5	10.5	7.0	8.5	10.5	8.0	9.0
29	---	---	---	7.5	6.0	7.0	11.0	7.5	9.5	10.0	7.0	8.5
30	---	---	---	7.5	6.0	7.0	10.0	9.0	9.5	13.0	7.5	10.0
31	---	---	---	8.5	6.0	7.0	---	---	---	14.5	8.5	11.5
MONTH	6.5	.0	3.0	9.0	1.5	6.0	16.5	3.5	9.5	16.5	6.0	10.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	16.5	10.5	13.0	14.5	11.0	12.5	15.0	11.5	13.5	15.5	11.5	13.5
2	17.0	11.5	14.0	17.0	10.0	13.5	15.5	13.0	14.5	15.0	10.5	13.0
3	17.0	12.0	14.5	18.0	11.5	14.5	17.5	11.5	15.0	15.5	10.5	13.5
4	17.0	12.0	14.5	17.0	12.0	14.5	18.5	12.5	15.5	16.5	11.5	14.0
5	18.5	12.5	15.0	18.0	11.5	14.5	19.5	13.5	16.5	16.5	11.5	14.0
6	18.0	12.0	14.5	19.0	12.0	15.5	20.5	14.5	17.5	15.5	11.0	13.5
7	18.0	11.0	14.0	19.0	12.5	15.5	21.0	15.5	18.0	15.5	10.5	13.0
8	17.5	11.0	14.0	17.5	12.0	15.0	20.5	16.5	18.0	16.0	11.0	13.5
9	17.0	11.0	13.5	16.5	12.0	14.0	20.0	15.5	17.5	16.5	11.5	14.0
10	17.5	10.5	13.5	17.5	11.5	14.0	19.5	14.5	17.0	17.0	12.0	14.5
11	18.5	11.5	14.5	18.5	11.5	15.0	19.0	14.0	16.5	16.5	11.5	14.0
12	18.0	12.5	15.0	19.5	13.0	16.5	19.0	14.5	17.0	16.0	11.0	13.5
13	16.5	13.0	15.0	19.5	13.5	16.5	18.5	13.5	16.0	16.0	10.5	13.0
14	17.0	14.0	15.0	19.0	13.5	16.0	18.0	13.5	16.0	16.0	10.5	13.5
15	15.0	12.5	14.0	19.0	14.0	16.0	18.0	13.0	15.5	16.5	11.5	14.0
16	16.0	11.0	13.0	16.0	14.5	15.0	17.5	12.5	15.0	14.5	12.0	13.5
17	17.0	11.0	13.5	18.5	14.5	16.0	18.0	13.0	15.5	13.5	11.5	13.0
18	17.5	11.0	14.0	20.5	14.5	17.5	18.0	13.0	15.5	13.5	10.0	12.0
19	14.5	10.5	12.5	20.5	15.0	17.5	19.0	14.0	16.5	14.0	9.5	12.0
20	16.0	10.5	13.0	19.5	14.5	16.5	19.5	14.5	17.0	14.0	10.0	12.0
21	17.0	10.0	13.5	18.5	13.0	15.5	18.5	14.0	16.0	14.5	10.0	12.5
22	18.0	11.0	14.0	19.5	13.0	16.0	18.0	15.5	16.5	15.5	10.5	13.0
23	19.0	12.0	15.0	19.0	14.0	16.5	16.0	14.0	14.5	15.5	11.0	13.5
24	19.5	13.0	16.0	20.0	14.5	17.5	16.5	12.0	14.5	15.0	12.5	13.5
25	20.0	13.5	16.5	20.5	14.5	17.5	16.0	11.5	14.0	15.0	11.5	13.0
26	19.0	13.5	16.0	20.0	15.0	17.5	17.5	12.5	15.0	14.5	12.5	13.5
27	16.5	12.0	14.0	19.0	13.5	16.0	18.0	13.0	15.5	15.0	12.5	13.5
28	14.0	12.0	13.0	19.0	13.0	16.0	17.5	13.0	15.5	14.0	11.0	13.0
29	13.5	12.0	13.0	19.0	14.0	16.5	18.0	13.5	15.5	15.0	13.0	13.5
30	16.5	11.5	13.5	18.5	14.5	16.0	15.0	13.0	14.0	13.0	12.5	12.5
31	---	---	---	17.0	13.5	15.0	15.5	11.0	13.5	---	---	---
MONTH	20.0	10.0	14.0	20.5	10.0	15.5	21.0	11.0	15.5	17.0	9.5	13.5
YEAR	21.0	.0	9.5									

UPPER ROGUE RIVER BASIN

273

14338000 ELK CREEK NEAR TRAIL, OR

LOCATION (REVISED).--Lat 42°40'30", long 122°44'38", in NE 1/4 sec.30, T.33 S., R.1 E., Jackson County, Hydrologic Unit 17100307, on right bank 3.7 mi northeast of Trail and at mile 1.2.

DRAINAGE AREA.--129 mi², revised.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1945 to current year. Prior to March 1946 monthly discharge only, published in WSP 1318.

GAGE.--Water-stage recorder. Datum of gage is 1,493.91 ft (revised) above National Geodetic Vertical Datum of 1929. Prior to July 5, 1946, nonrecording gage at various sites within 1.0 mi of present site at different datums. July 5, 1946, to June 22, 1950, nonrecording gage, and June 23, 1950, to May 23, 1954, water-stage recorder, at site 0.5 mi downstream at datum 25.21 ft lower, May 24, 1954, to Sept. 30, 1988 at site 0.8 mi downstream at datum 37.35 ft lower.

REMARKS.--Water-discharge records good. Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--44 years, 227 ft³/s, 164,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,200 ft³/s Dec. 22, 1964, gage height, 18.84 ft, from rating curve extended above 4,700 ft³/s on basis of slope-area measurement of peak flow, site and datum then in use; minimum discharge, 0.01 ft³/s Oct. 8, 1987, result of dam construction 1.3 mi upstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,700 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	2030	3,680	8.77	Jan. 10	0530	*4,280	*9.27

Minimum discharge, 2.2 ft³/s Sept. 13, 15, 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	3.2	241	182	710	270	641	e370	94	18	7.0	8.0
2	3.0	3.3	227	194	494	290	673	e350	83	19	7.2	8.0
3	2.8	9.3	200	379	361	256	720	e250	76	17	8.1	5.8
4	2.8	18	170	447	279	240	615	211	69	15	7.0	5.4
5	3.0	12	147	615	e260	719	534	195	64	15	5.6	5.1
6	3.3	21	143	447	e230	1540	500	185	58	15	4.8	4.8
7	3.6	23	146	303	e190	1090	488	171	53	14	4.7	4.2
8	3.6	17	124	246	161	798	465	160	49	14	4.5	3.8
9	3.6	16	106	760	142	1250	433	189	47	14	18	3.7
10	3.3	24	104	2700	130	1590	394	190	44	14	14	3.5
11	3.1	32	103	1070	123	1220	339	162	42	14	9.5	4.6
12	3.1	33	94	617	121	953	308	143	39	12	8.3	3.9
13	3.1	49	87	451	118	815	286	130	37	11	7.4	2.5
14	3.1	63	78	339	115	635	275	120	36	9.6	6.4	2.3
15	3.1	64	71	281	111	604	252	110	39	10	6.4	2.3
16	3.1	112	67	289	129	696	233	102	39	11	6.5	2.4
17	3.2	348	58	392	328	641	215	94	35	16	6.4	5.1
18	3.2	171	54	507	657	789	200	92	32	15	5.8	8.6
19	3.2	96	54	511	852	1040	194	87	30	10	5.6	7.8
20	3.2	96	69	633	645	759	180	80	29	9.2	6.3	5.8
21	3.2	230	97	705	605	1530	172	75	27	9.5	6.2	5.2
22	3.1	2130	127	879	955	1320	169	71	26	8.9	6.8	4.6
23	3.5	1420	125	615	1110	877	162	92	25	7.8	8.9	4.0
24	4.0	492	124	439	734	669	180	100	23	8.3	13	3.6
25	3.7	370	115	326	525	660	403	100	20	7.5	8.9	3.4
26	3.2	465	98	268	413	551	627	95	20	6.2	7.3	2.9
27	3.3	428	95	288	346	543	710	94	20	6.1	6.0	4.8
28	3.3	846	86	315	296	831	650	108	20	6.6	5.5	5.8
29	3.4	507	82	320	---	904	542	128	22	5.9	6.5	6.6
30	3.4	306	158	501	---	690	e450	121	21	5.4	10	9.6
31	3.4	---	230	744	---	719	---	106	---	6.0	9.4	---
TOTAL	101.2	8404.8	3680	16763	11140	25489	12010	4481	1219	351.0	238.0	148.1
MEAN	3.26	280	119	541	398	822	400	145	40.6	11.3	7.68	4.94
MAX	4.0	2130	241	2700	1110	1590	720	370	94	19	18	9.6
MIN	2.8	3.2	54	182	111	240	162	71	20	5.4	4.5	2.3
AC-FT	201	16670	7300	33250	22100	50560	23820	8890	2420	696	472	294

CAL YR 1988 TOTAL 44754.0 MEAN 122 MAX 2130 MIN 1.0 AC-FT 88770
WTR YR 1989 TOTAL 84025.1 MEAN 230 MAX 2700 MIN 2.3 AC-FT 166700

e Estimated

UPPER ROGUE RIVER BASIN
14338000 ELK CREEK NEAR TRAIL, OR--Continued
WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1973 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: June 1973 to current year.

INSTRUMENTATION.--Temperature recorder since June 1973.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 31.5°C July 17, 1979; minimum, 0.0°C at times during most winter periods.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 26.5°C Aug. 7; minimum, 0.0°C Feb 4-9.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	19.0	16.0	18.0	11.0	9.5	10.5	5.5	4.0	4.5	4.5	3.5	4.0
2	20.0	16.5	18.0	10.5	10.0	10.0	6.0	5.0	5.5	5.0	3.5	4.5
3	19.0	16.0	17.5	10.5	10.0	10.5	6.0	4.5	5.5	5.5	4.0	4.5
4	18.0	16.0	17.0	11.5	10.5	11.0	5.0	4.0	4.5	5.5	4.5	5.0
5	18.5	16.5	17.0	11.5	11.0	11.5	6.0	4.0	5.0	5.5	4.5	5.0
6	18.5	16.0	17.5	11.5	10.5	11.0	7.5	6.0	7.0	4.5	4.0	4.5
7	19.0	16.0	17.5	10.0	8.5	9.5	7.5	6.5	7.0	4.5	4.0	4.0
8	19.0	16.0	17.5	9.5	8.5	9.0	6.5	5.0	6.0	4.0	3.0	3.5
9	19.0	16.0	17.5	8.5	8.0	8.0	5.5	4.5	5.0	4.5	2.5	3.5
10	18.0	15.0	16.5	8.5	8.0	8.5	6.0	5.0	5.5	5.5	3.5	5.0
11	18.0	15.0	16.5	9.0	8.0	8.5	5.5	4.5	5.0	5.5	4.5	5.0
12	17.5	15.0	16.0	9.0	8.5	9.0	5.0	4.5	4.5	4.5	3.5	4.0
13	16.0	14.5	15.5	8.5	7.5	8.0	6.0	5.0	5.5	3.5	2.5	3.5
14	16.5	14.0	15.0	8.0	7.0	7.5	5.0	3.0	4.0	4.0	3.5	3.5
15	17.0	14.5	15.5	8.0	7.5	7.5	3.0	1.5	2.0	4.0	3.5	4.0
16	17.5	14.0	15.5	8.0	7.0	7.5	2.0	.5	1.5	5.5	4.0	4.5
17	17.5	14.0	15.5	7.0	6.0	6.5	1.5	.5	1.0	6.0	4.5	5.0
18	17.5	14.0	15.5	7.0	6.0	6.0	1.5	.5	1.0	5.0	3.5	4.5
19	17.5	14.0	15.5	6.5	5.5	6.0	3.0	1.5	2.5	5.0	3.5	4.0
20	17.5	13.0	15.0	7.5	6.0	6.5	3.0	2.0	2.5	5.5	3.5	4.5
21	16.5	12.5	14.5	7.0	5.5	6.5	2.0	1.0	1.5	5.5	4.5	5.0
22	17.0	13.0	14.5	8.5	7.0	7.5	2.0	1.0	1.5	5.5	4.5	5.0
23	15.0	12.0	13.5	8.0	7.0	7.5	3.5	2.0	3.0	4.0	2.5	3.5
24	14.5	12.0	13.0	7.0	6.0	6.5	3.5	3.0	3.5	4.5	3.0	3.5
25	14.5	11.5	13.0	6.0	5.0	5.5	4.0	3.0	3.5	4.5	3.0	3.5
26	14.0	11.0	12.5	7.5	6.0	6.5	3.0	2.0	2.5	4.5	2.5	3.5
27	13.0	11.0	11.5	7.0	6.0	6.5	2.0	1.0	1.5	4.5	2.5	3.5
28	13.0	10.0	11.0	7.5	6.5	7.0	3.5	2.0	3.0	5.0	3.0	4.0
29	13.5	10.5	11.5	6.5	5.0	6.0	3.5	3.0	3.5	5.0	3.0	4.0
30	14.0	10.0	11.5	5.5	4.0	5.0	4.0	3.0	3.5	6.0	3.5	4.5
31	13.0	9.5	11.0	---	---	---	4.5	3.5	4.0	6.5	4.5	5.5
MONTH	20.0	9.5	15.0	11.5	4.0	8.0	7.5	.5	3.5	6.5	2.5	4.0

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	5.5	3.5	4.5	5.0	3.5	4.5	7.0	6.0	6.5	12.0	8.0	10.0
2	3.5	2.5	3.0	4.5	2.5	3.5	7.0	6.5	6.5	12.0	8.0	10.0
3	3.5	2.0	2.5	5.0	2.0	3.5	8.0	6.0	7.0	11.0	9.5	10.5
4	2.0	.0	1.0	4.5	3.0	3.5	11.0	6.5	8.5	15.0	10.0	12.0
5	.0	.0	.0	5.5	4.0	5.0	11.5	7.0	9.0	16.5	11.5	14.0
6	.0	.0	.0	7.5	5.5	6.5	12.0	7.0	9.5	16.5	13.0	14.5
7	.0	.0	.0	7.5	6.0	6.5	12.5	7.5	10.0	17.0	12.5	14.5
8	.0	.0	.0	7.0	6.0	6.5	12.5	8.0	10.0	16.5	12.5	14.5
9	1.0	.0	.5	7.5	6.0	7.0	12.0	7.5	10.0	15.0	11.0	12.5
10	2.5	.5	1.5	8.0	6.0	7.0	11.5	7.5	9.5	12.0	9.5	11.0
11	4.5	2.5	3.5	8.5	6.5	7.5	12.5	7.0	9.5	12.0	9.0	10.5
12	4.0	2.5	3.5	7.5	6.0	7.0	12.5	8.0	10.5	10.5	7.5	9.5
13	4.0	2.5	3.5	7.0	5.5	6.5	13.0	8.5	10.5	13.5	8.5	11.0
14	4.5	2.0	3.0	7.0	5.0	6.0	12.0	9.5	11.0	13.0	9.5	11.5
15	4.0	2.0	3.0	9.0	5.5	7.0	14.0	9.5	11.5	14.5	9.5	12.0
16	4.0	3.0	3.5	7.5	6.0	6.5	13.5	9.0	11.5	15.5	11.0	13.5
17	4.5	3.0	3.5	6.5	5.5	6.0	13.5	9.5	11.5	14.5	11.5	13.5
18	5.5	4.5	5.0	7.5	6.0	7.0	15.0	10.0	12.5	13.0	10.0	11.5
19	6.5	5.0	5.5	8.5	6.0	7.0	15.5	11.0	13.5	13.5	8.0	10.5
20	7.5	5.0	6.0	8.0	5.0	6.5	14.0	11.0	12.5	15.0	10.5	12.5
21	7.0	5.0	6.0	8.5	7.0	7.5	11.5	9.0	10.0	15.0	12.5	13.5
22	6.0	5.0	5.5	8.5	6.0	7.0	9.5	7.5	8.5	14.0	11.5	13.0
23	7.0	5.0	6.0	8.0	5.5	7.0	9.0	7.0	8.0	13.0	9.5	11.0
24	7.0	5.0	5.5	8.5	7.0	7.5	9.0	7.0	8.0	11.5	8.5	10.0
25	6.5	4.0	5.0	8.5	6.5	7.5	8.5	4.0	5.5	13.5	10.0	11.5
26	6.5	3.5	5.0	6.5	4.5	5.5	9.5	5.5	7.0	13.5	9.5	11.5
27	6.0	3.0	4.5	7.5	5.5	6.5	11.0	6.0	8.0	14.0	11.5	12.5
28	6.0	3.0	4.5	8.5	6.5	7.5	11.5	6.5	9.0	12.5	10.0	11.5
29	---	---	---	8.5	6.5	7.0	12.0	7.5	9.5	12.0	8.5	10.5
30	---	---	---	7.5	6.0	7.0	10.5	8.5	9.5	14.5	9.0	11.5
31	---	---	---	9.0	6.5	7.5	---	---	---	16.5	10.5	13.5
MONTH	7.5	.0	3.5	9.0	2.0	6.5	15.5	4.0	9.5	17.0	7.5	12.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	18.0	13.0	15.5	19.0	17.0	18.0	21.0	19.0	20.0	20.5	18.0	19.0
2	18.5	15.0	17.0	20.5	16.5	18.5	21.0	19.0	20.0	21.0	17.0	18.5
3	18.0	15.0	17.0	22.0	18.0	19.5	23.0	18.5	20.5	21.5	17.0	19.0
4	19.5	15.5	17.5	21.5	18.5	20.0	24.0	19.0	21.5	21.5	17.5	19.5
5	20.5	16.5	18.5	22.5	18.5	20.5	24.5	20.0	22.0	21.5	17.5	19.0
6	20.0	16.5	18.5	23.0	19.0	21.0	25.5	21.0	23.0	20.0	17.0	18.5
7	20.0	16.0	18.0	23.5	20.0	21.5	26.5	21.5	23.5	20.5	16.5	18.5
8	19.5	16.0	18.0	22.5	19.5	21.0	25.0	22.5	23.5	21.0	16.5	19.0
9	19.5	16.0	18.0	21.0	19.0	20.0	25.0	21.0	22.5	21.5	17.0	19.5
10	20.0	16.0	18.0	22.0	18.0	20.0	24.5	21.5	23.0	21.0	17.5	19.5
11	21.0	17.0	19.0	23.0	18.5	20.5	25.0	21.0	22.5	21.5	17.0	19.5
12	21.0	18.0	19.5	24.5	20.0	22.0	24.5	21.0	22.5	20.5	16.5	18.5
13	20.0	18.5	19.0	24.5	20.5	22.5	24.5	20.5	22.5	20.5	16.0	18.5
14	19.5	18.0	19.0	24.5	20.5	22.5	24.0	20.5	22.0	20.0	16.0	18.5
15	19.0	16.5	18.0	24.0	21.0	22.5	24.0	20.0	21.5	21.0	16.5	19.0
16	19.0	15.0	16.5	22.0	20.0	21.0	23.5	19.5	21.5	18.5	17.0	18.0
17	19.5	16.0	17.5	23.5	19.5	21.5	23.5	19.5	21.5	17.5	15.5	16.5
18	20.5	17.0	18.5	25.0	21.0	23.0	24.0	19.5	21.5	18.0	15.0	16.5
19	19.0	17.0	18.0	26.0	22.0	23.5	24.0	20.0	22.0	18.5	15.0	16.5
20	19.5	16.0	17.5	25.0	21.5	23.0	24.5	20.5	22.5	18.5	15.0	16.5
21	20.0	16.5	18.0	24.5	21.0	22.5	23.0	20.5	22.0	19.0	15.0	17.0
22	21.0	17.5	19.0	24.5	20.5	22.5	22.5	21.0	21.5	19.0	15.5	17.5
23	22.0	18.5	20.0	24.5	21.0	22.5	21.5	19.5	20.5	19.5	15.5	17.5
24	23.0	19.5	21.0	25.5	21.0	23.0	21.5	18.5	20.0	19.0	16.5	18.0
25	23.5	20.0	21.5	25.5	21.5	23.5	22.0	18.0	20.0	18.5	16.0	17.0
26	23.5	20.5	21.5	25.5	21.5	23.5	22.5	18.5	20.5	19.0	16.5	17.5
27	21.0	19.0	20.0	24.5	21.0	22.5	23.0	19.0	21.0	19.0	16.5	17.5
28	19.0	17.5	18.0	24.5	20.5	22.5	22.5	19.0	21.0	18.5	16.0	17.5
29	17.5	16.0	16.5	24.5	21.0	22.5	22.0	19.0	20.5	19.0	17.0	18.0
30	19.5	15.5	17.5	23.5	21.0	22.0	20.5	18.5	19.0	17.5	16.0	17.0
31	---	---	---	22.5	20.5	21.5	21.0	17.5	19.0	---	---	---
MONTH	23.5	13.0	18.5	26.0	16.5	21.5	26.5	17.5	21.5	21.5	15.0	18.0
YEAR	26.5	.0	12.0									

ROGUE RIVER BASIN

14338100 ROGUE RIVER AT TRAIL, OR

LOCATION.--Lat 42°38'51", long 122°48'18", in NW 1/4 NE 1/4 sec.3, T.34 S., R.1 W., Jackson County, Hydrologic Unit 17100307, on right bank 0.2 mi upstream from Trail Creek, and at mile 148.9.

DRAINAGE AREA.--Not determined.

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: March 1988 to current year.

INSTRUMENTATION.--Water-quality monitor since March 1988.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum recorded, 16.0°C Aug. 9-12, 1988; minimum 2.0 Feb. 5, 6, 1989.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 15.0°C several days in August; minimum, 2.0°C Feb. 5, 6.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	9.5	6.5	7.5	8.0	6.5	7.5	6.5	5.5	6.0	5.0	4.5	5.0
2	9.5	6.5	7.5	7.5	7.5	7.5	6.5	6.0	6.5	5.5	4.5	5.0
3	9.5	6.5	7.5	8.0	7.5	8.0	6.5	6.0	6.0	5.5	5.0	5.0
4	8.5	6.5	7.5	8.5	7.5	8.0	6.5	5.5	6.0	5.5	5.0	5.5
5	9.5	7.0	8.0	8.5	7.5	8.0	6.5	5.5	6.0	5.0	4.5	5.0
6	9.5	6.5	7.5	8.5	7.0	8.0	7.0	6.5	6.5	5.0	4.5	4.5
7	---	---	---	8.0	7.0	7.5	7.0	6.5	6.5	5.0	4.5	5.0
8	---	---	---	8.5	7.0	7.5	6.5	6.0	6.5	5.0	4.5	4.5
9	---	---	---	8.0	7.0	7.5	6.5	5.5	6.0	5.0	4.0	4.5
10	---	---	---	8.0	7.5	7.5	7.0	6.0	6.0	5.5	4.0	5.0
11	---	---	---	8.5	7.5	8.0	6.5	5.5	6.0	5.5	5.0	5.0
12	---	---	---	8.0	7.5	8.0	6.0	6.0	6.0	5.0	4.5	5.0
13	---	---	---	8.0	7.0	7.5	6.5	6.0	6.0	5.0	4.0	4.5
14	---	---	---	---	---	---	6.5	5.5	6.0	5.0	4.5	5.0
15	---	---	---	---	---	---	6.0	5.0	5.5	5.0	5.0	5.0
16	---	---	---	---	---	---	6.0	5.0	5.5	5.5	4.5	5.0
17	9.0	---	---	---	---	---	6.0	5.0	5.5	6.0	5.0	5.5
18	8.5	6.5	7.0	---	---	---	6.0	5.0	5.5	5.5	4.5	5.0
19	9.0	6.5	7.0	---	---	---	6.5	5.5	6.0	5.0	4.0	4.5
20	8.5	6.0	7.0	---	---	---	5.5	5.5	5.5	5.5	4.0	4.5
21	8.5	6.0	7.0	---	---	---	5.5	4.5	5.0	5.0	4.5	5.0
22	9.0	6.5	7.5	---	---	---	5.0	4.5	5.0	5.5	4.0	4.5
23	8.5	6.0	7.0	---	---	---	5.5	5.0	5.0	4.5	3.5	4.0
24	8.5	6.0	7.0	7.5	6.5	7.0	5.0	4.5	5.0	4.5	3.5	4.0
25	9.0	6.0	7.0	7.0	6.5	7.0	5.5	4.5	5.0	5.0	3.5	4.5
26	8.5	6.0	7.0	7.5	6.5	7.0	5.5	4.5	4.5	5.0	3.5	4.5
27	8.0	6.0	7.0	7.0	6.5	7.0	5.0	4.0	4.5	5.0	3.5	4.5
28	8.0	6.0	7.0	7.5	6.5	7.0	5.5	4.5	5.0	5.0	4.0	4.5
29	8.5	6.5	7.5	6.5	6.0	6.5	5.0	5.0	5.0	5.5	4.0	4.5
30	8.5	6.5	7.5	6.5	6.0	6.0	5.0	4.5	5.0	5.5	4.0	4.5
31	8.5	6.5	7.5	---	---	---	5.0	4.5	5.0	6.0	4.5	5.0
MONTH	---	---	---	---	---	---	7.0	4.0	5.5	6.0	3.5	5.0

UPPER ROGUE RIVER BASIN

277

14338100 ROGUE RIVER AT TRAIL, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	5.0	4.0	4.5	4.5	4.0	4.5	6.0	5.5	6.0	9.5	7.5	8.5
2	4.0	3.5	4.0	4.5	3.0	3.5	6.0	5.5	6.0	9.0	8.0	8.5
3	4.5	3.0	3.5	5.5	2.5	4.0	6.5	5.5	6.0	8.5	8.0	8.5
4	4.0	2.5	3.0	4.5	3.5	4.0	8.0	6.0	7.0	10.0	8.0	9.0
5	3.5	2.0	2.5	5.5	4.5	5.0	8.0	6.5	7.0	10.5	8.0	9.5
6	4.0	2.0	2.5	7.0	5.5	6.0	8.0	6.5	7.5	10.5	9.0	9.5
7	4.0	2.5	3.0	7.0	5.5	6.0	8.0	6.5	7.5	10.5	9.0	10.0
8	4.5	2.5	3.0	6.5	5.5	6.0	8.0	6.5	7.0	10.0	8.5	9.5
9	4.5	3.0	3.5	7.5	6.0	6.5	8.0	6.5	7.0	9.0	8.5	8.5
10	4.5	3.5	4.0	7.0	5.5	6.5	7.5	6.5	7.0	9.0	8.0	8.5
11	5.5	4.0	4.5	7.5	6.0	6.5	8.0	6.5	7.0	9.5	8.0	8.5
12	5.5	4.0	4.5	6.5	5.5	6.0	8.0	6.5	7.0	9.5	7.5	8.5
13	5.0	3.5	4.0	6.0	5.5	6.0	8.0	6.5	7.5	9.5	8.0	8.5
14	5.5	3.5	4.0	6.0	5.0	5.5	7.5	7.0	7.5	10.0	8.0	9.0
15	5.5	3.0	4.0	7.5	5.5	6.5	8.0	6.5	7.5	10.5	8.0	9.0
16	4.5	4.0	4.5	6.5	5.5	6.0	8.5	6.5	7.5	11.5	8.5	10.0
17	5.0	4.0	4.5	5.5	5.0	5.5	8.0	7.0	7.5	11.5	8.0	9.5
18	5.5	4.5	5.0	6.0	5.5	5.5	8.5	7.0	7.5	9.5	8.0	8.5
19	6.0	4.5	5.5	6.5	5.5	6.0	9.0	7.0	8.0	10.0	8.0	9.0
20	6.5	5.0	5.5	6.0	5.0	5.5	8.5	7.5	8.0	10.5	8.0	9.0
21	6.0	5.0	5.5	7.0	6.0	6.5	7.5	7.0	7.5	10.5	8.0	9.0
22	5.5	5.0	5.5	6.5	5.5	6.0	8.0	7.0	7.5	10.5	8.0	9.0
23	6.0	4.5	5.5	6.0	5.0	5.5	8.5	7.0	7.5	9.0	8.0	8.5
24	6.0	4.5	5.0	6.0	5.5	6.0	8.0	7.0	7.5	9.0	8.0	8.5
25	6.0	3.5	4.5	6.5	5.5	6.0	8.0	6.5	7.0	10.5	8.5	9.0
26	6.0	3.5	4.5	6.0	5.0	5.5	8.5	7.0	7.5	10.5	8.0	9.0
27	5.5	3.5	4.5	6.0	5.5	6.0	9.0	7.0	8.0	10.5	8.5	9.0
28	6.0	3.5	4.5	7.0	6.0	6.5	9.5	7.0	8.5	10.0	8.5	9.0
29	---	---	---	7.0	5.5	6.0	9.5	7.5	8.5	10.0	8.5	9.0
30	---	---	---	6.0	6.0	6.0	8.5	8.0	8.5	10.5	8.5	9.5
31	---	---	---	7.0	6.0	6.5	---	---	---	11.0	8.5	9.5
MONTH	6.5	2.0	4.5	7.5	2.5	5.5	9.5	5.5	7.5	11.5	7.5	9.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	11.5	8.5	10.0	11.0	9.0	10.0	13.0	10.5	11.5	13.5	11.0	12.5
2	11.5	9.0	10.0	11.5	8.5	10.0	13.5	11.5	12.5	13.5	11.0	12.0
3	11.5	9.0	10.0	12.0	9.0	10.0	14.5	11.0	12.5	13.5	11.0	12.0
4	11.5	9.0	10.0	12.0	9.0	10.0	14.5	11.5	13.0	13.5	11.5	12.0
5	11.5	9.0	10.5	12.0	9.0	10.5	14.5	11.5	13.0	13.5	11.0	12.0
6	11.5	9.0	10.5	12.0	9.0	10.5	15.0	11.5	13.0	13.5	11.0	12.0
7	11.5	9.0	10.5	12.0	9.0	10.0	15.0	11.5	13.0	13.5	11.0	12.5
8	11.5	9.0	10.5	11.5	9.0	10.0	14.5	12.0	13.0	13.5	10.5	12.0
9	11.5	9.0	10.5	11.5	9.0	10.0	15.0	12.0	13.0	12.5	10.0	11.0
10	12.0	9.0	10.5	11.5	9.0	10.0	15.0	12.0	13.5	12.5	10.5	11.0
11	12.0	9.5	10.5	12.0	9.0	10.0	14.5	12.0	13.0	12.5	10.0	11.5
12	12.0	9.5	10.5	12.0	9.0	10.5	14.5	12.0	13.0	12.0	10.0	11.0
13	11.0	9.0	10.0	12.0	9.0	10.5	15.0	12.0	13.0	12.5	10.0	11.0
14	11.0	9.0	10.0	12.0	9.0	10.5	14.5	12.0	13.0	12.5	10.0	11.0
15	10.5	9.5	10.0	12.5	9.5	11.0	15.0	12.0	13.5	11.5	9.0	10.5
16	11.5	9.0	10.0	12.0	11.0	11.5	15.0	12.0	13.5	10.0	8.5	9.5
17	12.0	9.0	10.5	13.5	11.0	12.0	15.0	12.5	13.5	10.0	9.0	9.5
18	12.0	9.0	10.5	14.0	11.0	12.5	15.0	12.5	13.5	11.0	9.0	10.0
19	11.5	9.0	10.0	14.0	11.0	12.5	15.0	12.5	13.5	11.5	8.0	9.5
20	12.0	9.0	10.5	14.0	10.5	12.0	15.0	12.5	14.0	11.5	8.0	9.5
21	12.0	9.0	10.5	13.0	10.0	11.5	15.0	13.0	13.5	11.5	8.5	9.5
22	12.0	9.5	10.5	13.0	10.5	11.5	14.5	13.0	14.0	12.0	8.5	9.5
23	13.0	9.5	11.0	13.0	10.5	11.5	14.5	13.0	14.0	10.5	8.0	9.0
24	12.5	9.5	11.0	13.5	10.5	12.0	15.0	13.0	14.0	9.5	7.5	8.5
25	12.5	9.5	11.0	13.5	10.5	12.0	15.0	12.0	13.5	10.5	7.5	8.5
26	12.5	9.0	10.5	13.5	10.5	12.0	14.0	11.5	12.5	10.0	8.0	8.5
27	10.5	8.5	9.5	13.0	10.5	11.5	14.0	11.5	13.0	11.0	8.0	9.0
28	10.0	8.5	9.5	13.0	10.5	11.5	14.0	11.5	13.0	10.5	8.0	9.0
29	10.0	9.0	9.5	13.5	10.0	11.5	14.0	12.0	13.0	10.0	8.5	9.0
30	11.5	9.0	10.0	13.0	10.5	11.5	13.5	11.5	12.5	9.5	8.5	9.0
31	---	---	---	12.5	10.5	11.5	14.5	12.0	13.0	---	---	---
MONTH	13.0	8.5	10.5	14.0	8.5	11.0	15.0	10.5	13.0	13.5	7.5	10.5

UPPER ROGUE RIVER BASIN

14339000 ROGUE RIVER AT DODGE BRIDGE, NEAR EAGLE POINT, OR

LOCATION.--Lat 42°31'30", long 122°50'30", in SE 1/4 sec.17, T.35 S., R.1 W., Jackson County, Hydrologic Unit 17100307, on right bank 50 ft upstream from Dodge Bridge, 0.7 mi downstream from Reese Creek, 4.3 mi northwest of Eagle Point, and at mile 138.6.

DRAINAGE AREA.--1,215 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1938 to current year.

REVISED RECORDS.--WSP 1094: 1942(M), 1943, 1945(M), 1946. WSP 1738: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,271.39 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 21, 1938, nonrecording gage, Dec. 21, 1938, to Aug. 15, 1968, water-stage recorder, at datum 2.27 ft higher, Aug. 16, 1968, to Sept. 30, 1976, water-stage recorder, at datum 1.00 ft higher.

REMARKS.--Water-discharge records excellent except those for December through May, which are fair. Flow regulated since February 1977 by Lost Creek Lake (station 14335040). Diversions for irrigation upstream from station; most of low flow of Big Butte Creek (station 14337500) is diverted near Butte Falls.

AVERAGE DISCHARGE.--51 years, 2,595 ft³/s, 1,880,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 87,600 ft³/s Dec. 22, 1964, gage height, 12.78 ft, datum then in use, from rating curve extended above 23,000 ft³/s; minimum discharge, 567 ft³/s Feb. 18, 1977, result of closure of Lost Creek dam, minimum prior to that time, 611 ft³/s Aug. 6, 14, 29, Sept. 9, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14,300 ft³/s Jan. 10, gage height, 7.55 ft; minimum discharge, 1,060 ft³/s Oct. 19, 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1290	1100	2140	1540	2220	1570	5530	3820	2900	2430	2170	2560
2	1330	1110	1880	1510	2230	2060	5430	3770	2870	2430	2150	2550
3	1270	1140	1820	1800	1980	1860	5630	3680	3070	2410	2150	2540
4	1150	1150	1720	1920	1700	1720	4750	3660	3270	2350	2140	2540
5	1150	1140	1610	3020	1570	3690	4360	4160	3240	2360	2130	2530
6	1150	1200	1610	2280	1530	4530	4340	4700	3220	2370	2120	2540
7	1150	1210	1590	1900	1500	3450	4680	4910	3210	2370	2130	2520
8	1150	1150	1580	1830	1620	2880	5070	5150	3050	2370	2160	2530
9	1150	1140	1590	3510	1610	4390	5140	5430	2760	2370	2190	2540
10	1150	1150	1600	9080	1460	4820	5140	5420	2750	2370	2170	2530
11	1140	1180	1590	4300	1130	4100	4790	4830	2740	2360	2280	2480
12	1150	1160	1610	3660	1150	3590	4580	4040	2570	2360	2530	2360
13	1150	1210	1570	3270	1130	3540	4630	3640	2410	2360	2530	2230
14	1150	1220	1550	3000	1100	3070	4670	3430	2420	2320	2520	2100
15	1150	1210	1520	2670	1080	2890	4710	3190	2450	2260	2530	1980
16	1150	1290	1370	2090	1120	3230	4630	2680	2770	2240	2530	1820
17	1140	1730	1270	2110	1500	4140	4560	2660	2660	2270	2520	1740
18	1130	1490	1300	2180	2030	4970	4210	2990	2430	2260	2520	1690
19	1080	1360	1340	2120	2370	5800	3830	3150	2420	2250	2530	1450
20	1090	1360	1420	2210	2100	5160	3620	2900	2420	2240	2530	1360
21	1110	1540	1700	2520	2000	7200	3830	2870	2420	2260	2530	1350
22	1090	6710	2010	3780	2660	8950	4170	2740	2410	2270	2540	1310
23	1090	5410	1860	2770	3230	8790	3700	3050	2410	2270	2540	1330
24	1090	3630	1710	2180	2530	7660	3670	3260	2400	2260	2570	1350
25	1110	3220	1620	1940	2130	6310	4860	2960	2390	2260	2560	1370
26	1090	2960	1460	1800	1890	6170	4910	2930	2390	2260	2560	1380
27	1110	2520	1310	1770	1750	5300	4450	2910	2410	2260	2550	1380
28	1110	3570	1310	1780	1630	5330	4170	3140	2430	2230	2550	1380
29	1130	3180	1370	1760	---	5930	3840	3140	2440	2180	2570	1390
30	1100	2550	1680	1900	---	5110	3690	2970	2440	2180	2590	1440
31	1090	---	1830	2210	---	5790	---	2940	---	2180	2570	---
TOTAL	35390	59990	49540	80410	49950	144000	135590	111120	79770	71360	74660	58270
MEAN	1142	2000	1598	2594	1784	4645	4520	3585	2659	2302	2408	1942
MAX	1330	6710	2140	9080	3230	8950	5630	5430	3270	2430	2590	2560
MIN	1080	1100	1270	1510	1080	1570	3620	2660	2390	2180	2120	1310
AC-FT	70200	119000	98260	159500	99080	285600	268900	220400	158200	141500	148100	115600

CAL YR 1988 TOTAL 624066 MEAN 1705 MAX 6710 MIN 886 AC-FT 1238000
WTR YR 1989 TOTAL 950050 MEAN 2603 MAX 9080 MIN 1080 AC-FT 1884000

UPPER ROGUE RIVER BASIN

279

14339000 ROGUE RIVER AT DODGE BRIDGE, NEAR EAGLE POINT, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: August 1973 to current year.

INSTRUMENTATION.--Temperature recorder since August 1973.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 20.0°C July 27, 28, 1975; minimum, 0.0°C Jan. 6-8, 10, 11, 1974, Jan. 6-9, 1977.
Maximum since full operation of Lost Creek Lake, 19.5°C July 3, 1981; minimum, 0.5°C Feb. 5, 6, 1989.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 17.5°C Aug. 7; minimum, 0.5°C Feb. 5, 6.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	11.0	7.0	9.0	8.0	6.5	7.5	6.5	5.5	6.0	5.5	4.5	5.0
2	10.5	7.0	9.0	8.0	7.5	8.0	6.5	6.0	6.5	5.5	4.5	5.0
3	11.0	7.0	9.0	9.0	8.0	8.5	7.0	5.5	6.5	5.5	5.0	5.5
4	9.5	7.0	8.5	9.5	7.5	8.5	6.5	5.5	6.0	5.5	5.0	5.5
5	11.0	8.0	9.0	9.0	7.5	8.5	7.0	5.5	6.5	5.5	4.5	5.0
6	11.0	7.0	9.0	9.0	7.5	8.5	7.5	6.5	7.0	5.0	4.0	4.5
7	10.5	7.0	9.0	8.0	6.5	7.5	7.5	7.0	7.0	5.0	4.5	5.0
8	11.0	7.5	9.0	9.0	7.5	8.0	7.0	6.0	6.5	5.0	4.0	4.5
9	10.5	7.0	9.0	8.0	6.5	7.0	7.0	5.5	6.5	5.0	4.0	4.5
10	10.5	7.0	8.5	9.0	7.5	8.0	7.5	6.0	6.5	5.0	4.0	5.0
11	10.5	7.5	9.0	8.5	7.5	8.0	6.5	5.5	6.0	5.5	5.0	5.0
12	9.5	7.0	8.5	8.5	8.0	8.0	6.5	6.0	6.0	5.0	4.0	4.5
13	8.5	7.0	7.5	8.0	7.5	7.5	7.0	6.0	6.5	4.5	3.5	4.5
14	9.5	6.5	8.0	8.5	7.0	7.5	6.5	5.0	6.0	5.5	4.0	4.5
15	10.0	7.0	8.5	8.5	7.5	8.0	6.0	4.5	5.0	5.0	4.5	5.0
16	10.0	6.5	8.5	8.0	7.5	7.5	6.0	4.5	5.0	6.0	4.5	5.0
17	9.5	7.0	8.5	7.5	7.0	7.5	6.0	4.0	5.0	6.0	5.0	5.5
18	9.5	7.0	8.5	7.5	6.5	7.0	6.0	4.0	5.0	5.5	4.0	5.0
19	10.0	7.0	8.5	7.5	6.0	7.0	6.5	5.5	6.0	5.0	4.0	4.5
20	9.5	6.5	8.0	8.0	7.0	7.5	6.0	5.5	5.5	---	---	---
21	9.5	6.5	8.0	7.5	6.5	7.0	5.5	4.5	5.0	---	---	---
22	9.5	6.5	8.0	8.0	7.5	7.5	5.0	4.5	5.0	---	---	---
23	9.5	6.5	8.0	8.0	7.5	7.5	5.5	4.5	5.0	---	---	---
24	9.0	6.5	7.5	7.5	7.0	7.5	5.0	4.5	5.0	4.5	3.0	4.0
25	9.0	6.0	8.0	7.5	6.5	7.0	5.5	4.5	5.0	5.0	3.0	4.0
26	9.0	6.0	8.0	8.0	6.5	7.0	5.0	3.5	4.5	5.0	3.0	4.0
27	8.5	6.0	7.5	7.5	6.5	7.0	5.0	3.5	4.0	5.0	3.0	4.0
28	8.5	6.0	7.5	7.5	7.0	7.0	5.5	4.5	5.0	5.0	3.5	4.0
29	9.0	6.5	8.0	6.5	6.0	6.5	5.0	5.0	5.0	5.0	3.5	4.0
30	9.0	6.5	8.0	6.5	6.0	6.5	5.0	4.5	5.0	5.5	3.5	4.5
31	9.0	6.0	7.5	---	---	---	5.0	4.5	4.5	6.0	4.5	5.0
MONTH	11.0	6.0	8.5	9.5	6.0	7.5	7.5	3.5	5.5	---	---	---

UPPER ROGUE RIVER BASIN

14339000 ROGUE RIVER AT DODGE BRIDGE, NEAR EAGLE POINT, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	5.0	3.5	4.5	5.0	4.0	4.5	6.5	6.0	6.5	11.0	8.0	9.0
2	4.0	3.0	3.5	5.0	3.0	4.0	6.5	6.0	6.5	10.0	8.0	9.0
3	4.0	2.5	3.5	5.5	2.5	4.0	7.0	6.0	6.5	9.5	8.5	9.0
4	3.5	1.5	2.5	4.5	3.5	4.0	9.5	6.5	7.5	11.5	8.5	9.5
5	3.0	.5	2.0	5.5	4.5	5.0	9.5	7.0	8.0	12.5	9.0	10.0
6	3.5	.5	2.0	7.0	5.5	6.5	9.5	7.0	8.0	11.5	9.5	10.5
7	4.0	1.0	2.5	7.5	6.0	6.5	9.5	7.0	8.0	12.5	9.5	10.5
8	4.0	1.5	3.0	7.0	6.0	6.5	9.5	7.0	8.0	11.5	9.0	10.0
9	5.0	2.0	3.5	8.0	6.5	7.0	9.0	7.0	8.0	9.5	9.0	9.0
10	4.5	3.0	4.0	8.0	6.5	7.5	8.5	7.0	7.5	9.0	---	---
11	6.0	3.5	4.5	8.5	7.0	7.5	9.5	6.5	8.0	---	---	---
12	5.0	3.5	4.5	7.0	6.5	7.0	9.0	7.0	8.0	---	---	---
13	5.0	2.5	4.0	7.0	6.0	6.5	9.5	7.0	8.0	---	---	---
14	5.5	3.0	4.0	6.5	5.5	6.0	8.5	7.5	8.0	---	---	---
15	5.5	2.5	4.0	8.5	6.0	7.0	9.5	7.0	8.0	---	---	---
16	5.0	4.0	4.5	7.5	6.0	7.0	9.5	7.0	8.0	---	---	---
17	5.0	4.5	4.5	6.5	5.5	6.0	9.5	7.0	8.0	---	---	---
18	5.5	4.5	5.0	7.0	5.5	6.0	10.0	7.0	8.5	---	---	---
19	6.0	5.0	5.5	7.5	6.0	6.5	10.5	7.5	8.5	---	---	---
20	7.0	5.0	6.0	6.5	5.0	6.0	10.0	7.5	8.5	---	---	---
21	6.5	5.0	6.0	8.0	6.5	7.0	8.0	7.0	7.5	---	---	---
22	6.0	5.5	6.0	7.0	6.0	6.5	9.0	7.0	8.0	---	---	---
23	6.5	5.0	5.5	6.5	5.5	6.0	9.0	7.5	8.0	---	---	---
24	6.5	5.0	5.5	6.5	6.0	6.5	9.0	7.0	8.0	---	---	---
25	6.0	4.0	5.0	7.5	6.0	6.5	7.5	7.0	7.5	---	---	---
26	6.5	4.0	5.0	6.0	5.5	6.0	9.0	7.0	8.0	---	---	---
27	6.0	3.5	5.0	6.5	5.5	6.0	10.0	7.0	8.5	---	---	---
28	6.0	3.5	5.0	7.5	6.0	7.0	10.5	7.5	9.0	---	---	---
29	---	---	---	7.5	6.0	6.5	11.0	8.0	9.5	---	---	---
30	---	---	---	6.5	6.0	6.5	9.0	8.5	9.0	13.0	---	---
31	---	---	---	8.0	6.0	7.0	---	---	---	13.5	9.0	10.5
MONTH	7.0	.5	4.5	8.5	2.5	6.0	11.0	6.0	8.0	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	13.5	9.5	11.0	12.5	9.0	10.5	14.0	10.0	12.0	15.5	12.0	13.5
2	13.5	9.5	11.5	14.5	9.0	11.5	15.0	12.0	13.5	15.0	11.0	12.5
3	13.5	9.5	11.0	14.5	9.5	11.5	16.5	11.5	13.5	15.0	11.0	13.0
4	13.5	9.5	11.5	14.0	9.5	11.5	16.5	11.5	14.0	15.5	11.0	13.0
5	13.5	---	---	14.5	9.5	11.5	17.0	11.5	14.0	15.0	11.0	13.0
6	---	---	---	15.0	9.5	12.0	17.0	12.0	14.5	15.0	11.0	12.5
7	---	---	---	14.5	9.5	11.5	17.5	12.0	14.5	15.0	11.0	13.0
8	---	---	---	14.5	9.0	11.5	16.0	12.5	14.0	15.5	11.0	12.5
9	---	---	---	13.5	9.0	11.0	17.0	12.5	14.5	14.0	10.0	12.0
10	---	---	---	14.5	9.0	11.5	17.0	12.0	14.5	14.0	10.0	12.0
11	---	---	---	14.5	9.5	11.5	16.5	12.0	14.0	14.5	10.0	12.0
12	15.0	---	---	14.5	9.5	12.0	16.5	12.0	14.0	14.0	10.0	12.0
13	13.0	9.5	11.0	15.0	9.5	12.0	16.5	12.0	14.0	14.0	9.5	11.5
14	12.5	10.0	11.0	15.0	9.5	12.0	16.5	12.0	14.0	14.0	10.0	11.5
15	11.5	10.0	10.5	14.5	10.0	12.0	16.5	12.0	14.0	14.0	10.0	11.5
16	13.5	9.0	11.5	13.5	11.5	12.5	16.5	12.0	14.0	11.0	9.0	10.0
17	14.0	9.5	11.5	16.0	11.5	13.5	17.0	12.5	14.5	10.5	9.5	10.0
18	14.5	9.5	11.5	16.5	11.5	14.0	16.5	12.0	14.5	13.0	9.5	10.5
19	13.0	9.5	11.0	17.0	11.5	14.0	17.0	12.5	14.5	13.0	8.5	10.5
20	14.0	9.5	11.5	16.5	11.5	13.5	17.0	12.5	14.5	13.0	8.5	10.5
21	14.5	9.0	11.5	15.5	10.5	12.5	17.0	13.0	14.5	13.0	8.5	10.5
22	15.0	9.5	12.0	16.0	10.5	13.0	16.5	13.5	14.5	13.0	8.5	11.0
23	15.0	9.5	12.0	15.0	10.5	13.0	15.5	13.0	14.5	12.0	8.5	10.5
24	15.0	10.0	12.0	16.0	11.0	13.0	16.5	13.0	14.5	11.0	8.0	9.5
25	15.0	10.0	12.5	16.0	11.0	13.5	17.0	12.5	14.5	11.5	8.0	9.5
26	15.0	10.0	12.0	16.0	11.0	13.0	16.0	11.5	13.5	11.0	8.5	9.5
27	13.0	9.0	11.0	15.5	10.5	13.0	16.0	11.5	13.5	12.0	8.5	10.0
28	11.5	9.0	10.0	16.0	10.5	13.0	16.0	11.5	13.5	11.5	8.0	9.5
29	10.5	9.5	10.0	15.5	10.5	13.0	15.5	12.0	13.5	10.5	8.5	9.5
30	13.5	9.0	11.0	15.0	10.5	13.0	14.5	12.0	13.0	10.0	9.0	9.5
31	---	---	---	13.5	11.0	12.5	16.0	12.0	13.5	---	---	---
MONTH	---	---	---	17.0	9.0	12.5	17.5	10.0	14.0	15.5	8.0	11.0

14342500 NORTH FORK LITTLE BUTTE CREEK AT FISH LAKE, NEAR LAKECREEK, OR

LOCATION.--Lat 42°22'35", long 122°21'20", in SE 1/4 SW 1/4 sec.4, T.37 S., R.4 E., Jackson County, Hydrologic Unit 17100307, on right bank 0.5 mi downstream from Fish Lake dam, 14 mi east of Lakecreek, and at mile 15.2.

DRAINAGE AREA.--20.8 mi².

PERIOD OF RECORD.--October 1914 to July 1915, June 1916 to current year. Monthly discharge only November 1916 to May 1917, published in WSP 1318.

REVISED RECORDS.--WSP 654: Drainage area (former site). WSP 1218: 1917(M). WSP 1738: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 4,571.41 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1914, to July 31, 1915, nonrecording gage at site 0.5 mi upstream at different datum. June 1, 1916, to July 9, 1918, nonrecording gage and July 10, 1918, to Oct. 28, 1932, water-stage recorder at site 0.25 mi upstream at different datums.

REMARKS.--Records fair. Since 1915, Fish Lake (see below) has stored water for irrigation by Medford Irrigation District. Cascade Canal diverts from Fourmile Lake in Klamath River basin and discharges into lava bed 1.0 mi upstream from Fish Lake; diversion began August 1923. No diversion from creek upstream from station.

AVERAGE DISCHARGE.--73 years (water years 1917-89), 35.8 ft³/s, 25,940 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 940 ft³/s June 5, 1917, computed from rate of change in contents of reservoir after break in dam occurred; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 78 ft³/s July 7, 8, gage height, 1.52 ft; minimum discharge, 1.3 ft³/s Oct. 1-3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	4.7	8.4	9.6	11	13	19	36	34	32	63	54
2	1.4	5.1	8.4	9.8	11	13	19	36	34	32	63	54
3	1.4	5.0	8.6	9.6	11	13	19	36	34	32	63	54
4	1.5	5.2	8.8	9.6	11	13	20	36	34	31	63	54
5	1.6	5.5	8.8	9.6	11	13	21	36	34	30	63	54
6	1.6	5.8	8.8	9.6	11	13	22	36	34	30	63	52
7	1.7	5.5	8.8	9.6	11	13	22	36	34	49	63	47
8	1.8	5.8	8.8	9.7	11	14	24	36	34	77	63	46
9	1.9	5.8	8.8	10	11	14	25	37	34	74	63	48
10	2.0	6.2	8.8	12	11	14	26	36	34	69	63	47
11	2.1	6.0	8.8	11	11	15	27	36	34	69	63	46
12	2.2	6.5	8.8	11	11	15	28	36	34	69	63	46
13	2.3	6.6	8.8	11	11	15	29	36	34	67	63	46
14	2.5	6.4	8.8	11	11	14	29	36	33	67	61	44
15	2.6	6.7	8.8	11	11	14	30	35	33	67	62	38
16	2.7	7.0	8.8	11	11	15	31	35	33	67	63	38
17	2.7	7.2	8.8	11	11	14	32	35	33	67	63	39
18	2.9	7.2	8.8	11	12	15	32	35	33	66	62	38
19	2.9	7.2	9.2	11	12	15	33	35	33	65	62	38
20	3.0	7.5	9.2	11	13	15	34	35	33	65	61	38
21	3.1	7.6	9.2	11	13	16	35	35	33	65	61	38
22	3.2	8.4	9.2	11	13	16	35	35	33	65	61	38
23	3.3	8.1	9.2	11	13	16	36	35	33	65	62	38
24	3.4	8.0	9.2	11	13	16	36	35	32	65	61	38
25	3.5	8.1	9.2	11	13	17	35	35	32	64	61	38
26	3.6	8.1	9.2	11	13	16	35	35	32	63	58	38
27	3.8	8.3	9.2	11	13	17	35	35	32	63	54	38
28	4.0	8.5	9.2	11	13	18	35	35	32	63	54	24
29	4.0	8.4	9.4	11	---	17	36	35	32	63	54	19
30	4.2	8.4	9.6	11	---	18	36	35	32	63	54	19
31	4.5	---	9.6	11	---	19	---	35	---	63	54	---
TOTAL	82.7	204.8	278.0	330.1	328	466	876	1100	996	1827	1887	1249
MEAN	2.67	6.83	8.97	10.6	11.7	15.0	29.2	35.5	33.2	58.9	60.9	41.6
MAX	4.5	8.5	9.6	12	13	19	36	37	34	77	63	54
MIN	1.3	4.7	8.4	9.6	11	13	19	35	32	30	54	19
AC-FT	164	406	551	655	651	924	1740	2180	1980	3620	3740	2480
(†)	a2720	3250	a3260	3640	3640	a4040	a5280	6110	6420	5850	a5810	a5490

CAL YR 1988 TOTAL 8458.7 MEAN 23.1 MAX 74 MIN 1.3 AC-FT 16780
WTR YR 1989 TOTAL 9624.6 MEAN 26.4 MAX 77 MIN 1.3 AC-FT 19090

† Monthend contents, in acre-feet, in Fish Lake, computed from elevations provided by Medford Irrigation District.
a Interpolated.

MIDDLE ROGUE RIVER BASIN

14357500 BEAR CREEK AT MEDFORD, OR

LOCATION.--Lat 42°19'40", long 122°52'10", in NW 1/4 sec.30, T.37 S., R.1 W., Jackson County, Hydrologic Unit 17100308, on left bank 40 ft upstream from Main street Bridge, in Medford, and at mile 9.91.

DRAINAGE AREA.--289 mi².

PERIOD OF RECORD.--March 1915 to June 1920 (no low-flow records), October 1920 to September 1981, December 1983 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 1044: 1944. WSP 1448: 1916, 1917(M), 1918-20, 1922, 1924, 1927(M), 1928, 1930. WSP 1568: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,341.98 ft above National Geodetic Vertical Datum of 1929. Dec. 31, 1947, to Sept. 23, 1985, at datum 2.00 ft higher. See WSP 1738 for history of changes prior to Dec. 31, 1947.

REMARKS.--Records good except for estimated daily discharges, which are poor. Flow partly regulated since 1924 by Emigrant Lake. Water is diverted into basin from the Klamath River basin. Many diversions for irrigation and municipal use upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,500 ft³/s Dec. 2, 1962, gage height, 10.04 ft, present datum; maximum gage height, about 13.0 ft Feb. 20, 1927, from floodmarks, present datum, site then in use; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,190 ft³/s Jan. 10, gage height, 4.86 ft; minimum daily discharge, 5.3 ft³/s Oct. 22, 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	9.9	58	49	113	70	171	254	75	50	45	83
2	8.0	18	54	47	92	148	189	155	69	52	39	74
3	7.6	23	46	57	80	122	281	193	61	50	40	72
4	7.7	16	44	61	67	103	204	181	59	46	40	67
5	7.2	17	41	140	58	442	183	175	49	49	38	59
6	6.6	18	39	93	59	321	235	152	38	42	38	50
7	6.5	17	42	73	60	210	241	127	38	41	39	42
8	6.4	17	41	71	56	210	236	115	36	44	83	43
9	6.4	18	39	103	55	694	257	474	31	54	142	43
10	6.2	28	39	550	55	444	257	667	24	60	84	43
11	6.1	28	39	190	57	312	249	515	27	43	87	46
12	6.1	27	38	120	57	252	134	358	26	54	77	35
13	6.1	38	38	107	55	263	124	335	29	59	67	28
14	5.9	34	39	90	51	200	202	216	31	52	64	26
15	5.8	42	38	79	49	169	206	199	55	54	48	30
16	5.8	43	35	76	50	242	200	226	86	59	41	35
17	5.8	49	34	73	61	215	171	183	66	64	35	226
18	5.6	39	33	73	81	197	155	137	62	68	36	178
19	5.5	35	34	76	89	243	103	108	52	56	32	100
20	5.5	35	40	84	80	199	85	88	42	38	35	86
21	5.4	41	39	120	77	266	143	80	35	39	40	70
22	5.3	310	45	380	122	241	140	82	38	40	45	64
23	5.3	220	39	162	143	198	143	111	34	39	57	62
24	5.8	95	41	108	103	190	272	97	36	35	54	65
25	7.3	84	44	98	84	233	500	91	38	33	52	66
26	7.1	83	40	94	76	201	460	86	36	35	53	70
27	7.5	74	35	93	70	184	332	103	31	41	49	70
28	7.8	133	40	84	65	192	316	127	38	43	49	68
29	8.5	80	44	78	---	177	297	136	46	40	48	102
30	8.9	62	57	86	---	159	278	121	53	40	84	71
31	9.8	---	58	106	---	210	---	94	---	48	87	---
TOTAL	213.5	1733.9	1293	3621	2065	7307	6764	5986	1341	1468	1728	2074
MEAN	6.89	57.8	41.7	117	73.7	236	225	193	44.7	47.4	55.7	69.1
MAX	14	310	58	550	143	694	500	667	86	68	142	226
MIN	5.3	9.9	33	47	49	70	85	80	24	33	32	26
AC-FT	423	3440	2560	7180	4100	14490	13420	11870	2660	2910	3430	4110

CAL YR 1988 TOTAL 14112.4 MEAN 38.6 MAX 310 MIN 5.3 AC-FT 27990
WTR YR 1989 TOTAL 35594.4 MEAN 97.5 MAX 694 MIN 5.3 AC-FT 70600

MIDDLE ROGUE RIVER BASIN

283

14359000 ROGUE RIVER AT RAYGOLD, NEAR CENTRAL POINT, OR

LOCATION.--Lat 42°26'15", long 122°59'10", in SW 1/4 sec.18, T.36 S., R.2 W., Jackson County, Hydrologic Unit 17100308, on right bank at Raygold, 0.1 mi downstream from Gold Ray Dam, 1.0 mi downstream from Bear Creek, 5.6 mi northwest of Central Point, and at mile 125.8.

DRAINAGE AREA.--2,053 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1905 to current year. Prior to October 1921, published as "near Tolo."

REVISED RECORDS.--WSP 1248: 1906, 1914(M), 1915. WSP 1398: 1910(M). WSP 1738: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,121.78 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 19, 1914, nonrecording gage and Sept. 19, 1914, to Sept. 30, 1956, water-stage recorder, at site 300 ft upstream at same datum.

REMARKS.--Water-discharge records good. Flow regulated since February 1977 by Lost Creek Lake (station 14335040). Slight regulation by Fish Lake (published with station 14342500) and Emigrant Lake. Many diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--84 years, 2,974 ft³/s, 2,155,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 131,000 ft³/s Dec. 23, 1964, gage height, 23.43 ft, from rating curve extended above 63,000 ft³/s on basis of slope-area measurement of 113,000 ft³/s; minimum discharge not determined; minimum daily, 616 ft³/s Sept. 6, 1931.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 23,900 ft³/s Jan. 10, gage height, 9.54 ft; minimum discharge, 1,120 ft³/s Oct. 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1360	1210	2540	2000	2730	1910	6710	4770	3170	2470	2230	2740
2	1350	1250	2240	1870	2640	3070	6540	4470	3090	2460	2200	2720
3	1330	1330	2160	2200	2410	3100	7620	4400	3230	2460	2190	2700
4	1190	1300	2040	2280	2040	2540	6050	4330	3460	2380	2190	2690
5	1220	1280	1900	3870	1850	5840	5420	4630	3450	2360	2180	2660
6	1210	1330	1820	3070	1800	7310	5300	5110	3330	2370	2180	2660
7	1210	1320	1790	2440	1770	5100	5510	5280	3300	2360	2190	2620
8	1200	1280	1770	2250	1880	4160	5880	5420	3210	2370	2230	2630
9	1190	1300	1760	4430	1870	7410	6040	6150	2820	2400	2460	2640
10	1190	1350	1780	13900	1800	7870	6030	6840	2770	2440	2340	2640
11	1170	1350	1780	5990	1410	6150	5690	6020	2760	2370	2360	2620
12	1180	1350	1810	4600	1410	5310	5300	4970	2690	2360	2650	2480
13	1190	1420	1810	4020	1390	5320	5260	4450	2460	2360	2630	2350
14	1200	1430	1790	3700	1340	4480	5360	4070	2470	2340	2620	2210
15	1200	1420	1760	3380	1300	4030	5400	3820	2530	2270	2610	2110
16	1190	1500	1620	2680	1320	4940	5300	3180	2900	2270	2610	1980
17	1190	1970	1470	2600	1710	5390	5210	3100	2820	2310	2590	2180
18	1180	1810	1480	2640	2370	5960	4860	3250	2570	2300	2570	2370
19	1160	1530	1530	2580	2900	7370	4430	3560	2480	2280	2580	1860
20	1180	1500	1630	2630	2570	e6300	4110	3160	2480	2250	2590	1670
21	1180	1620	1920	2860	2410	e8590	4320	3120	2470	2260	2610	1620
22	1180	7450	2380	6120	3180	11000	4900	3020	2440	2290	2640	1580
23	1180	8790	2310	3940	4440	10300	4440	3250	2420	2290	2660	1560
24	1180	4460	2070	2880	3310	9220	5030	3690	2420	2300	2690	1560
25	1180	3700	2030	2490	2710	7590	7780	3270	2400	2260	2690	1600
26	1180	3460	1830	2280	2380	7460	7120	3220	2410	2250	2640	1620
27	1200	2900	1610	2220	2180	6470	5810	3200	2400	2240	2640	1680
28	1210	4390	1580	2180	2020	6280	5260	3500	2420	2240	2650	1650
29	1200	3890	1660	2130	---	7050	4850	3660	2460	2200	2680	1670
30	1200	3040	2050	2210	---	6050	4560	3390	2500	2200	2840	1760
31	1210	---	2440	2540	---	7100	---	3250	---	2230	2800	---
TOTAL	37390	71930	58360	104980	61140	190670	166090	127550	82330	71940	77740	64830
MEAN	1206	2398	1883	3386	2184	6151	5536	4115	2744	2321	2508	2161
MAX	1360	8790	2540	13900	4440	11000	7780	6840	3460	2470	2840	2740
MIN	1160	1210	1470	1870	1300	1910	4110	3020	2400	2200	2180	1560
AC-FT	74160	142700	115800	208200	121300	378200	329400	253000	163300	142700	154200	128600

CAL YR 1988 TOTAL 706540 MEAN 1930 MAX 9130 MIN 1020 AC-FT 1401000
WTR YR 1989 TOTAL 1114950 MEAN 3055 MAX 13900 MIN 1160 AC-FT 2212000

e Estimated

MIDDLE ROGUE RIVER BASIN

14359000 ROGUE RIVER AT RAYGOLD, NEAR CENTRAL POINT, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: August 1973 to current year.

INSTRUMENTATION.--Temperature recorder since August 1973.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 22.0°C July 25, 26, 1976; minimum, 0.0°C Jan. 7, 1974. Maximum since full operation of Lost Creek Lake, 20.5°C July 3, 4, 1981; minimum, 1.0°C Dec. 30, 1978, Jan. 30, 1980, Feb. 5, 6, 1989.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 18.0°C July 18-20, Aug. 20, but may have been higher during period of missing record Aug. 6-13; minimum, 1.0°C Feb. 5, 6.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	12.5	11.0	11.5	9.0	8.5	9.0	6.5	6.0	6.0	5.0	4.0	4.5
2	12.5	11.0	9.5	9.0	9.0	9.0	6.5	6.0	6.0	5.5	4.5	5.0
3	12.0	10.5	11.0	10.0	9.0	9.5	7.0	6.0	6.5	5.5	5.5	5.5
4	12.0	10.0	11.0	10.0	9.5	9.5	6.5	5.5	6.0	5.5	5.5	5.5
5	11.5	10.5	10.5	10.0	9.5	9.5	7.0	5.5	6.0	5.5	5.0	5.0
6	12.0	11.0	11.5	10.0	9.5	9.5	7.5	7.0	7.5	5.0	4.5	4.5
7	12.0	11.0	11.5	9.5	8.0	8.5	8.0	7.5	8.0	5.0	4.5	4.5
8	12.0	11.0	11.5	9.0	8.0	8.5	7.5	7.0	7.0	4.5	4.0	4.5
9	12.0	10.5	11.5	9.0	7.5	8.0	7.0	6.0	6.5	5.0	4.0	4.5
10	11.5	10.5	11.0	9.0	8.0	8.5	7.5	6.0	6.5	5.0	4.5	5.0
11	11.5	11.0	11.5	9.0	8.5	8.5	7.0	6.0	6.5	5.5	4.5	5.0
12	11.5	10.0	11.0	9.0	9.0	9.0	6.5	6.0	6.5	5.0	4.0	4.5
13	11.0	9.5	10.5	9.0	8.0	8.5	7.0	6.0	6.5	4.5	4.0	4.0
14	11.0	9.0	9.5	8.5	8.0	8.0	7.0	5.5	6.0	5.0	4.0	4.5
15	11.0	10.0	10.5	9.0	8.5	8.5	6.0	4.0	5.0	5.0	4.5	5.0
16	11.0	10.0	10.5	9.0	8.0	8.5	5.5	4.0	4.5	6.0	5.0	5.5
17	11.0	10.0	10.5	8.5	7.5	8.0	5.5	4.0	4.5	6.0	5.0	5.5
18	11.0	9.5	10.5	8.0	7.0	7.5	5.0	4.0	4.5	6.0	4.5	5.0
19	11.0	10.0	10.5	7.5	7.0	7.0	6.0	5.0	5.5	5.0	4.0	4.5
20	11.0	9.5	10.0	8.5	7.5	8.0	6.0	5.5	6.0	4.5	4.0	4.5
21	10.5	9.0	9.5	8.5	7.0	7.5	5.5	5.0	5.5	5.0	4.5	4.5
22	10.5	9.5	10.0	8.5	8.0	8.0	5.5	5.0	5.0	5.0	4.0	4.5
23	10.5	9.0	10.0	8.5	7.5	8.0	5.5	4.5	5.0	4.5	3.0	3.5
24	10.0	9.0	9.5	7.5	7.0	7.5	5.5	5.0	5.0	4.5	3.0	3.5
25	10.0	8.5	9.5	7.5	7.0	7.5	5.0	4.0	5.0	4.5	3.5	4.0
26	9.5	9.0	9.5	8.0	7.0	7.5	5.0	3.5	4.0	4.5	3.5	4.0
27	9.5	8.5	9.0	7.5	7.0	7.0	4.0	3.5	4.0	5.0	3.5	4.5
28	9.0	8.0	8.5	7.5	7.0	7.5	5.0	4.0	4.5	4.5	4.0	4.5
29	9.5	8.5	9.0	7.5	6.5	6.5	5.0	5.0	5.0	4.5	4.0	4.0
30	9.5	8.5	9.5	6.5	6.5	6.5	5.5	5.0	5.0	5.0	4.0	4.5
31	9.5	8.0	9.0	---	---	---	5.0	4.5	5.0	6.0	5.0	5.5
MONTH	12.5	8.0	10.5	10.0	6.5	8.0	8.0	3.5	5.5	6.0	3.0	4.5

MIDDLE ROGUE RIVER BASIN

285

14359000 ROGUE RIVER AT RAYGOLD, NEAR CENTRAL POINT, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	6.0	4.0	5.0	6.0	4.5	5.0	8.0	6.5	7.0	12.5	9.0	10.5
2	4.0	3.0	3.5	5.0	3.5	4.0	7.0	6.5	7.0	11.5	9.5	10.5
3	4.0	3.0	3.5	5.5	3.0	4.5	8.0	6.5	7.0	11.0	9.5	10.5
4	3.5	2.0	2.5	5.0	4.0	4.5	10.5	7.0	8.5	13.0	9.5	11.5
5	2.5	1.0	1.5	6.5	4.5	5.5	10.5	8.0	9.5	14.0	10.5	12.0
6	2.5	1.0	1.5	8.0	6.0	7.0	11.0	8.0	9.5	13.5	11.0	12.5
7	3.0	1.5	2.0	8.0	6.5	7.5	11.0	8.0	9.5	14.5	10.5	12.5
8	3.5	1.5	2.5	7.5	6.5	7.0	11.0	8.5	9.5	13.5	10.5	12.0
9	4.0	2.0	3.0	9.0	7.0	8.0	10.5	8.5	9.5	11.5	10.0	10.5
10	4.0	3.0	3.5	8.5	7.0	8.0	10.0	8.0	9.0	11.0	9.5	10.5
11	5.5	4.0	4.5	9.0	7.5	8.0	10.5	7.5	9.0	11.5	9.5	10.0
12	5.5	4.5	5.0	8.0	7.0	7.5	10.5	8.0	9.0	11.0	9.0	10.0
13	5.0	3.5	4.0	7.5	6.5	7.0	11.0	8.0	9.5	13.0	9.0	11.0
14	5.0	3.5	4.0	7.5	6.0	6.5	10.0	8.5	9.5	13.0	9.5	11.5
15	5.0	4.0	4.5	8.5	6.5	7.5	11.0	8.5	9.5	14.0	9.5	11.5
16	5.5	5.0	5.0	8.5	7.0	8.0	11.5	8.5	9.5	15.0	10.5	12.5
17	5.5	5.0	5.5	7.0	6.0	6.5	11.0	8.5	9.5	14.5	11.0	13.0
18	6.0	5.5	5.5	7.0	6.0	6.5	11.5	8.5	10.0	13.5	9.5	11.0
19	7.0	5.5	6.0	8.5	6.5	7.5	12.0	9.0	10.5	13.5	8.5	11.0
20	7.5	6.0	6.5	7.5	5.5	6.5	11.5	9.0	10.5	14.0	9.5	12.0
21	7.0	6.0	6.5	9.0	7.0	8.0	10.0	8.5	9.0	13.0	10.0	12.0
22	7.0	6.5	6.5	8.0	6.5	7.0	10.0	7.5	8.5	13.0	10.0	11.5
23	6.5	5.5	6.0	7.0	6.0	6.5	9.5	8.0	9.0	12.5	9.5	11.0
24	7.0	5.5	6.0	7.5	6.5	7.0	10.5	8.0	9.0	11.5	9.0	10.5
25	6.5	5.0	5.5	8.5	7.0	7.5	9.5	8.5	8.5	13.0	9.5	11.0
26	6.5	4.5	5.5	7.0	6.0	6.0	10.0	8.0	9.0	13.5	9.5	11.5
27	6.0	4.5	5.5	7.0	6.0	6.5	11.0	8.5	9.5	13.0	10.5	11.5
28	6.5	4.5	5.5	8.5	6.5	7.5	11.5	8.5	10.0	12.5	10.0	11.5
29	---	---	---	8.0	6.5	7.5	12.5	9.5	11.0	12.5	9.5	11.0
30	---	---	---	7.5	6.5	7.0	11.5	10.0	10.5	14.5	10.0	12.0
31	---	---	---	9.0	7.0	7.5	---	---	---	15.0	10.5	12.5
MONTH	7.5	1.0	4.5	9.0	3.0	7.0	12.5	6.5	9.0	15.0	8.5	11.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	15.5	11.0	13.0	14.0	10.5	12.5	15.0	11.5	13.5	16.5	13.0	15.0
2	15.5	11.5	13.5	15.5	10.5	13.0	16.5	13.5	14.5	15.5	12.0	14.0
3	15.5	11.0	13.5	15.5	11.0	13.5	17.0	13.0	14.5	16.0	12.0	14.0
4	15.5	11.5	13.5	15.0	11.5	13.5	17.5	13.5	15.5	16.0	12.5	14.5
5	15.5	11.5	13.5	16.0	11.0	13.5	17.5	---	---	16.0	12.5	14.5
6	15.5	11.0	13.0	16.5	11.5	14.0	---	---	---	15.5	12.0	14.0
7	15.5	10.5	13.0	16.0	11.5	14.0	---	---	---	16.0	12.5	14.0
8	15.5	10.5	13.0	15.5	11.5	13.5	---	---	---	16.0	12.5	14.5
9	15.5	11.0	13.0	15.0	11.0	13.0	---	---	---	16.0	11.5	13.5
10	15.5	11.0	13.0	16.0	11.0	13.5	---	---	---	15.0	11.5	13.5
11	16.0	11.0	13.5	16.0	11.5	13.5	---	---	---	15.0	11.5	13.5
12	16.0	11.5	14.0	16.5	11.5	14.0	---	---	---	15.0	11.5	13.0
13	15.5	11.5	13.0	16.5	11.5	14.0	---	---	---	14.5	11.0	13.0
14	13.5	11.0	12.5	16.5	11.5	14.0	17.5	---	---	14.5	11.5	13.0
15	13.5	11.5	12.5	16.0	12.0	14.5	17.5	13.5	15.5	15.0	11.5	13.5
16	15.5	10.5	13.0	15.5	13.0	14.0	17.5	13.5	15.5	15.0	11.0	12.0
17	15.5	10.5	13.0	17.5	13.0	15.0	17.5	14.0	16.0	12.0	11.0	11.5
18	15.5	11.0	13.5	18.0	14.0	16.0	17.5	14.0	16.0	14.0	11.0	12.0
19	15.0	11.0	13.0	18.0	14.0	16.0	17.5	14.0	16.0	---	---	---
20	15.0	10.5	13.0	18.0	14.0	16.0	18.0	14.5	16.5	---	---	---
21	16.0	11.0	13.5	17.0	12.5	15.0	17.5	14.5	16.0	13.5	11.5	12.5
22	16.0	11.5	14.0	17.0	12.5	15.0	17.5	15.0	16.5	13.5	11.5	12.5
23	16.5	11.5	14.0	17.0	13.0	15.0	16.5	14.0	15.5	14.0	11.5	13.0
24	16.5	12.0	14.5	17.5	13.0	15.5	17.0	14.0	15.5	13.5	11.5	12.0
25	16.5	12.0	14.5	17.5	13.0	15.5	17.5	13.5	15.5	---	---	---
26	16.5	12.0	14.5	17.5	13.5	15.5	17.0	13.0	15.0	---	---	---
27	16.0	11.0	13.0	17.0	12.5	15.0	17.0	13.0	15.0	---	---	---
28	14.0	10.5	12.0	17.0	12.5	15.0	16.5	13.0	15.0	---	---	---
29	12.0	10.5	11.0	17.0	13.0	15.0	16.0	13.0	15.0	---	---	---
30	15.0	10.5	12.5	16.5	13.5	15.0	15.5	13.5	14.5	---	---	---
31	---	---	---	16.0	13.0	14.5	16.5	13.0	14.5	---	---	---
MONTH	16.5	10.5	13.0	18.0	10.5	14.5	---	---	---	---	---	---

MIDDLE ROGUE RIVER BASIN

14361500 ROGUE RIVER AT GRANTS PASS, OR

LOCATION.--Lat 42°25'50", long 123°19'00", in NW 1/4 sec.20, T.36 S., R.5 W., Josephine County, Hydrologic Unit 17100308, on right bank at city of Grants Pass filter plant, 0.6 mi upstream from bridge on State Highway 99 at Grants Pass, and at mile 101.8. Prior to Sept. 3, 1983, at site 300 ft upstream.

DRAINAGE AREA.--2,459 mi².

PERIOD OF RECORD.--October 1938 to current year. Prior to January 1939 monthly discharge only, published in WSP 1318.

REVISED RECORDS.--WSP 1738: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 884.28 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 8, 1957, at site 300 ft upstream at datum 4.00 ft higher and Aug. 8, 1957, to Sept. 2, 1983, at site 300 ft upstream at datum 1.00 ft higher.

REMARKS.--Water-discharge records good except those for October through June, which are fair. Flow regulated since February 1977 by Lost Creek Lake (station 14355040), slight regulation by Fish Lake and Emigrant Lake. Large fluctuations at times caused by Savage Rapids Dam 5.5 mi upstream from station. Many diversions from Rogue River and tributaries upstream from station, the largest of which is at Savage Rapids Dam of Grants Pass Irrigation District, 5.5 mi upstream from station.

AVERAGE DISCHARGE.--51 years, 3,483 ft³/s, 2,523,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 152,000 ft³/s Dec. 23, 1964, gage height, 35.15 ft, present datum, from rating curve extended above 93,000 ft³/s; minimum discharge, 195 ft³/s Jan. 30, 1961; minimum daily, 606 ft³/s Sept. 10, 1968.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in December 1861 reached a stage of about 43 ft, present datum (information furnished by Corps of Engineers). Flood in February 1890 reached a stage of about 36 ft, present datum, and that of Feb. 21, 1927, about 32 ft, present datum, according to local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 25,300 ft³/s Jan. 10, gage height, 11.59 ft; minimum discharge, 954 ft³/s Oct. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1180	1160	3000	2490	3200	2280	7760	5330	3130	2400	2090	2930
2	1160	1210	2600	2180	3060	3180	7570	5070	3020	2350	2080	2890
3	1180	1340	2420	2490	2820	4000	9100	4920	3090	2300	2070	2850
4	1010	1300	2290	2670	2370	3090	7460	4820	3400	2260	2050	2840
5	1020	1280	2100	4270	2090	6010	6540	4970	3450	2200	2030	2790
6	1020	1310	1970	3980	2000	10600	6280	5520	3280	2170	2030	2790
7	1030	1310	1940	3020	1960	7020	6380	5740	3200	2200	2060	2770
8	1020	1280	1910	2670	2020	5480	6680	5860	3170	2240	2070	2740
9	1070	1290	1880	4800	2070	9110	8860	6360	2740	2230	2350	2760
10	1340	1340	1900	16200	2040	11200	6820	7520	2640	2300	2300	2770
11	1480	1370	1910	8440	1600	8370	6480	6650	2690	2200	2220	2750
12	1120	1370	1920	5840	1530	7100	5940	5390	2570	2120	2560	2590
13	1130	1460	1920	4980	1530	6920	5880	4770	2320	2170	2600	2380
14	1140	1500	1890	4480	1460	5950	5900	4260	2390	2170	2620	2270
15	1140	1490	1860	4090	1400	5280	5930	3990	2520	2110	2610	2140
16	1110	1600	1760	3430	1400	6000	5820	3180	2840	2120	2620	2010
17	1110	2110	1540	3240	1770	6490	5860	3110	2800	2140	2590	2070
18	1110	2090	1550	3290	2600	7410	5350	3080	2510	2130	2580	2590
19	1090	1660	1600	3200	3440	8940	4870	3730	2390	2080	2590	2010
20	1110	1570	1700	3260	3120	8000	4440	3200	2380	2030	2600	1580
21	1110	1700	2040	3470	2860	9650	4590	3130	2360	2030	2630	1570
22	1110	7340	2670	7260	3440	12300	5380	3050	2320	2070	2660	1520
23	1110	11900	2840	5300	5850	11600	4820	3030	2280	2140	2670	1480
24	1110	5630	2480	3750	4280	10700	5420	3910	2260	2110	2760	1480
25	1110	4360	2430	3120	3440	8770	7950	3370	2240	2040	2750	1520
26	1110	4180	2120	2780	2940	8800	8670	3230	2240	2050	2730	1550
27	1160	3540	1860	2640	2630	7700	6950	3200	2250	2100	2740	1640
28	1150	4770	1760	2570	2440	7170	5870	3510	2280	2080	2750	1620
29	1150	4780	1810	2480	---	8190	5550	3740	2390	2040	2770	1610
30	1140	3650	2170	2540	---	7050	5250	3440	2440	2060	3030	1760
31	1140	---	3060	2940	---	8010	---	3280	---	2100	3010	---
TOTAL	34970	80890	64900	127870	71360	232370	188370	134360	79590	66740	77220	66270
MEAN	1128	2696	2094	4125	2549	7496	6279	4334	2653	2153	2491	2209
MAX	1480	11900	3060	16200	5850	12300	9100	7520	3450	2400	3030	2930
MIN	1010	1160	1540	2180	1400	2280	4440	3030	2240	2030	2030	1480
AC-FT	69360	160400	128700	253600	141500	460900	373600	266500	157900	132400	153200	131400
CAL YR 1988	TOTAL 735604 MEAN 2010 MAX 12500 MIN 906 AC-FT 1459000											
WTR YR 1989	TOTAL 1224910 MEAN 3356 MAX 16200 MIN 1010 AC-FT 2430000											

APPLEGATE RIVER BASIN

287

14361900 APPLGATE LAKE NEAR COPPER, OR

LOCATION.--Lat 42°03'25", long 123°06'30", in SE 1/4 sec.25, T.40 S., R.4 W., Jackson County, Hydrologic Unit 17100309, in outlet structure of Applegate Dam on Applegate River, 2.5 mi northeast of former town of Copper, 13 mi south of Ruch, and at mile 46.3.

DRAINAGE AREA.--223 mi².

PERIOD OF RECORD.--December 1980 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Reservoir is formed by earthfill dam completed in October 1980. Storage began Dec. 2, 1980. Total capacity, 82,200 acre-ft between elevations 1,763.0 ft and 1,987.0 ft, maximum pool elevation. Elevation of gated spillway crest, 1,943.7 ft. Usable contents, 75,200 acre-ft between elevations 1,854.0 ft and 1,987.0 ft. Water is used for flood control, recreation, pollution abatement, irrigation, and other purposes.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 82,220 acre-ft May 9, 1989, elevation, 1,987.02 ft; minimum contents since first filling, 11,770 acre-ft Nov. 11, 1981, elevation, 1,873.12 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 82,220 acre-ft May 9, elevation, 1,987.02 ft; minimum contents, 15,960 acre-ft Jan. 4, elevation, 1,886.13 ft.

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

1,840.0	4,400	1,900.0	21,380	1,960.0	58,010
1,860.0	8,330	1,920.0	30,960	1,980.0	75,470
1,880.0	13,890	1,940.0	43,090	1,990.0	85,190

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1932.11	1900.35	1889.02	1886.42	1896.18	1911.08	1962.45	1986.08	1986.88	1978.96	1967.42	1954.19
2	1931.71	1899.66	1888.98	1886.20	1896.83	1912.03	1963.33	1986.74	1986.93	1978.64	1967.01	1953.72
3	1931.04	1899.13	1888.91	1886.14	1897.39	1912.67	1964.16	1986.89	1986.95	1978.33	1966.61	1953.25
4	1930.14	1898.24	1888.89	1886.19	1897.83	1913.27	1964.98	1986.87	1986.92	1978.02	1966.19	1952.78
5	1929.27	1897.30	1888.87	1886.36	1898.06	1916.59	1966.03	1986.86	1986.91	1977.72	1965.78	1952.31
6	1928.38	1896.43	1889.04	1886.49	1898.26	1922.21	1967.16	1986.71	1986.95	1977.40	1965.36	1951.82
7	1927.48	1895.44	1889.17	1886.54	1898.47	1925.63	1968.23	1986.48	1986.94	1977.07	1964.94	1951.35
8	1926.57	1894.44	1889.03	1886.55	1898.65	1928.39	1969.53	1986.77	1986.92	1976.73	1964.53	1950.87
9	1925.65	1893.47	1888.92	1886.80	1898.91	1935.62	1970.78	1986.81	1986.90	1976.40	1964.15	1950.39
10	1924.70	1893.04	1889.05	1890.49	1899.14	1942.21	1972.00	1986.58	1986.76	1976.06	1963.74	1949.90
11	1923.73	1892.26	1889.21	1892.13	1899.33	1947.33	1973.23	1986.60	1986.58	1975.72	1963.36	1949.38
12	1922.75	1891.59	1889.25	1893.10	1899.46	1950.36	1974.88	1986.70	1986.36	1975.37	1962.97	1948.82
13	1921.78	1891.32	1889.33	1893.45	1899.58	1952.00	1976.83	1986.78	1986.09	1975.01	1962.58	1948.27
14	1920.80	1890.73	1889.22	1893.23	1899.64	1952.17	1978.40	1986.84	1985.82	1974.65	1962.17	1947.70
15	1919.82	1890.07	1889.03	1893.20	1899.70	1952.14	1979.31	1986.84	1985.58	1974.29	1961.75	1947.14
16	1918.83	1889.60	1888.98	1893.13	1899.74	1952.73	1979.94	1986.86	1985.30	1973.92	1961.34	1946.57
17	1917.82	1889.33	1888.96	1893.17	1899.88	1953.54	1980.51	1986.87	1984.95	1973.56	1960.91	1946.23
18	1916.74	1888.68	1888.86	1893.39	1900.20	1954.66	1981.12	1986.81	1984.58	1973.19	1960.48	1945.75
19	1915.64	1888.03	1888.75	1893.58	1900.65	1955.40	1981.66	1986.82	1984.19	1972.81	1960.03	1945.18
20	1914.56	1887.41	1888.72	1893.67	1901.00	1955.96	1981.75	1986.92	1983.81	1972.42	1959.58	1944.60
21	1913.47	1888.76	1888.72	1893.85	1901.37	1957.16	1981.60	1986.97	1983.40	1972.04	1959.12	1944.02
22	1912.37	1900.90	1888.81	1893.76	1903.27	1957.04	1981.41	1986.94	1982.97	1971.65	1958.69	1943.42
23	1911.25	1891.95	1888.70	1893.74	1905.19	1956.96	1981.27	1986.97	1982.54	1971.26	1958.25	1942.81
24	1910.10	1891.21	1888.54	1893.65	1906.64	1957.11	1981.41	1986.93	1982.10	1970.86	1957.81	1942.19
25	1908.95	1890.63	1888.33	1893.59	1907.82	1957.23	1981.97	1986.90	1981.64	1970.45	1957.36	1941.54
26	1907.76	1890.13	1888.03	1893.54	1908.83	1957.41	1982.49	1986.88	1981.18	1970.01	1956.90	1940.91
27	1906.54	1889.83	1887.76	1893.81	1909.68	1958.28	1983.06	1986.89	1980.72	1969.58	1956.45	1940.30
28	1905.32	1890.14	1887.46	1894.21	1910.37	1959.30	1983.65	1986.90	1980.25	1969.14	1956.00	1939.65
29	1904.09	1889.77	1887.10	1894.56	---	1960.12	1984.38	1986.87	1979.79	1968.71	1955.54	1938.98
30	1902.85	1889.30	1887.03	1895.08	---	1961.04	1985.23	1986.84	1979.35	1968.27	1955.10	1938.14
31	1901.60	---	1886.78	1895.56	---	1961.66	---	1986.85	---	1967.84	1954.65	---
MAX	1932.11	1900.90	1889.33	1895.56	1910.37	1961.66	1985.23	1986.97	1986.95	1978.96	1967.42	1954.19
MIN	1901.60	1887.41	1886.78	1886.14	1896.18	1911.08	1962.45	1986.08	1979.35	1967.84	1954.65	1938.14
(+)	22070	17110	16200	19530	26080	59380	80470	82060	74860	64560	53780	41830
(+)	-16130	-4960	-910	+3330	+6550	+33300	+21090	+1590	-7200	-10300	-10780	-11950

CAL YR 1988 MAX 1960.42 MIN 1886.78 AC-FT+ -2530
WTR YR 1989 MAX 1986.97 MIN 1886.14 AC-FT+ +3630

† Contents, in acre-feet, at 2400, on last day of month.

‡ Change in contents, in acre-feet.

APPLEGATE RIVER BASIN

14362000 APPLEGATE RIVER NEAR COPPER, OR

LOCATION.--Lat 42°03'50", long 123°06'37", in SW 1/4 NW 1/4 sec.30, T.40 S., R.3 W., Jackson County, Hydrologic Unit 17100309, U.S. Corps of Engineers land, on left bank 0.1 mi downstream from Brushy Gulch, 0.6 mi downstream from Applegate Dam, 3.1 mi northeast of former town of Copper, and at mile 45.7.

DRAINAGE AREA.--225 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1938 to current year. Prior to January 1939 monthly discharge only, published in WSP 1318.

REVISED RECORDS.--WDR OR-78-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,747.51 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1977, at site 0.6 mi upstream at datum 12.15 ft higher.

REMARKS.--No estimated daily discharges. Water-discharge records good. Flow regulated since December 1980 by Applegate Lake (station 14361900). Some storage during winter in Squaw Lakes Reservoir, capacity, 1,100 acre-ft on Squaw Creek upstream from station. Diversions upstream from station from Carberry Creek for irrigation in Thompson Creek basin.

AVERAGE DISCHARGE.--51 years, 445 ft³/s, 322,300 acre-ft/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,800 ft³/s Jan. 15, 1974, gage height, 25.38 ft, site and datum then in use, from high-water mark in well, from rating curve extended above 12,000 ft³/s on basis of four slope-area measurements of peak flows made in 1950, 1955, 1964, and 1974; minimum discharge, 1.5 ft³/s Dec. 20, 1980, result of regulation at Applegate dam, 0.6 mi upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,640 ft³/s Nov. 23, gage height, 8.53 ft; minimum discharge, 101 ft³/s Feb. 23-25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	167	309	359	225	238	147	720	170	314	285	227	214
2	167	271	283	225	208	148	638	238	309	247	222	212
3	236	252	267	225	200	165	584	500	328	241	222	211
4	316	257	238	210	190	180	509	676	363	232	224	211
5	313	255	225	214	190	180	449	777	305	233	222	211
6	312	255	225	198	190	180	540	868	266	232	222	211
7	310	254	230	198	190	184	708	878	277	233	222	211
8	309	255	260	198	193	185	683	715	259	233	223	210
9	309	255	245	198	193	183	708	1210	252	233	222	209
10	311	252	227	222	183	180	679	1080	288	233	222	209
11	310	249	237	202	172	309	551	694	300	233	210	222
12	311	249	257	203	172	685	362	576	303	232	198	231
13	310	249	272	288	172	993	262	535	312	233	198	230
14	309	249	283	349	172	1210	495	510	312	233	205	230
15	306	247	263	285	172	1110	791	516	312	233	209	230
16	307	234	217	277	172	851	832	494	319	232	209	232
17	304	223	198	240	172	693	842	492	327	230	210	233
18	320	224	198	200	173	905	868	493	328	231	214	239
19	319	203	198	204	175	1160	913	407	328	232	217	247
20	312	201	198	245	175	973	1060	340	329	232	217	243
21	312	201	199	312	175	1040	1100	362	330	230	217	243
22	310	1360	199	527	166	1470	899	392	328	230	216	241
23	312	3450	198	403	120	1200	797	399	327	230	217	240
24	315	852	198	373	101	1150	620	395	326	230	217	246
25	312	595	198	332	101	1610	351	396	328	236	214	249
26	316	475	198	310	102	1210	318	384	326	241	211	249
27	319	383	198	234	122	717	266	373	322	240	214	251
28	317	502	198	193	146	823	245	373	321	237	215	251
29	314	493	198	193	---	779	172	374	319	234	215	273
30	312	433	211	190	---	672	171	339	320	233	214	328
31	310	---	225	247	---	913	---	318	---	232	214	---
TOTAL	9307	13687	7100	7920	4735	22205	18133	16274	9378	7296	6679	7017
MEAN	300	456	229	255	169	716	604	525	313	235	215	234
MAX	320	3450	359	527	238	1610	1100	1210	363	285	227	328
MIN	167	201	198	190	101	147	171	170	252	230	198	209
AC-FT	18460	27150	14080	15710	9390	44040	35970	32280	18600	14470	13250	13920
MEAN†	37.9	373	214	310	287	1258	959	551	192	67.8	40.2	33.1
AC-FT†	2330	22190	13170	19040	15940	77340	57060	33870	11400	4170	2470	1970

CAL YR 1988 TOTAL 84966 MEAN 232 MAX 3450 MIN 122 AC-FT 168500 MEAN† 229 AC-FT† 166000
WTR YR 1989 TOTAL 129731 MEAN 355 MAX 3450 MIN 101 AC-FT 257300 MEAN† 360 AC-FT† 260900

† Adjusted for change in contents of Applegate Lake.

APPLEGATE RIVER BASIN

289

14362000 APPLEGATE RIVER NEAR COPPER, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1973 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: September 1980 to September 1987.

pH: September 1980 to September 1987.

WATER TEMPERATURE: January 1977 to current year.

DISSOLVED OXYGEN: September 1980 to September 1987.

INSTRUMENTATION.--Water-quality monitor since September 1980.

REMARKS.--Temperatures are controlled by releases from Applegate Lake.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 188 microsiemens Sept. 13, 1980; minimum, 61 microsiemens Dec. 3, 1980, Dec. 20, 1981, June 19, 20, 1983.

pH: Maximum, 9.0 units Sept. 4, 1980; minimum recorded, 7.1 units Oct. 8-10, 13, 16, 17, 1986.

WATER TEMPERATURE: Maximum, 26.5°C Aug. 7, 1978; minimum, 0.0°C on many days during winter periods prior to filling of Applegate Lake.

DISSOLVED OXYGEN: Maximum, 15.2 mg/L Feb. 17, 18, 1986; minimum, 4.9 mg/L Sept. 28-30, 1981.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 16.0°C Oct. 1, 2, July 27, caused by gate changes at Applegate Dam; minimum, 4.0°C Jan. 25-31, Feb. 1-20.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	16.0	15.0	15.5	13.0	12.0	12.5	7.5	7.0	7.0	5.0	4.5	5.0
2	16.0	15.5	15.5	13.0	12.5	12.5	7.0	7.0	7.0	5.0	5.0	5.0
3	15.5	12.5	14.0	13.5	12.5	13.0	7.0	6.5	7.0	5.0	5.0	5.0
4	13.0	13.0	13.0	12.5	12.5	12.5	7.0	6.5	7.0	5.0	5.0	5.0
5	13.5	13.0	13.0	13.5	12.5	13.0	7.0	6.5	7.0	5.0	4.5	5.0
6	13.5	13.0	13.5	13.0	12.5	13.0	7.0	6.5	7.0	5.0	4.5	4.5
7	13.5	13.0	13.5	13.0	12.5	13.0	7.0	6.5	6.5	4.5	4.5	4.5
8	13.5	13.5	13.5	13.0	12.5	13.0	7.0	6.5	6.5	5.0	4.5	4.5
9	14.0	13.5	13.5	13.0	12.5	13.0	7.0	6.5	7.0	5.0	5.0	5.0
10	14.0	13.5	13.5	13.0	8.5	11.0	7.0	6.5	6.5	5.0	4.5	5.0
11	14.0	13.5	13.5	9.0	8.5	9.0	6.5	6.5	6.5	5.0	4.5	4.5
12	14.0	13.5	14.0	10.0	9.0	9.5	6.5	6.0	6.5	5.0	4.5	4.5
13	14.0	13.5	14.0	10.5	10.0	10.5	6.5	6.5	6.5	5.0	4.5	4.5
14	14.0	13.5	14.0	11.0	10.5	11.0	6.5	6.5	6.5	5.0	4.5	5.0
15	14.0	13.5	13.5	11.0	10.5	11.0	6.5	6.5	6.5	5.0	4.5	5.0
16	14.0	13.5	13.5	11.0	10.5	11.0	7.0	6.5	6.5	5.0	4.5	5.0
17	14.0	13.5	13.5	11.0	10.5	10.5	6.5	6.0	6.5	5.0	4.5	4.5
18	13.5	11.0	12.0	10.5	10.5	10.5	6.0	5.5	6.0	5.0	4.5	4.5
19	11.0	9.5	10.0	10.5	10.5	10.5	6.0	5.5	5.5	5.0	4.5	4.5
20	10.0	9.5	9.5	10.5	10.0	10.5	5.5	5.5	5.5	5.0	4.5	4.5
21	10.0	9.5	9.5	10.5	10.0	10.0	5.5	5.0	5.5	4.5	4.5	4.5
22	10.0	9.5	10.0	10.5	9.5	10.0	5.5	5.5	5.5	4.5	4.5	4.5
23	10.0	9.5	10.0	10.0	8.5	9.0	5.5	5.5	5.5	4.5	4.5	4.5
24	10.5	10.0	10.0	8.5	8.0	8.0	5.5	5.0	5.5	4.5	4.5	4.5
25	10.5	10.0	10.5	8.0	7.5	7.5	5.5	5.0	5.5	4.5	4.0	4.5
26	10.5	10.0	10.5	7.5	7.0	7.5	5.5	5.0	5.0	4.5	4.0	4.5
27	11.0	10.5	10.5	7.5	7.0	7.5	5.0	5.0	5.0	4.5	4.0	4.5
28	11.0	10.5	11.0	7.5	7.5	7.5	5.0	5.0	5.0	4.5	4.0	4.0
29	11.5	11.0	11.0	8.0	7.5	7.5	5.5	5.0	5.0	4.5	4.0	4.5
30	11.5	11.5	11.5	7.5	7.0	7.5	5.5	5.0	5.5	4.5	4.0	4.5
31	12.0	11.5	12.0	---	---	---	5.0	5.0	5.0	4.5	4.0	4.5
MONTH	16.0	9.5	12.5	13.5	7.0	10.5	7.5	5.0	6.0	5.0	4.0	4.5

APPLEGATE RIVER BASIN

14362000 APPLEGATE RIVER NEAR COPPER, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	4.5	4.0	4.0	5.0	4.5	5.0	6.5	6.5	6.5	9.0	8.5	8.5
2	4.5	4.0	4.0	5.0	4.5	5.0	6.5	6.5	6.5	9.0	8.5	9.0
3	4.5	4.0	4.0	5.0	4.5	5.0	7.0	6.5	6.5	9.5	8.5	9.5
4	4.5	4.0	4.0	5.0	4.5	5.0	7.0	6.5	7.0	9.5	9.0	9.0
5	4.5	4.0	4.0	5.5	5.0	5.5	7.5	6.5	7.0	10.5	9.0	9.5
6	4.5	4.0	4.0	6.0	5.0	5.5	7.5	7.0	7.5	10.5	10.0	10.5
7	4.5	4.0	4.0	6.0	5.5	6.0	8.0	7.0	7.5	11.0	10.0	10.5
8	4.5	4.0	4.0	6.0	5.5	6.0	8.0	8.0	8.0	11.0	10.5	10.5
9	4.0	4.0	4.0	6.5	6.0	6.0	8.5	7.5	8.0	11.0	9.0	10.0
10	4.5	4.0	4.0	7.0	6.0	6.5	8.0	8.0	8.0	10.5	9.5	10.0
11	4.5	4.0	4.0	7.0	6.5	7.0	9.0	8.0	8.5	10.5	10.0	10.5
12	4.5	4.0	4.0	7.0	6.5	7.0	8.5	7.5	8.0	11.0	10.0	10.5
13	4.5	4.0	4.0	7.0	5.5	6.0	8.0	7.5	8.0	11.0	10.5	10.5
14	4.5	4.0	4.0	5.5	5.5	5.5	9.0	7.5	8.0	11.0	10.0	11.0
15	4.5	4.0	4.0	6.0	5.5	5.5	8.0	8.0	8.0	11.5	10.0	10.5
16	4.5	4.0	4.0	6.0	5.5	6.0	8.0	8.0	8.0	11.0	10.0	10.5
17	4.0	4.0	4.0	6.0	6.0	6.0	8.5	8.0	8.0	11.5	10.5	11.0
18	4.5	4.0	4.0	6.0	6.0	6.0	8.5	8.0	8.0	11.0	10.5	10.5
19	4.5	4.0	4.0	6.0	6.0	6.0	8.5	8.0	8.0	11.0	10.5	10.5
20	4.5	4.0	4.5	6.0	6.0	6.0	8.5	8.0	8.5	11.0	10.0	10.5
21	5.0	4.5	4.5	6.5	6.0	6.0	8.5	8.0	8.5	11.0	10.0	10.5
22	5.0	4.5	4.5	6.5	6.0	6.0	9.0	8.5	8.5	12.5	10.5	11.5
23	5.0	4.5	4.5	6.5	6.0	6.5	8.5	8.0	8.0	12.5	11.0	11.5
24	5.5	4.5	5.0	6.5	6.0	6.5	9.0	8.0	8.5	11.0	10.0	10.5
25	5.5	4.5	5.0	6.5	6.5	6.5	8.5	8.0	8.5	11.0	10.0	10.5
26	5.5	4.5	4.5	6.5	6.5	6.5	8.5	8.0	8.0	11.0	10.0	10.5
27	5.0	4.5	4.5	6.5	6.5	6.5	8.5	8.0	8.0	11.0	10.5	11.0
28	5.0	4.5	5.0	6.5	6.5	6.5	9.0	8.0	8.5	11.0	10.5	10.5
29	---	---	---	6.5	6.5	6.5	10.0	9.0	9.5	11.0	10.5	10.5
30	---	---	---	6.5	6.5	6.5	10.0	8.5	9.0	11.5	10.5	11.0
31	---	---	---	6.5	6.5	6.5	---	---	---	11.5	10.5	11.0
MONTH	5.5	4.0	4.0	7.0	4.5	6.0	10.0	6.5	8.0	12.5	8.5	10.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	12.0	11.0	11.5	12.0	11.0	11.5	13.0	12.0	12.5			
2	12.0	11.0	11.5	12.0	11.0	11.5	13.0	12.0	12.5			
3	12.0	---	---	12.0	11.0	11.5	13.5	12.5	13.0			
4	---	---	---	12.0	11.5	11.5	13.5	12.5	13.0			
5	---	---	---	12.0	11.5	11.5	13.5	12.5	13.5			
6	---	---	---	12.5	11.5	12.0	13.5	13.0	13.5			
7	---	---	---	12.5	11.5	12.0	14.0	13.0	13.5			
8	---	---	---	12.0	11.5	12.0	14.0	13.0	13.5			
9	---	---	---	12.5	11.5	12.0	14.0	13.5	13.5			
10	---	---	---	12.5	11.5	12.0	14.0	13.5	14.0			
11	---	---	---	13.5	11.0	12.0	15.0	13.5	14.0			
12	---	---	---	12.0	11.0	11.5	15.0	14.0	14.5			
13	---	---	---	11.5	11.0	11.5	15.0	14.5	14.5			
14	---	---	---	11.5	11.0	11.5	15.5	14.5	15.0			
15	---	---	---	12.0	11.0	11.5	15.5	15.0	15.0			
16	---	---	---	12.0	11.0	11.5	15.5	15.0	15.5			
17	---	---	---	12.5	11.5	12.0	15.5	13.0	15.0			
18	---	---	---	12.5	11.5	12.0	15.0	14.5	15.0			
19	---	---	---	12.0	11.5	12.0	15.0	14.5	15.0			
20	---	11.0	---	12.5	11.5	12.0	15.0	14.5	15.0			
21	12.0	11.5	11.5	12.5	12.0	12.0	15.5	14.5	15.0			
22	12.0	11.5	12.0	12.5	12.0	12.5	15.5	14.5	15.0			
23	12.5	11.5	12.0	12.5	12.0	12.5	15.0	14.5	15.0			
24	12.5	12.0	12.5	13.0	12.0	12.5	15.0	14.5	15.0			
25	12.5	12.0	12.5	13.0	12.5	12.5	15.0	14.0	14.5			
26	12.5	11.0	11.5	13.0	12.5	13.0	15.0	14.0	14.5			
27	11.5	11.0	11.0	16.0	12.5	13.0	15.0	14.5	14.5			
28	11.5	11.0	11.5	13.0	12.0	12.5	15.0	14.5	14.5			
29	11.5	11.0	11.5	12.5	12.0	12.0	15.0	---	---			
30	12.0	11.0	11.5	13.0	12.0	12.5	---	---	---			
31	---	---	---	13.5	12.0	13.0	---	---	---			
MONTH	---	---	---	16.0	11.0	12.0	---	---	---			

APPLEGATE RIVER BASIN

291

14362250 STAR GULCH NEAR RUCH, OR

LOCATION.--Lat 42°09'15", long 123°04'27", in NE 1/4 NE 1/4 sec.29, T.39 S., R.3 W., Jackson County, Hydrologic Unit 17100309, Bureau of Land Management land, on left bank 1.0 mi downstream from Benson Gulch, 6.0 mi southwest of Ruch, and at mile 1.1.

DRAINAGE AREA.--16.0 mi².

PERIOD OF RECORD.--July 1983 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,667.04 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--6 years, 4.12 ft³/s, 2,985 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 153 ft³/s Dec. 14, 1983, Nov. 28, 1985, gage height, 3.11 ft; no flow July 16, Aug. 10-15, Aug. 20 to Sept. 3, 1987, July 23 to Sept. 21, 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 40 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 10	unknown	50	a2.38	Mar. 10	0100	*56	*2.44

Minimum discharge, .06 ft³/s Sept. 15.

a From inside high-water mark.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	.53	2.6	e1.7	4.4	3.8	6.0	3.2	1.5	.78	.28	.34
2	.09	1.2	2.1	e1.8	4.3	4.3	6.1	3.0	1.4	.73	.30	.31
3	.07	1.9	1.8	e2.1	3.7	4.0	6.8	2.8	1.3	.67	.27	.28
4	.09	1.4	1.6	e2.2	3.3	3.9	6.6	2.7	1.3	.63	.23	.25
5	.19	1.1	1.4	e2.4	e3.1	15	6.5	2.6	1.3	.58	.17	.21
6	.26	1.3	1.3	e2.3	e2.8	30	6.1	2.4	1.2	.51	.13	.19
7	.28	1.3	1.3	e2.2	e2.7	19	5.6	2.3	1.2	.43	.11	.18
8	.25	1.2	1.2	e2.1	e2.6	14	5.2	2.3	1.2	.39	.58	.17
9	.23	1.1	1.1	e4.5	e2.4	34	4.8	3.0	1.2	.45	.76	.15
10	.20	1.7	1.1	e12.0	e2.3	47	4.4	3.0	1.2	.48	.50	.12
11	.18	1.3	1.1	e9.0	e2.2	31	4.0	2.7	1.1	.44	.44	.12
12	.17	1.1	1.1	e7.0	e2.1	22	3.8	2.5	1.1	.37	.36	.11
13	.17	1.6	1.0	e5.0	e2.0	19	3.7	2.4	1.0	.32	.29	.10
14	.18	2.0	1.0	e4.0	e1.9	16	3.5	2.3	1.1	.31	.25	.09
15	.20	1.6	.96	e3.2	1.9	14	3.3	2.2	1.2	.33	.22	.09
16	.23	1.8	.96	e2.8	2.0	14	3.2	2.1	1.3	.35	.20	.10
17	.25	2.1	.95	e2.6	2.2	14	3.1	2.0	1.1	.40	.20	.63
18	.25	1.7	.90	e2.6	2.7	24	2.9	2.0	1.0	.35	.19	1.1
19	.24	1.4	.95	e2.8	3.6	25	2.9	2.0	1.0	.28	.17	.73
20	.28	1.3	1.1	e3.0	3.9	21	2.8	1.9	.99	.25	.16	.59
21	.30	2.5	1.4	e5.0	4.0	18	3.0	1.9	.96	.27	.16	.50
22	.28	18	2.5	e7.0	9.1	14	3.0	1.8	.89	.26	.17	.40
23	.31	14	2.0	e6.0	14	12	3.2	1.9	.83	.24	.23	.31
24	.35	5.7	1.7	e5.0	10	11	4.2	1.9	.75	.23	.26	.27
25	.37	3.9	e1.4	e4.0	7.2	11	4.6	1.8	.68	.19	.24	.26
26	.34	3.5	e1.3	e3.5	5.6	9.6	4.8	1.7	.64	.17	.21	.31
27	.34	2.9	e1.2	e3.0	4.6	8.9	4.3	1.8	.67	.19	.18	.61
28	.36	4.0	e1.1	e2.5	4.1	8.2	3.9	1.9	.71	.20	.14	.63
29	.37	3.7	e1.2	e3.0	---	7.3	3.6	1.8	.86	.18	.28	.82
30	.38	3.1	e1.7	e3.5	---	6.7	3.4	1.7	.82	.18	.46	1.1
31	.43	---	e1.8	e4.0	---	6.4	---	1.6	---	.20	.41	---
TOTAL	7.74	89.93	42.82	121.8	114.7	488.1	129.3	69.2	31.50	11.36	8.55	11.07
MEAN	.25	3.00	1.38	3.93	4.10	15.7	4.31	2.23	1.05	.37	.28	.37
MAX	.43	.18	2.6	12	14	47	6.8	3.2	1.5	.78	.76	1.1
MIN	.07	.53	.90	1.7	1.9	3.8	2.8	1.6	.64	.17	.11	.09
AC-FT	15	178	85	242	228	968	256	137	62	23	17	22

CAL YR 1988 TOTAL 498.15 MEAN 1.36 MAX 29 MIN .00 AC-FT 988
WTR YR 1989 TOTAL 1126.07 MEAN 3.09 MAX 47 MIN .07 AC-FT 2230

e Estimated

APPLEGATE RIVER BASIN

14366000 APPLEGATE RIVER NEAR APPLEGATE, OR

LOCATION.--Lat 42°14'30", long 123°08'20", in NE 1/4 sec.26, T.38 S., R.4 W., Jackson County, Hydrologic Unit 17100309, on left bank 0.9 mi downstream from Keeler Creek, 1.8 mi southeast of Applegate, and at mile 26.7.

DRAINAGE AREA.--483 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1938 to current year.

RECORDS.--WSP 1738: Drainage area. WSP 1935: 1953(M). WDR OR-76-1: 1956(M), 1965(M).

GAGE.--Water-stage recorder. Datum of gage is 1,285.33 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 23, 1938, nonrecording gage at same site and datum.

REMARKS.--Water-discharge records good. Flow regulated since December 1980 by Applegate Lake (station 14361900). Many diversions for irrigation upstream from station. McDonald Creek Canal diverts from McDonald Creek upstream from station for irrigation in Bear Creek basin. Thompson Creek Irrigation Association ditch diverts upstream from station for irrigation in Thompson Creek basin. Fowler-Keeler and Berryman ditches divert upstream from station for irrigation downstream.

AVERAGE DISCHARGE.--51 years, 547 ft³/s, 396,300 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,200 ft³/s Jan. 15, 1974, gage height, 20.41 ft, from rating curve extended above 18,000 ft³/s on basis of slope-area measurements of flow at gage heights 18.00 ft and 19.57 ft; minimum discharge, 4.6 ft³/s Sept. 22-25, 1979. Minimum since first filling of Applegate Lake, 84 ft³/s July 19, 1988.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Feb. 20, 1927, reached a stage of 18.7 ft, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,550 ft³/s Nov. 23, gage height, 7.30 ft, provided by Corps of Engineers; minimum discharge, 131 ft³/s Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	133	300	399	242	313	210	946	329	377	299	207	207
2	135	294	306	242	270	223	846	352	370	244	198	208
3	158	258	295	252	260	223	803	613	381	236	196	207
4	274	262	265	240	239	238	717	842	428	224	195	205
5	284	261	246	249	226	306	649	938	376	226	195	205
6	288	265	244	232	231	449	719	1040	327	225	197	202
7	287	262	244	231	236	376	901	1050	320	220	198	198
8	288	259	268	231	235	347	905	950	307	222	214	194
9	288	264	265	237	239	610	956	1530	288	222	231	193
10	289	275	243	464	235	750	909	1610	320	222	218	193
11	291	268	245	349	218	641	792	1080	331	219	210	195
12	290	265	265	299	217	943	586	911	325	220	192	209
13	289	272	272	329	215	1220	432	814	327	218	190	211
14	287	271	288	400	213	1440	610	769	326	219	191	210
15	287	271	277	345	211	1330	975	724	330	224	194	211
16	286	266	244	322	212	1120	1030	667	333	227	195	215
17	286	258	217	305	214	914	1030	648	339	226	190	246
18	292	e256	216	248	217	1070	1040	641	339	220	193	271
19	307	e244	215	246	224	1420	1080	568	341	215	197	258
20	297	e229	214	282	223	1220	1180	464	343	216	197	249
21	294	e250	219	315	223	1200	1280	460	336	214	196	249
22	294	e1180	226	589	270	1700	1080	491	333	213	195	243
23	296	e4210	220	487	264	1430	966	509	325	213	196	243
24	297	e1090	218	439	210	1270	866	487	322	213	198	246
25	295	e681	217	389	195	1820	525	482	317	211	199	247
26	295	e542	215	360	186	1460	497	469	316	217	195	253
27	303	e449	212	315	184	966	416	452	310	216	197	257
28	301	e542	216	254	212	974	405	454	313	215	198	259
29	301	e569	215	250	---	998	315	459	315	214	201	272
30	303	e458	223	250	---	852	318	429	310	211	209	327
31	301	---	243	281	---	1060	---	383	---	212	209	---
TOTAL	8616	15271	7652	9674	6392	28780	23774	21615	10025	6893	6191	6883
MEAN	278	509	247	312	228	928	792	697	334	222	200	229
MAX	307	4210	399	589	313	1820	1280	1610	428	299	231	327
MIN	133	229	212	231	184	210	315	329	288	211	190	193
AC-FT	17090	30290	15180	19190	12680	57090	47160	42870	19880	13670	12280	13650

CAL YR 1988 TOTAL 489191 MEAN 244 MAX 4210 MIN 90 AC-FT 176900
WTR YR 1989 TOTAL 151766 MEAN 416 MAX 4210 MIN 133 AC-FT 301000

e Estimated

APPLEGATE RIVER BASIN

293

14366000 APPLEGATE RIVER NEAR APPLEGATE, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: August 1973 to current year.

INSTRUMENTATION.--Temperature recorder since August 1973.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 28.0°C July 29, 30, Aug. 3, 4, 1974; minimum, 0.0°C on several days 1975-80, 1989.
 Maximum since full operation of Applegate Lake, 25.5°C July 5, 1984; minimum, 0.0°C Jan. 27, 30, 1985,
 Feb. 5-8, 1989.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 20.5°C July 18, 25; minimum, 0.0°C Feb. 5-8.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	18.0	14.5	16.0	12.0	10.0	11.0	6.5	4.5	5.5	5.0	3.0	4.0
2	17.5	14.0	16.0	12.0	11.5	12.0	6.5	5.0	6.0	5.5	4.0	4.5
3	17.0	13.5	15.0	13.5	11.5	12.5	6.5	5.0	6.0	5.5	5.0	5.5
4	15.5	12.0	13.5	13.0	11.5	12.5	6.0	4.0	5.0	5.5	5.0	5.0
5	15.5	13.0	14.0	13.0	11.5	12.5	6.5	4.5	5.5	5.0	4.0	4.5
6	16.0	12.0	14.0	12.5	11.0	12.0	7.5	6.5	7.0	4.5	3.5	4.0
7	16.0	12.5	14.5	11.0	10.0	10.5	7.0	5.5	6.5	4.5	3.5	4.0
8	16.0	12.5	14.5	12.5	10.5	11.0	6.5	5.5	6.0	5.0	3.5	4.0
9	16.0	12.5	14.5	11.0	9.5	10.5	6.5	5.0	6.0	6.0	4.5	5.0
10	15.5	12.0	14.0	11.5	11.0	11.0	7.0	5.5	6.0	6.0	5.0	5.5
11	15.5	12.5	14.0	11.0	8.5	9.5	6.5	5.0	5.5	5.5	4.0	5.0
12	15.0	12.0	13.5	10.0	9.0	9.5	6.5	5.0	5.5	4.5	2.5	3.5
13	14.0	13.0	13.5	9.5	9.0	9.0	6.5	5.5	6.0	4.0	3.0	3.5
14	15.0	11.5	13.5	10.0	8.5	9.0	6.0	4.5	5.5	4.5	3.5	4.0
15	15.0	12.0	13.5	10.5	9.0	9.5	4.5	2.5	4.0	5.5	4.0	4.5
16	15.5	12.0	14.0	10.0	9.0	9.5	5.0	2.5	4.0	5.5	3.5	4.5
17	15.5	12.0	14.0	9.5	9.0	9.5	4.5	3.0	4.0	5.0	3.5	4.5
18	15.0	12.0	13.5	9.5	8.5	9.0	4.5	2.5	3.5	5.0	3.0	4.0
19	13.0	10.0	12.0	9.5	7.5	8.5	5.5	4.5	5.0	4.5	2.5	3.5
20	12.0	9.0	10.5	10.0	8.5	9.0	5.0	4.5	5.0	4.5	2.5	3.5
21	12.0	9.0	10.5	9.0	8.5	8.5	5.0	4.0	4.5	4.5	3.0	4.0
22	12.0	9.0	10.5	9.5	9.0	9.0	5.0	4.0	4.5	5.0	4.0	4.5
23	12.0	8.5	10.5	9.5	8.0	9.0	5.0	3.5	4.5	4.5	3.0	3.5
24	11.5	8.5	10.0	8.0	7.0	7.5	4.5	4.0	4.0	5.0	2.5	3.5
25	12.0	9.0	10.5	8.0	7.0	7.5	4.5	3.5	4.0	4.5	2.5	3.5
26	12.0	9.0	10.5	8.0	6.5	7.0	4.0	3.0	3.5	5.0	2.5	3.5
27	11.5	9.0	10.0	7.5	5.5	6.5	4.0	3.0	3.5	5.0	2.5	4.0
28	11.0	8.5	10.0	8.0	6.5	7.5	5.0	3.5	4.0	5.0	3.0	4.0
29	12.0	9.5	10.5	7.0	5.5	6.5	4.5	4.0	4.5	5.0	2.5	4.0
30	12.0	9.5	11.0	6.5	5.0	5.5	5.5	4.0	4.5	5.5	3.0	4.0
31	12.0	9.0	10.5	---	---	---	5.5	4.5	5.0	6.5	4.0	5.0
MONTH	18.0	8.5	12.5	13.5	5.0	9.5	7.5	2.5	5.0	6.5	2.5	4.0

APPLEGATE RIVER BASIN

14366000 APPLEGATE RIVER NEAR APPLEGATE, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	5.0	3.5	4.0	5.0	3.5	4.5	8.5	6.5	7.0	14.5	10.0	12.0
2	3.5	2.5	3.0	5.5	4.0	4.5	8.0	6.5	7.0	13.5	10.0	11.5
3	3.0	1.5	2.5	6.5	3.0	4.5	9.0	6.0	7.5	11.5	9.5	11.0
4	3.0	1.0	2.0	6.0	4.0	5.0	11.5	6.5	9.0	14.0	10.0	11.5
5	2.0	.0	.5	7.0	5.5	6.5	12.0	7.0	9.0	14.5	9.5	12.0
6	2.5	.0	1.0	8.0	6.0	7.0	12.5	7.5	10.0	14.5	10.5	12.0
7	3.0	.0	1.0	9.0	6.0	7.5	12.0	7.5	9.5	15.5	10.5	12.5
8	3.0	.0	1.5	8.0	6.5	7.5	12.5	8.0	10.0	15.0	10.5	12.5
9	4.0	1.5	2.5	8.0	6.5	7.5	12.0	8.0	10.0	12.0	9.0	10.5
10	4.0	2.0	3.0	9.0	6.0	7.5	11.5	8.0	9.5	11.0	9.0	9.5
11	5.5	3.0	4.0	9.5	7.0	8.0	12.5	7.5	10.0	12.5	9.5	10.5
12	4.5	3.0	4.0	8.5	6.5	7.5	13.5	8.0	10.5	12.5	8.5	10.5
13	5.0	3.0	4.0	8.0	5.0	6.5	13.5	8.5	11.0	14.0	9.0	11.5
14	5.0	2.0	3.5	6.5	4.5	5.5	12.5	9.5	11.0	14.0	9.0	11.5
15	5.0	2.0	3.5	8.0	5.5	6.5	12.5	8.5	10.0	15.0	9.0	12.0
16	6.0	4.5	5.0	8.0	5.5	6.5	12.5	8.0	10.0	15.0	9.5	12.0
17	5.5	5.0	5.5	7.0	5.5	6.0	12.5	8.0	10.0	14.5	10.0	12.0
18	7.0	5.0	5.5	7.5	5.5	6.5	12.5	8.0	10.0	13.0	10.0	11.5
19	7.0	5.0	6.0	8.5	6.0	7.0	12.0	8.5	10.0	14.5	8.5	11.5
20	7.5	4.5	6.0	7.5	5.0	6.5	11.0	8.5	9.5	15.0	9.0	12.0
21	7.5	5.5	6.0	8.5	6.5	7.5	9.0	8.5	8.5	15.0	10.0	12.5
22	6.5	5.0	5.5	8.0	6.0	6.5	10.5	8.0	9.0	13.5	9.5	12.0
23	7.5	4.5	5.5	7.5	5.5	6.5	9.5	8.0	8.5	12.5	10.5	11.5
24	7.5	5.0	6.0	8.0	6.0	7.0	10.5	7.5	9.0	12.5	10.0	11.0
25	7.0	3.5	5.0	8.0	6.0	7.0	9.0	7.5	8.5	15.0	10.0	12.0
26	7.0	3.5	5.0	7.0	5.5	6.0	11.0	8.0	9.0	14.5	9.0	12.0
27	7.0	3.0	5.0	7.5	6.0	7.0	13.0	7.5	10.0	14.0	10.5	12.0
28	6.5	3.0	4.5	9.0	6.5	7.5	13.0	7.5	10.5	13.5	10.0	11.5
29	---	---	---	9.5	6.0	7.5	14.0	8.5	11.5	14.0	9.5	11.5
30	---	---	---	7.5	6.0	7.0	12.5	10.5	11.5	16.0	9.5	13.0
31	---	---	---	9.5	6.5	7.5	---	---	---	17.0	10.5	13.5
MONTH	7.5	.0	4.0	9.5	3.0	6.5	14.0	6.0	9.5	17.0	8.5	11.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	17.5	11.0	14.5	17.5	11.5	14.5	17.0	12.5	14.5	18.5	14.5	16.5
2	17.5	11.5	15.0	18.0	12.0	15.0	19.0	14.0	16.0	18.5	14.0	16.0
3	17.5	11.5	15.0	18.5	13.0	16.0	---	---	---	18.5	14.0	16.5
4	17.5	12.5	15.0	18.5	13.5	16.0	---	---	---	19.0	14.5	16.5
5	18.5	12.0	15.5	19.0	13.0	16.0	---	---	---	18.5	14.5	16.5
6	18.0	12.0	15.5	19.5	13.5	16.5	---	---	---	18.0	13.5	16.0
7	18.0	12.0	15.5	19.0	13.5	16.5	---	---	---	18.5	13.5	16.0
8	18.0	12.0	15.0	18.5	13.5	16.0	---	---	---	18.5	14.0	16.5
9	17.5	12.0	15.0	18.0	13.0	15.5	---	---	---	19.0	14.5	16.5
10	17.5	11.0	14.5	19.0	14.0	16.5	---	---	---	19.0	14.5	17.0
11	18.0	11.5	15.0	20.0	14.0	17.0	---	---	---	19.0	14.5	16.5
12	18.0	12.0	15.5	20.0	15.0	17.5	---	---	---	18.5	14.0	16.0
13	16.5	12.5	14.5	19.5	14.0	17.0	---	---	---	18.5	13.5	16.0
14	16.0	12.5	14.5	19.0	14.5	17.0	---	---	---	18.5	14.0	16.0
15	15.0	13.5	14.0	19.0	14.5	17.0	---	---	---	18.5	14.5	16.5
16	17.5	12.0	14.5	16.5	14.0	15.5	---	---	---	17.0	14.5	15.5
17	18.0	11.5	14.5	20.0	14.0	16.5	---	---	---	15.5	13.5	14.5
18	18.5	12.0	15.0	20.5	15.0	17.5	---	---	---	16.5	13.0	14.5
19	16.5	12.0	14.5	20.0	15.0	17.5	---	---	---	17.0	12.5	14.5
20	17.5	11.5	14.5	19.5	15.0	17.0	---	---	---	17.5	13.0	15.0
21	18.0	11.0	14.5	19.5	14.5	17.0	---	---	---	18.0	13.5	15.5
22	18.5	11.5	15.0	19.5	14.0	17.0	---	---	---	18.0	13.5	16.0
23	19.0	12.5	16.0	18.5	14.5	17.0	18.0	15.5	16.5	18.0	14.0	16.0
24	19.5	12.5	16.0	20.0	14.5	17.5	19.0	15.0	17.0	18.0	14.0	16.0
25	19.5	13.0	16.0	20.5	15.0	17.5	19.0	14.0	16.5	16.5	13.5	15.5
26	19.0	13.0	16.0	20.0	15.0	17.5	19.5	15.0	17.0	16.5	14.5	15.5
27	17.5	12.0	15.0	19.5	14.5	17.0	19.5	15.5	17.5	17.5	14.5	15.5
28	14.5	11.5	13.0	20.0	14.0	17.0	19.0	14.5	17.0	16.0	13.5	15.0
29	15.5	12.0	13.5	19.0	14.5	17.0	18.0	15.0	16.5	16.0	14.0	15.0
30	17.5	12.5	14.5	19.0	14.5	16.5	17.5	15.0	16.0	15.0	13.5	14.5
31	---	---	---	16.5	14.0	15.0	19.0	14.0	16.5	---	---	---
MONTH	19.5	11.0	15.0	20.5	11.5	16.5	---	---	---	19.0	12.5	16.0

APPLEGATE RIVER BASIN

295

14369500 APPLEGATE RIVER NEAR WILDERVILLE, OR

LOCATION.--Lat 42°21'15", long 123°24'20", in SE 1/4 NE 1/4 sec.16, T.37 S., R.6 W., Josephine County, Hydrologic Unit 17100309, on left bank 0.3 mi downstream from Jackson Creek, 3.6 mi southeast of Wilderville, and at mile 7.6.

DRAINAGE AREA.--698 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1938 to September 1955, September 1978 to current year.

REVISED RECORDS.--WSP 1318: 1943. WSP 1738: 1951, 1953, drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 947.18 ft above National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Sept. 1, 1978, nonrecording gage at site 1,100 ft upstream at datum 2.36 ft higher.

REMARKS.--No estimated daily discharges. Water-discharge records good. Flow regulated since December 1980 by Applegate Lake (station 14361900). Many diversions for irrigation upstream from station. Wilderville ditch diverts up to 16 ft³/s 0.3 mi upstream and at the mouth of Jackson Creek.

AVERAGE DISCHARGE.--28 years, 735 ft³/s, 532,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,500 ft³/s Jan. 18, 1953, gage height, 18.3 ft, from floodmark, site and datum then in use, from rating curve extended above 12,000 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 0.78 ft³/s Aug. 22-24, 1979. Minimum since first filling of Applegate Lake, 63 ft³/s July 19-21, 1988.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 22, 1955, reached a stage of 20.3 ft, from floodmark, former site and datum, discharge, 66,500 ft³/s, from rating curve extended above 12,000 ft³/s on basis of slope-area measurement of peak flow.

Flood of February 1927 reached a stage of 22 ft at former site, from local resident. Floods of Dec. 22, 1964, and Jan. 15, 1974, are known to have exceeded the December 1955 flood.

No flow was observed at present site during the late summer of 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,860 ft³/s Nov. 23, gage height, 7.63 ft; maximum gage height, 8.23 ft Nov. 23, from crest-stage gage; minimum discharge, 104 ft³/s Oct. 1-4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	140	309	e720	e420	542	401	1460	524	423	298	185	e179
2	140	335	688	e420	537	438	1360	519	400	253	e166	e178
3	140	347	570	e410	510	457	1510	654	394	232	167	e177
4	209	338	518	e410	470	457	1400	919	436	215	170	e176
5	272	332	463	e420	425	1030	1240	1020	425	199	169	e175
6	295	331	423	e400	401	1650	1170	1160	360	206	161	e174
7	296	330	396	e400	401	1180	1280	1170	299	200	162	e173
8	299	327	e440	e400	400	974	1300	1140	299	203	161	e172
9	299	327	e430	e450	396	1900	1310	1320	274	207	211	e171
10	299	327	e400	2310	395	2560	1260	1920	285	207	204	170
11	299	327	e400	1310	373	1920	1160	1340	297	204	202	167
12	299	327	e420	898	363	1790	971	1030	298	196	183	166
13	299	341	e450	783	357	1980	758	814	291	193	169	169
14	299	370	e480	812	347	2140	768	755	298	192	166	176
15	299	370	e460	757	337	2010	1160	689	301	204	166	183
16	299	370	e440	698	336	1780	1250	650	310	205	166	185
17	299	392	e400	672	336	1560	1240	594	313	207	166	214
18	299	387	e380	593	336	1690	1240	594	315	195	166	e260
19	302	356	e350	557	350	2160	1280	e594	317	188	165	e250
20	304	332	e350	550	360	1950	1310	e481	317	184	168	e245
21	304	347	e350	608	360	1820	1480	e481	313	189	170	e245
22	304	2060	e380	1230	589	2240	1370	e544	306	189	170	e240
23	304	5630	e370	1110	867	2080	1190	569	295	185	170	e250
24	304	2150	e360	921	638	1820	1170	582	297	190	173	255
25	304	1160	e350	807	526	2180	886	574	300	188	173	255
26	304	995	e350	712	466	2120	840	555	293	192	173	260
27	304	789	e350	662	422	1520	710	518	295	191	170	270
28	306	794	e350	550	402	1370	663	518	295	184	170	270
29	308	878	e350	518	---	1480	582	522	304	183	170	276
30	308	e800	e370	505	---	1270	525	511	307	184	181	327
31	308	---	e410	492	---	1400	---	445	---	184	e180	---
TOTAL	8745	22478	13168	21785	12242	49327	33843	23706	9657	6247	5373	6408
MEAN	282	749	425	703	437	1591	1128	765	322	202	173	214
MAX	308	5630	720	2310	867	2560	1510	1920	436	298	211	327
MIN	140	309	350	400	336	401	525	445	274	183	161	166
AC-FT	17350	44590	26120	43210	24280	97840	67130	47020	19150	12390	10660	12710

CAL YR 1988 TOTAL 123430 MEAN 337 MAX 5630 MIN 63 AC-FT 244800
WTR YR 1989 TOTAL 212979 MEAN 584 MAX 5630 MIN 140 AC-FT 422400

e Estimated

APPLEGATE RIVER BASIN

14369500 APPLEGATE RIVER NEAR WILDERVILLE, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: September 1978 to current year.

INSTRUMENTATION.--Temperature recorder since September 1978.

REMARKS.--Water-temperature recorder ran fast during period Oct. 17 to Jan. 5 (range in temperature 2.0°C to 12.5°C).

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 28.0°C July 20, 1979, July 20, 26, 1988; minimum, 0.0°C Feb. 6, 7, 1989.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 26.0°C Aug. 7; minimum, 0.0°C Feb. 6, 7.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	20.0	16.5	18.0	12.0	10.5	11.5	6.5	6.0	6.0	5.5	4.5	5.0
2	19.5	16.0	17.5	12.0	11.5	12.0	6.5	6.0	6.5	6.5	4.5	5.5
3	19.0	15.5	17.0	13.5	12.0	13.0	7.0	6.0	6.5	7.0	6.0	6.5
4	16.5	15.5	16.0	13.5	12.5	13.0	6.5	6.0	6.0	7.0	6.5	6.5
5	16.5	14.5	15.5	13.5	12.0	13.0	6.5	5.5	6.0	6.5	5.5	6.0
6	---	14.0	---	13.0	11.5	12.5	8.0	6.5	7.0	5.5	5.0	5.5
7	18.0	---	---	12.0	10.5	11.0	8.5	7.0	8.0	6.0	5.0	5.5
8	17.5	15.0	16.5	12.0	10.5	11.0	7.5	6.5	7.0	6.0	4.5	5.0
9	17.5	14.5	16.5	11.0	9.5	10.0	7.0	6.0	6.5	7.5	6.0	7.0
10	17.0	14.0	16.0	11.5	10.0	11.0	7.5	6.0	7.0	7.5	6.5	6.5
11	17.0	14.0	16.0	11.5	10.5	11.0	7.0	6.5	7.0	7.0	5.5	6.5
12	16.0	14.0	15.0	11.5	10.5	11.0	7.0	7.0	7.0	5.5	5.0	5.0
13	15.5	14.0	15.0	10.5	9.5	10.0	7.5	6.5	7.0	5.0	4.0	4.5
14	15.5	13.5	14.5	10.0	8.5	9.5	6.5	5.0	6.0	5.5	4.0	5.0
15	16.0	13.0	14.5	10.5	9.0	10.0	5.0	3.5	4.5	6.0	5.0	5.5
16	16.0	13.5	15.0	10.5	9.5	10.0	4.5	2.5	3.5	7.0	5.5	6.0
17	16.0	13.5	15.0	9.5	9.0	9.5	4.5	3.0	4.0	6.5	5.5	6.0
18	16.0	13.5	15.0	9.0	8.5	9.0	4.5	2.5	3.5	6.0	5.0	5.5
19	15.5	13.5	14.5	9.0	8.0	8.5	6.0	4.5	5.5	5.5	5.0	5.5
20	15.0	12.5	14.0	10.0	8.5	9.5	6.0	5.5	5.5	5.5	5.0	5.0
21	14.0	11.5	13.0	9.5	8.5	9.0	6.5	5.0	5.5	5.0	5.0	5.0
22	14.0	11.5	13.0	9.5	9.5	9.5	6.0	4.5	5.5	6.0	4.5	5.5
23	13.5	11.0	12.5	9.0	8.0	9.0	5.5	4.5	5.5	5.0	4.0	4.5
24	13.0	10.5	12.0	8.0	7.5	8.0	5.5	5.0	5.0	5.5	4.0	4.5
25	13.0	10.5	12.0	8.5	7.5	8.0	5.5	4.5	5.0	5.5	4.0	4.5
26	13.0	10.5	12.0	8.5	7.5	8.0	4.5	4.0	4.5	5.5	4.0	4.5
27	12.5	10.5	11.5	8.5	7.0	8.0	4.5	3.5	4.0	6.0	4.0	5.0
28	11.5	10.0	11.0	8.5	7.5	8.5	5.0	4.0	4.5	6.0	5.0	5.5
29	12.5	10.0	11.5	7.5	6.5	6.5	5.5	4.5	5.0	6.0	4.5	5.0
30	12.5	10.5	11.5	6.5	6.0	6.5	6.0	5.0	5.5	6.0	4.5	5.0
31	12.0	10.0	11.5	---	---	---	6.0	5.0	5.5	7.0	4.5	6.0
MONTH	---	---	---	13.5	6.0	10.0	8.5	2.5	5.5	7.5	4.0	5.5

APPLEGATE RIVER BASIN

297

14369500 APPLEGATE RIVER NEAR WILDERVILLE, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	6.5	4.5	5.5	7.0	5.0	5.5	9.5	7.5	8.5	16.5	11.0	13.5
2	4.5	3.5	4.0	6.0	4.5	5.5	8.5	7.5	8.0	16.0	12.5	14.5
3	4.0	3.0	3.5	7.0	4.5	6.0	9.5	7.0	8.5	14.5	13.0	13.5
4	3.5	2.0	3.0	7.0	5.0	6.0	12.5	8.5	10.0	16.0	12.0	14.0
5	2.5	.5	1.5	8.0	6.0	7.0	13.0	9.5	11.0	16.5	12.5	14.5
6	2.0	.0	1.0	9.5	7.0	8.0	13.5	10.0	11.5	16.5	12.5	15.0
7	2.5	.0	1.5	9.5	7.5	8.5	13.5	10.0	12.0	17.0	13.0	15.0
8	3.0	.5	2.0	9.0	8.0	8.5	14.0	10.0	12.0	17.0	13.0	15.5
9	4.0	1.5	3.0	9.5	8.0	8.5	13.5	10.0	12.0	15.5	11.0	13.0
10	4.5	3.0	3.5	10.0	7.5	8.5	13.0	10.0	11.5	12.5	10.0	11.0
11	5.5	3.5	4.5	10.0	8.5	9.0	13.5	9.5	11.5	13.0	10.0	11.5
12	6.5	4.0	5.0	9.0	8.0	8.5	14.5	10.5	12.5	13.5	10.5	12.0
13	6.0	4.0	5.0	9.0	7.0	8.0	15.0	11.5	13.5	15.5	11.0	13.0
14	5.5	3.0	4.5	7.5	5.5	7.0	14.5	12.5	13.5	16.0	12.0	13.5
15	6.0	3.0	4.5	9.5	6.5	8.0	14.0	10.5	12.5	16.0	12.0	14.0
16	6.5	5.0	6.0	9.0	7.0	8.0	14.0	10.0	12.5	16.5	13.0	14.5
17	7.0	6.0	6.5	8.0	6.5	7.5	14.0	10.0	12.0	16.5	13.0	15.0
18	7.5	6.5	7.0	9.0	7.0	8.0	14.0	10.5	12.5	14.0	12.5	13.0
19	8.5	6.5	7.5	10.0	7.0	8.5	14.5	11.0	13.0	15.5	10.5	13.0
20	9.0	7.0	8.0	8.5	6.0	7.5	13.0	10.5	11.5	17.0	12.5	14.5
21	9.0	7.0	8.0	10.5	8.0	9.0	11.0	9.5	10.0	16.5	13.5	15.0
22	8.5	7.0	7.5	9.0	7.0	8.5	11.0	8.5	9.5	15.5	13.0	14.0
23	8.5	6.0	7.0	8.5	6.5	7.5	10.0	9.0	9.5	13.5	12.0	13.0
24	9.0	6.5	7.5	9.0	7.5	8.0	11.5	8.5	10.0	14.5	11.5	13.0
25	7.5	5.0	6.5	9.5	7.5	8.5	10.5	9.5	10.0	17.0	11.5	14.0
26	8.0	5.0	6.5	7.5	6.0	7.0	12.0	9.0	10.5	16.0	12.5	14.5
27	7.5	4.5	6.5	8.5	7.0	7.5	14.0	9.5	11.5	16.5	14.0	15.0
28	7.5	4.5	6.5	10.5	8.0	9.0	15.0	10.5	12.5	14.5	13.0	13.5
29	---	---	---	10.5	7.0	9.0	15.5	11.0	13.5	16.0	12.0	14.0
30	---	---	---	9.5	8.0	8.5	14.5	12.5	13.5	17.5	12.5	15.0
31	---	---	---	11.0	8.0	9.0	---	---	---	19.5	14.0	16.5
MONTH	9.0	.0	5.0	11.0	4.5	8.0	15.5	7.0	11.5	19.5	10.0	14.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	20.5	15.0	18.0	20.0	15.5	18.0	19.0	16.5	18.0	21.0	18.0	19.0
2	21.0	16.0	18.5	21.5	15.5	18.5	22.0	18.0	19.5	20.5	17.0	18.5
3	21.0	16.5	19.0	22.0	17.0	19.5	23.5	19.0	21.0	21.0	16.5	18.5
4	21.5	16.5	19.0	22.5	18.0	20.5	24.0	19.0	21.5	21.5	17.5	19.0
5	21.5	16.5	19.0	23.0	18.0	20.5	24.5	20.0	22.0	21.0	17.5	19.0
6	22.0	16.5	19.5	23.5	18.5	21.0	25.0	21.0	23.0	20.0	16.5	18.0
7	22.0	16.5	19.0	23.0	18.5	21.0	26.0	21.5	23.5	20.5	16.5	18.5
8	21.5	16.5	19.5	22.5	18.5	20.5	24.0	22.0	23.0	20.5	16.5	18.5
9	21.0	16.5	19.0	22.0	18.0	20.0	23.5	20.5	22.0	21.0	17.5	19.0
10	21.0	15.5	18.5	22.5	17.5	20.0	22.5	20.0	21.0	21.5	18.0	19.5
11	22.0	16.0	19.0	23.5	18.5	21.0	23.5	19.0	21.0	21.5	17.5	19.5
12	21.5	16.5	19.5	24.0	19.5	22.0	24.0	20.0	21.5	20.5	17.0	18.5
13	20.0	17.0	19.0	24.0	19.5	22.0	23.5	19.5	21.5	20.0	16.5	18.0
14	19.5	16.5	18.0	22.0	19.0	20.5	23.0	19.5	21.0	20.0	16.5	18.0
15	18.0	16.5	17.5	23.0	19.0	20.5	23.0	19.0	21.0	20.5	17.0	18.5
16	20.0	15.0	17.5	21.0	19.0	19.5	22.5	18.5	20.5	19.0	17.5	18.0
17	20.5	15.5	18.0	23.5	18.0	20.5	23.0	19.0	20.5	17.5	15.0	16.5
18	21.0	16.0	18.5	25.0	20.0	22.5	23.5	19.0	21.0	17.5	14.0	15.5
19	19.5	15.5	17.5	25.0	20.0	22.5	23.0	20.0	21.5	18.0	14.5	16.5
20	20.0	15.0	17.5	22.5	20.0	21.0	24.0	20.5	22.0	18.5	14.5	16.5
21	21.0	15.5	18.5	23.0	18.5	20.5	24.0	20.0	21.5	19.0	15.5	17.0
22	22.0	16.0	19.0	23.5	18.5	21.0	22.0	20.0	21.0	19.5	15.5	17.5
23	22.5	17.0	20.0	23.0	19.5	21.5	21.0	18.5	20.0	19.5	16.0	18.0
24	23.0	17.5	20.5	24.5	19.5	22.0	21.5	17.5	19.5	20.0	16.5	18.5
25	23.5	18.0	21.0	24.5	20.0	22.0	21.5	17.5	19.5	18.5	16.0	17.5
26	23.0	18.0	20.5	23.0	19.5	21.5	22.5	18.5	20.0	18.0	16.0	17.5
27	21.5	17.0	19.5	23.0	19.5	21.0	23.0	19.0	21.0	18.5	16.0	17.5
28	19.0	16.0	17.0	24.0	19.0	21.5	22.0	18.5	20.5	18.0	16.0	17.0
29	17.0	15.0	15.5	23.0	19.5	21.0	21.0	19.0	20.0	17.5	16.0	16.5
30	20.0	15.0	17.5	22.5	19.0	20.5	20.0	18.0	19.0	16.0	15.0	15.5
31	---	---	---	20.0	18.0	19.0	21.0	16.5	18.5	---	---	---
MONTH	23.5	15.0	18.5	25.0	15.5	20.5	26.0	16.5	21.0	21.5	14.0	18.0

LOWER ROGUE RIVER BASIN

14371500 GRAVE CREEK AT PEASE BRIDGE, NEAR PLACER, OR

LOCATION.--Lat 42°38'30", long 123°12'40", in SE 1/4 sec.6, T.34 S., R.4 W., Jackson County, Hydrologic Unit 17100310, on right bank 0.5 mi downstream from Pease Bridge, 0.5 mi upstream from Boulder Creek, 5.4 mi east of Placer, and at mile 27.1.

DRAINAGE AREA.--22.1 mi² at measuring site 0.5 mi upstream.

PERIOD OF RECORD.--October 1940 to April 1989 (discontinued). Prior to October 1945 monthly discharge only, published in WSP 1318.

REVISED RECORDS.--WSP 1738: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,354.2 ft above National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark). Prior to Aug. 4, 1955, at sites 0.5 mi upstream at datum 29.9 ft higher.

REMARKS.--Records good except for estimated daily discharges, which are poor. No regulation. One small diversion upstream from station. Prior to 1945, Columbia upper ditch diverted water about 2 mi upstream from station, bypassing station. Records herein are for measuring site.

AVERAGE DISCHARGE.--43 years (water years 1946-88), 58.5 ft³/s, 35.95 in/yr, 42,380 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,240 ft³/s Dec. 22, 1964, gage height, 11.20 ft, from rating curve extended above 1,200 ft³/s on basis of slope-area measurement at gage height 9.66 ft; minimum discharge, 0.12 ft³/s July 15, 1970.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 850 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	1200	1,040	4.89	Jan. 10	0230	*1,130	*5.06

Minimum discharge during period October through April, 1.2 ft³/s Oct. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO APRIL 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR
1	1.4	1.8	54	23	125	68	121
2	1.4	3.1	45	23	95	64	124
3	1.4	6.6	38	32	75	54	128
4	1.4	4.2	33	45	60	48	113
5	1.6	3.5	28	62	52	191	103
6	1.6	9.8	29	53	47	371	100
7	1.7	5.0	28	44	42	243	96
8	1.6	5.6	25	39	35	179	90
9	1.5	4.9	22	122	31	409	81
10	1.5	8.5	22	581	29	431	71
11	1.5	6.9	21	189	27	317	61
12	1.4	6.8	18	118	25	242	55
13	1.5	13	17	88	24	215	50
14	1.5	15	16	68	23	162	47
15	1.6	18	14	57	22	151	43
16	1.6	35	13	56	27	158	38
17	1.6	63	12	63	38	149	35
18	1.6	30	11	70	82	263	32
19	1.6	18	11	75	132	250	30
20	1.6	19	13	88	114	182	28
21	1.6	83	14	110	118	294	29
22	1.5	756	15	133	253	239	30
23	1.6	314	14	101	230	171	30
24	1.6	121	14	77	158	144	33
25	1.6	88	13	62	122	159	e95
26	1.6	84	13	54	97	139	e90
27	1.6	73	12	54	83	124	e70
28	1.6	168	12	55	73	132	e60
29	1.6	104	12	58	---	127	e55
30	1.6	70	21	88	---	115	e50
31	1.6	---	26	124	---	129	---
TOTAL	48.1	2138.7	636	2812	2239	5920	1988
MEAN	1.55	71.3	20.5	90.7	80.0	191	66.3
MAX	1.7	756	54	581	253	431	128
MIN	1.4	1.8	11	23	22	48	28
AC+FT	95	4240	1260	5580	4440	11740	3940
CFSM	.07	3.23	.93	4.10	3.62	8.64	3.00
IN.	.08	3.60	1.07	4.73	3.77	9.96	3.35

CAL YR 1988 TOTAL 11215.40 MEAN 30.6 MAX 756 MIN .83 AC-FT 22250 CFSM 1.39 IN. 18.88

e Estimated

LOWER ROGUE RIVER BASIN

14372300 ROGUE RIVER NEAR AGNESS, OR
(National stream quality accounting network station)

LOCATION.--Lat 42°34'50", long 124°03'30", in NE 1/4 NW 1/4 sec.6, T.35 S., R.11 W., Curry County, Hydrologic Unit 17100310, on left bank 0.8 mi upstream from Shasta Costa Creek, 1.5 mi north of Agness, 2.6 mi upstream from Illinois River, and at mile 29.7.

DRAINAGE AREA.--3,939 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 113.81 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Public Roads).

REMARKS.--Water-discharge records good. Flow regulated since February 1977 by Lost Creek Lake (station 14335040), since December 1980 by Applegate Lake (station 14361900), slight regulation by Fish Lake and Emigrant Lake. Many diversions for irrigation and mining.

AVERAGE DISCHARGE.--29 years, 6,075 ft³/s, 4,401,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 290,000 ft³/s Dec. 23, 1964, from slope-area measurement; maximum gage height, 68.03 ft Dec. 23, 1964, from floodmark (backwater from Illinois River); minimum discharge, 608 ft³/s July 9, 10, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 39,800 ft³/s Jan. 10; maximum gage height, 14.04 ft, from crest-stage gage Jan. 10; minimum discharge, 1,190 ft³/s Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1340	1450	5620	5860	5410	4340	11600	6530	4130	2830	2260	2900
2	1320	1640	4870	4890	5330	4470	11500	6330	3970	2760	2240	2830
3	1320	1990	4220	4620	4940	5880	12700	6140	3860	2680	2200	2830
4	1330	1770	3870	5040	4450	5170	12300	6190	4030	2640	2180	2780
5	1300	1690	3590	5520	3820	8590	10300	6270	4200	2530	2170	2760
6	1370	1880	3320	7270	3490	21300	9370	6700	4050	2500	2150	2770
7	1390	1750	3120	5840	3430	14500	9080	7100	3900	2460	2160	2810
8	1390	1800	3040	5230	3370	10400	9340	7140	3850	2440	2160	2760
9	1380	1720	2960	e8000	3410	12900	9340	7100	3690	2510	2250	2770
10	1430	2250	2930	e13000	3350	24300	9310	8860	3320	2520	2490	2750
11	1650	2080	2840	e23500	3210	18800	8750	8400	3300	2540	2430	2760
12	1760	2070	2810	11600	2840	16100	7990	7070	3250	2450	2410	2710
13	1430	2620	2810	9200	2800	16300	7590	6110	3030	2380	2660	2580
14	1450	3150	2800	8040	2780	15000	7360	5590	2860	2410	2650	2300
15	1450	2860	2750	7530	2660	12700	7510	5190	2920	2420	2670	2220
16	1430	3390	2660	7250	2730	11800	7660	4800	3030	2380	2650	2110
17	1420	5770	2480	6700	3070	13000	7570	4230	3350	2390	2650	2040
18	1420	4630	2220	6410	3750	17100	7460	4180	3200	2400	2610	2400
19	1410	3400	2250	6210	4980	18000	7060	4430	2930	2350	2600	2540
20	1400	2860	2420	6020	5370	15900	6660	4400	2890	2290	2600	2100
21	1420	3610	3160	6270	4850	14400	6450	4050	2880	2270	2630	1760
22	1410	14000	4550	9110	5860	18600	6950	4000	2790	2290	2650	1760
23	1410	28600	5900	10300	10100	17400	6950	4170	2770	2320	2670	1700
24	1410	15000	5290	7480	8830	15600	6800	4970	2730	2320	2710	1660
25	1410	10300	5000	6310	6850	14900	8260	4890	2690	2320	2740	1670
26	1410	8930	4360	5540	5820	14500	12500	4480	2640	2250	2710	1720
27	1410	7420	3800	5120	5120	12600	9450	4340	2650	2260	2670	1940
28	1440	7740	3410	4870	4680	10900	8100	4330	2660	2250	2660	1910
29	1450	8800	3210	4620	---	11600	6990	4700	2750	2230	2670	1880
30	1450	6820	e3840	4570	---	11100	6640	4670	2900	2210	2740	1980
31	1440	---	6390	4870	---	10600	---	4340	---	2220	2930	---
TOTAL	44050	161990	112490	226790	127300	418750	259540	171700	97220	74820	77970	69700
MEAN	1421	5400	3629	7316	4546	13510	8651	5539	3241	2414	2515	2323
MAX	1760	28600	6390	23500	10100	24300	12700	8860	4200	2830	2930	2900
MIN	1300	1450	2220	4570	2660	4340	6450	4000	2640	2210	2150	1660
AC-FT	87370	321300	223100	449800	252500	830600	514800	340600	192800	148400	154700	138200
CAL YR 1988	TOTAL 1150730	MEAN 3144	MAX 28600	MIN 1210	AC-FT 2282000							
WTR YR 1989	TOTAL 1842320	MEAN 5047	MAX 28600	MIN 1300	AC-FT 3654000							

e Estimated

LOWER ROGUE RIVER BASIN

14372300 ROGUE RIVER NEAR AGNESS, OR---Continued
(National stream quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1960 to September 1987.

INSTRUMENTATION.--Temperature recorder from October 1960 to September 1987.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 26.5°C on several days in 1962, Aug. 3, 6, 9-11, 1977; minimum, 1.0°C Jan. 22-25, 1962, Dec. 9-16, 1972, Jan. 9, 10, 1977, Jan. 1-3, 1979.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS NONCARB (MG/L AS CACO3)
OCT 12...	1115	1940	107	7.6	14.5	3.5	9.8	97	100	160	41	0
DEC 20...	1230	2200	111	7.4	4.5	1.3	12.5	98	K6	K6	44	0
FEB 28...	1100	4630	99	7.8	6.0	4.0	12.3	99	K3	K11	44	0
APR 12...	1300	7890	88	8.1	12.0	2.8	11.8	111	K22	K19	38	0
JUN 07...	1300	3940	79	8.1	18.0	1.7	10.3	110	K3	K5	31	0
AUG 16...	1200	2650	82	8.0	19.5	2.1	9.3	102	K4	32	33	0

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WATER DIS IT FIELD (MG/L AS CACO3)	BICAR- BONATE WATER DIS IT FIELD (MG/L AS HCO3)	CAR- BONATE WATER DIS IT FIELD (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 12...	9.6	4.2	5.6	22	0.4	1.3	47	57	0	3.8	2.8	0.1
DEC 20...	10	4.6	5.2	20	0.4	0.9	46	56	0	4.5	3.2	0.1
FEB 28...	10	4.7	4.5	18	0.3	0.8	44	54	0	4.8	2.4	0.1
APR 12...	8.8	3.8	4.0	18	0.3	0.8	40	49	0	2.4	1.6	0.1
JUN 07...	7.4	3.0	3.7	20	0.3	0.8	36	43	0	2.0	1.4	0.1
AUG 16...	8.2	3.1	4.8	23	0.4	1.3	38	46	0	2.0	1.8	0.1

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS TOTAL (MG/L AS P)
OCT 12...	23	77	80	403	0.10	<0.01	0.22	0.3	--	0.01	0.02
DEC 20...	23	85	82	505	0.12	0.05	0.29	0.4	0.06	0.06	0.07
FEB 28...	20	67	75	838	0.09	<0.01	0.14	0.2	0.03	0.03	0.04
APR 12...	21	68	67	1450	0.09	<0.01	<0.10	<0.2	0.03	0.03	0.04
JUN 07...	20	65	60	691	0.09	0.02	<0.10	<0.2	0.03	0.03	0.05
AUG 16...	25	59	69	422	0.08	0.01	<0.10	<0.2	0.04	0.06	0.08

K - Results based on colony count outside acceptable range (non-ideal colony count).

LOWER ROGUE RIVER BASIN

301

14372300 ROGUE RIVER NEAR AGNESS, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)
OCT 12...	<10	1	9	<0.5	<1	<1	<3	3	150	<5	<4
DEC 20...	--	--	--	--	--	--	--	--	--	--	--
FEB 28...	70	<1	9	<0.5	<1	1	<3	1	51	<5	<4
APR 12...	50	<1	8	<0.5	<1	1	<3	2	47	<5	<4
JUN 07...	--	--	--	--	--	--	--	--	--	--	--
AUG 16...	10	<1	7	<0.5	<1	<1	<3	3	30	<1	<4

DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)
OCT 12...	4	0.1	<10	1	<1	<1	73	<6	9	7	37
DEC 20...	--	--	--	--	--	--	--	--	--	2	12
FEB 28...	2	<0.1	<10	<1	<1	<1	71	<6	5	4	50
APR 12...	4	<0.1	<10	<1	<1	1	64	<6	6	10	213
JUN 07...	--	--	--	--	--	--	--	--	--	5	53
AUG 16...	3	0.2	<10	2	<1	<1	64	<6	7	8	57

ILLINOIS RIVER BASIN

14372500 EAST FORK ILLINOIS RIVER NEAR TAKILMA, OR

LOCATION.--Lat 42°00'10", long 123°37'30", in SE 1/4 NE 1/4 sec.15, T.41 S., R.8 W., Josephine County, Hydrologic Unit 17100311, Siskiyou National Forest, on right bank 0.3 mi downstream from Dunn Creek (California-Oregon State line), 3.4 mi south of Takilma, and at mile 71.2.

DRAINAGE AREA.--42.3 mi².

PERIOD OF RECORD.--April to September 1926, April 1927 to April 1932, October 1940 to current year. Monthly discharge only for some periods, published in WSP 1318. Records prior to 1942 water year not equivalent owing to large diversions.

REVISED RECORDS.--WSP 1184: 1948. WSP 1288: 1951(P). WSP 1398: 1946, 1947(M), 1949. WSP 1738: Drainage area (former site).

GAGE.--Water-stage recorder. Elevation of gage is 1,780 ft, from topographic map. Prior to Oct. 31, 1946, nonrecording gage at sites 0.6 mi downstream at different datums. Oct. 31, 1946, to May 13, 1949, nonrecording gage and May 14, 1949, to Aug. 23, 1965, water-stage recorder at site 0.6 mi downstream at datum 1,746.6 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records excellent. No regulation. Two small diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--48 years (water years 1942-89), 177 ft³/s, 56.82 in/yr, 128,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,700 ft³/s Dec. 22, 1964, gage height, 14.90 ft, present site and datum, from floodmark, from rating curve extended above 4,400 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 4.6 ft³/s Nov. 3, 1960.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	1800	*5,860	*9.84	No other peak greater than base discharge.			
Minimum discharge, 7.7 ft ³ /s Oct. 21, 22, 26-30, Nov. 1.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.5	8.1	200	140	221	142	518	143	87	24	15	10
2	8.4	27	169	120	194	214	600	134	85	23	14	10
3	8.3	33	146	115	163	187	584	139	81	22	13	10
4	8.7	19	126	115	138	170	463	156	76	21	13	10
5	10	19	113	130	121	805	407	174	69	21	13	9.8
6	9.9	48	138	125	121	1030	403	167	63	20	12	9.8
7	9.3	21	128	120	109	607	408	154	57	19	12	9.7
8	9.1	26	112	110	98	447	392	153	53	19	12	9.6
9	8.8	24	108	304	91	1320	377	144	50	19	12	9.6
10	8.4	135	114	1450	86	1200	345	124	46	19	12	9.5
11	8.3	81	115	516	82	1070	290	103	43	18	12	9.4
12	8.4	101	108	321	80	829	291	92	41	18	12	9.3
13	8.5	190	104	278	77	786	298	86	39	17	12	9.0
14	8.8	156	93	229	75	556	296	81	39	17	11	8.8
15	8.7	185	83	206	73	455	271	78	40	17	11	8.8
16	8.6	235	75	209	76	505	246	77	37	17	11	9.1
17	8.5	303	69	192	93	483	238	79	34	17	11	12
18	8.2	158	64	180	135	635	240	77	32	16	11	13
19	8.1	111	63	178	197	661	226	67	31	16	11	12
20	8.3	139	68	191	176	503	211	61	30	15	11	11
21	8.2	609	112	316	181	1060	195	60	28	15	11	10
22	7.8	3280	158	613	593	744	159	64	27	15	12	9.7
23	8.2	1400	133	368	546	495	147	92	26	15	12	9.6
24	8.2	577	111	259	343	435	137	107	25	14	12	9.5
25	8.0	507	91	206	252	711	137	106	24	14	11	9.6
26	7.7	403	76	178	205	547	131	106	23	14	11	9.9
27	7.8	307	70	166	175	413	122	116	23	14	11	15
28	7.7	538	65	153	154	490	119	115	23	14	10	12
29	7.9	350	61	147	---	445	119	105	26	13	10	14
30	7.9	248	91	191	---	412	136	95	29	13	11	17
31	8.0	---	165	223	---	603	---	89	---	14	11	---
TOTAL	261.2	10238.1	3329	8049	4855	18960	8506	3344	1287	530	363	316.7
MEAN	8.43	341	107	260	173	612	284	108	42.9	17.1	11.7	10.6
MAX	10	3280	200	1450	593	1320	600	174	87	24	15	17
MIN	7.7	8.1	61	110	73	142	119	60	23	13	10	8.8
AC-FT	518	20310	6600	15970	9630	37610	16870	6630	2550	1050	720	628
CFSM	.20	8.07	2.54	6.14	4.10	14.5	6.70	2.55	1.01	.40	.28	.25
IN.	.23	9.00	2.93	7.08	4.27	16.67	7.48	2.94	1.13	.47	.32	.28

CAL YR 1988 TOTAL 41675.8 MEAN 114 MAX 3280 MIN 7.7 AC-FT 82660 CFSM 2.69 IN. 36.65
WTR YR 1989 TOTAL 60039.0 MEAN 164 MAX 3280 MIN 7.7 AC-FT 119100 CFSM 3.89 IN. 52.80

ILLINOIS RIVER BASIN

303

14375100 SUCKER CREEK BELOW LITTLE GRAYBACK CREEK, NEAR HOLLAND, OR

LOCATION.--Lat 42°09'35", long 123°28'40", in NE 1/4 SW 1/4 sec.24, T.39 S., R.7 W., Josephine County, Hydrologic Unit 17100311, on right bank 500 ft downstream from Little Grayback Creek, 2.0 mi downstream from Grayback Creek, 3.7 mi northeast of Holland, and at mile 9.3.

DRAINAGE AREA.--83.9 mi².

PERIOD OF RECORD.--October 1965 to current year.

REVISED RECORDS.--WDR OR-86-2: 1985.

GAGE.--Water-stage recorder. Datum of gage is 1,713.92 ft above National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark).

REMARKS.--No estimated daily discharges. Records good. Grayback Canal and 3 small diversions from Grayback and Cave Creeks divert water for domestic use and irrigation upstream from station. Return flow from these diversions enters creek upstream from station.

AVERAGE DISCHARGE.--24 years, 234 ft³/s, 37.88 in/yr, 169,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,550 ft³/s Jan. 15, 1974, gage height, 8.20 ft; minimum discharge, 12 ft³/s Oct. 20, 1974.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1940, 10.8 ft on Dec. 22, 1964, from floodmark, discharge, 19,300 ft³/s, from estimate based on slope-area measurement of peak flow at site 0.7 mi upstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	1900	*2,990	*5.49	Mar. 9	2400	2,200	4.95
Jan. 10	0430	1,550	4.41				

Minimum discharge, 17 ft³/s Oct. 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	19	169	124	260	197	577	281	149	73	43	28
2	19	58	149	132	236	214	596	261	149	70	41	28
3	19	66	133	150	211	203	665	259	148	69	40	27
4	21	38	120	158	191	197	612	273	145	67	39	27
5	25	33	110	177	172	521	576	298	139	65	38	26
6	24	68	117	166	160	834	569	299	135	62	37	26
7	22	36	111	151	151	669	578	290	128	59	36	26
8	22	40	105	143	145	561	582	290	123	58	39	25
9	20	34	106	190	139	1370	578	303	120	58	45	25
10	19	110	113	955	132	1670	548	280	115	57	38	24
11	19	71	114	478	128	1600	488	232	111	56	37	24
12	19	76	110	340	123	1190	480	214	107	54	34	23
13	19	120	115	279	119	1020	480	204	104	52	33	22
14	21	104	107	231	116	828	484	196	103	52	33	22
15	21	104	98	205	112	692	464	188	110	52	32	22
16	20	115	91	192	113	675	434	184	105	51	31	24
17	20	159	88	192	126	635	419	183	97	52	31	37
18	20	93	84	196	153	773	420	178	94	50	31	40
19	20	73	84	203	188	898	404	166	91	47	30	31
20	20	87	89	218	186	748	388	159	89	46	30	29
21	19	216	103	306	198	942	384	156	86	46	29	27
22	19	1590	119	528	502	894	320	155	83	45	33	26
23	20	922	117	391	518	749	295	173	80	44	36	25
24	19	377	114	301	385	641	286	172	77	43	33	24
25	19	294	106	250	310	764	315	172	75	42	31	24
26	18	257	95	222	263	663	305	167	73	41	30	27
27	18	208	89	206	232	586	280	174	72	41	29	30
28	18	347	86	191	210	605	270	171	72	41	28	28
29	18	252	83	187	---	553	266	159	79	40	28	32
30	19	199	118	219	---	529	282	152	81	40	32	41
31	19	---	133	252	---	610	---	150	---	42	31	---
TOTAL	616	6166	3376	7933	5779	23031	13345	6539	3140	1615	1058	820
MEAN	19.9	206	109	256	206	743	445	211	105	52.1	34.1	27.3
MAX	25	1590	169	955	518	1670	665	303	149	73	45	41
MIN	18	19	83	124	112	197	266	150	72	40	28	22
AC-FT	1220	12230	6700	15740	11460	45680	26470	12970	6230	3200	2100	1630
CFSM	.24	2.45	1.30	3.05	2.46	8.86	5.30	2.51	1.25	.62	.41	.33
IN.	.27	2.73	1.50	3.52	2.56	10.21	5.92	2.90	1.39	.72	.47	.36

CAL YR 1988 TOTAL 44738 MEAN 122 MAX 1590 MIN 18 AC-FT 88740 CFSM 1.46 IN. 19.84
WTR YR 1989 TOTAL 73418 MEAN 201 MAX 1670 MIN 18 AC-FT 145600 CFSM 2.40 IN. 32.55

ILLINOIS RIVER BASIN

14375400 ELK CREEK NEAR O'BRIEN, OR

LOCATION.--Lat 42°02'00", long 123°44'32", in SE 1/4 NE 1/4 sec.3, T.41 S., R.9 W., Josephine County, Hydrologic Unit 17100311, on right bank 0.7 mi downstream from Gilligan Creek, 0.8 mi west of U.S. Highway 199, about 3.1 mi southwest of O'Brien, and at mile 0.6.

DRAINAGE AREA.--26.6 mi².

PERIOD OF RECORD.--October 1985 to current year. Records November 1969 to September 1985 in files of the Oregon Water Resources Department, Salem, Oregon.

REVISED RECORDS.--WDR OR-87-2: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,560 ft, from topographic map. Prior to November 1978, at site 1,100 ft upstream at different datum.

REMARKS.--Records good. No regulation. Minor diversion for irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,610 ft³/s Jan. 16, 1971; minimum, 0.33 ft³/s Aug. 11, 12, 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,600 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	1730	*2,600	*8.53	Jan. 10	0430	1,610	6.30

Minimum discharge, 1.1 ft³/s Oct. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	2.9	123	209	88	96	261	47	29	13	7.0	3.3
2	2.6	19	99	161	83	146	322	44	26	11	5.8	2.6
3	2.6	29	81	145	76	150	386	41	25	11	5.2	2.6
4	2.7	18	68	142	68	134	292	40	23	11	4.6	2.4
5	3.2	15	60	154	64	699	224	38	22	10	4.3	2.3
6	3.3	30	56	139	60	592	186	35	22	10	3.8	2.1
7	3.3	14	51	116	57	355	160	34	20	9.0	3.5	2.1
8	3.3	14	48	109	55	265	142	33	19	8.8	3.3	2.1
9	3.0	13	44	245	53	606	126	33	19	8.7	3.2	2.0
10	2.7	48	42	971	51	626	113	34	18	9.2	3.4	2.0
11	2.4	34	40	369	50	475	102	31	17	8.9	3.7	2.0
12	2.5	36	38	241	50	410	94	30	16	8.5	3.5	2.0
13	2.7	99	36	214	49	521	87	29	15	8.1	3.3	1.8
14	3.1	142	35	190	48	418	80	28	15	8.1	3.1	1.8
15	3.1	126	33	200	48	310	75	26	17	8.5	2.9	1.8
16	3.0	134	32	228	52	306	70	25	16	8.2	2.7	1.8
17	2.7	205	31	202	72	391	66	24	15	8.2	2.6	3.6
18	2.6	106	30	176	118	458	63	25	14	8.1	2.5	6.1
19	2.4	62	33	155	165	405	60	24	14	7.3	2.5	4.2
20	2.4	53	45	139	140	300	58	23	14	6.7	2.3	3.4
21	2.4	279	138	175	126	332	61	23	13	6.6	2.3	2.9
22	2.3	1710	286	350	316	293	57	26	12	6.1	3.4	2.3
23	2.3	771	244	244	333	236	58	67	12	5.9	4.9	2.1
24	2.3	379	202	188	220	206	57	84	11	5.5	4.4	1.9
25	2.3	408	150	155	170	368	68	67	11	5.3	3.5	1.7
26	2.4	311	114	132	139	324	66	54	11	5.3	3.1	2.2
27	2.4	226	96	117	118	249	58	46	11	5.9	2.7	5.8
28	2.6	274	81	104	104	236	54	43	11	5.2	2.4	3.8
29	2.8	201	73	94	---	217	51	39	14	5.1	2.4	4.8
30	2.7	154	225	90	---	210	50	35	16	5.9	4.0	6.6
31	2.8	---	303	89	---	276	---	32	---	6.3	4.1	---
TOTAL	83.6	5912.9	2937	6243	2973	10610	3547	1160	498	245.4	110.4	86.1
MEAN	2.70	197	94.7	201	106	342	118	37.4	16.6	7.92	3.56	2.87
MAX	3.3	1710	303	971	333	699	386	84	29	13	7.0	6.6
MIN	2.3	2.9	30	89	48	96	50	23	11	5.1	2.3	1.7
AC-FT	166	11730	5830	12380	5900	21040	7040	2300	988	487	219	171
CFSM	.10	7.41	3.56	7.57	3.99	12.9	4.44	1.41	.62	.30	.13	.11
IN.	.12	8.27	4.11	8.73	4.16	14.84	4.96	1.62	.70	.34	.15	.12

CAL YR 1988 TOTAL 24514.9 MEAN 67.0 MAX 1710 MIN 1.9 AC-FT 48630 CFSM 2.52 IN. 34.28
WTR YR 1989 TOTAL 34406.4 MEAN 94.3 MAX 1710 MIN 1.7 AC-FT 68250 CFSM 3.54 IN. 48.12

ILLINOIS RIVER BASIN

305

14377100 ILLINOIS RIVER NEAR KERBY, OR

LOCATION.--Lat 42°13'55", long 123°39'45", in SE 1/4 SE 1/4 sec.29, T.38 S., R.8 W., Josephine County, Hydrologic Unit 17100311, Siskiyou National Forest, on right bank 1.6 mi upstream from Josephine Creek, 2.5 mi northwest of Kerby, and at mile 50.3.

DRAINAGE AREA.--380 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 1,198.8 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 28, 1965, water-stage recorder, and Jan. 28 to Sept. 30, 1965, nonrecording gage 700 ft downstream at datum 2.99 ft lower.

REMARKS.--No estimated daily discharges. Records good. No regulation. Diversions for irrigation upstream from station. Several observations of water temperature were obtained during the year.

AVERAGE DISCHARGE.--28 years, 1,304 ft³/s, 46.60 in/yr, 944,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 92,200 ft³/s Dec. 22, 1964, gage height, 45.28 ft, from floodmark, site and datum then in use, from rating curve extended above 30,000 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 14 ft³/s Aug. 11, 13, 14, 1977, Sept. 10, 11, 1986.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 11,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	1900	*26,200	*25.61	Mar. 5	1700	14,400	18.96
Jan. 10	0630	13,500	18.38	Mar. 9	2300	11,100	16.61

Minimum discharge, 20 ft³/s Sept. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	48	1470	1730	1340	1140	3260	939	520	159	44	35
2	30	87	1200	1340	1250	1650	4030	863	483	143	44	33
3	28	241	1010	1300	1110	1620	4730	836	452	128	42	34
4	29	235	871	1310	978	1440	3590	842	431	116	38	33
5	34	178	765	1550	861	6930	2920	866	403	110	35	33
6	33	300	741	1440	786	8040	2570	869	379	104	32	32
7	35	259	708	1210	737	4650	2400	822	342	98	30	32
8	40	202	636	1080	696	3490	2260	807	318	95	32	30
9	34	221	591	2230	666	7590	2140	811	301	88	32	25
10	33	597	578	9120	641	8440	2010	815	285	87	30	24
11	33	693	562	4100	618	7340	1780	691	270	86	27	25
12	34	566	531	2590	620	6190	1680	626	249	82	31	26
13	36	1240	515	2270	609	6560	1620	587	235	79	30	26
14	33	1930	482	1960	590	4790	1580	559	221	77	29	26
15	31	1780	440	1820	573	3730	1510	533	221	76	29	25
16	33	1940	409	2130	585	3810	1390	505	232	75	30	24
17	34	2990	377	2070	759	4480	1310	497	217	73	32	33
18	33	1590	353	1790	1150	6120	1280	493	201	68	29	35
19	33	996	361	1590	1870	5380	1230	462	198	67	30	37
20	33	925	440	1480	1530	3900	1150	434	191	65	29	38
21	33	2830	1150	1780	1420	4700	1170	419	171	62	27	38
22	33	16500	2410	4610	3680	4310	1070	417	159	63	29	38
23	37	10600	2110	2940	4580	3290	1020	569	144	64	31	37
24	36	4620	1690	2160	2860	2870	1000	1040	118	62	32	37
25	34	4650	1290	1730	2110	4960	1120	1010	114	62	32	37
26	34	3790	999	1460	1690	4030	1200	829	113	46	30	36
27	37	2580	864	1310	1430	3190	1070	738	115	45	30	37
28	35	3830	769	1190	1260	3500	981	699	116	42	29	38
29	37	2540	689	1090	---	3140	924	654	131	41	30	49
30	49	1860	1660	1140	---	2750	919	599	164	42	34	61
31	47	---	2480	1280	---	3690	---	558	---	44	35	---
TOTAL	1069	70818	29151	64800	36999	137720	54914	21389	7494	2449	994	1014
MEAN	34.5	2361	940	2090	1321	4443	1830	690	250	79.0	32.1	33.8
MAX	49	16500	2480	9120	4580	8440	4730	1040	520	159	44	61
MIN	28	48	353	1080	573	1140	919	417	113	41	27	24
AC-FT	2120	140500	57820	128500	73390	273200	108900	42430	14860	4860	1970	2010
CFSM	.09	6.21	2.47	5.50	3.48	11.7	4.82	1.82	.66	.21	.08	.09
IN.	.10	6.93	2.85	6.34	3.62	13.48	5.38	2.09	.73	.24	.10	.10

CAL YR 1988 TOTAL 290791 MEAN 795 MAX 16500 MIN 17 AC-FT 576800 CFSM 2.09 IN. 28.47
WTR YR 1989 TOTAL 428811 MEAN 1175 MAX 16500 MIN 24 AC-FT 850500 CFSM 3.09 IN. 41.98

CHETCO RIVER BASIN

14400000 CHETCO RIVER NEAR BROOKINGS, OR

LOCATION.--Lat 42°07'25", long 124°11'10", in SE 1/4 sec.12, T.40 S., R.13 W., Curry County, Hydrologic Unit 17100312, on right bank 16 ft upstream from bridge, 0.5 mi upstream from Elk Creek, 6.8 mi northeast of Brookings, and at mile 10.7.

DRAINAGE AREA.--271 mi².

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

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 50 ft, from topographic map.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station. Several measurements of water temperature made during the year.

AVERAGE DISCHARGE.--20 years, 2,309 ft³/s, 115.71 in/yr, 1,673,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65,800 ft³/s Jan. 16, 1971, gage height, 27.45 ft; minimum discharge, 42 ft³/s Oct. 14, 1987.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 22, 1964, reached a stage of 32.25 ft, from high-water mark on bridge pier, discharge, 85,400 ft³/s, from rating curve extended above 45,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 20,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	1500	*39,800	19.75	Jan. 10	0600	25,100	15.22
Nov. 22	1500	(a)	*19.93	Mar. 5	1730	23,500	14.63

Minimum discharge, 60 ft³/s Oct. 28-30.

(a) From crest-stage gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74	79	3410	4040	2040	2010	4640	1070	721	386	157	93
2	72	1010	2760	3160	1810	2580	6410	971	662	323	154	88
3	71	2570	2300	2760	1630	2310	6020	897	614	293	147	84
4	73	1530	1940	2750	1450	2160	4710	853	568	275	142	82
5	81	1040	1680	3310	1290	11100	3770	796	537	258	137	81
6	83	2610	1600	3000	1190	15900	3100	749	518	247	132	80
7	79	1250	1390	2550	1110	8450	2670	700	492	234	129	77
8	76	1090	1240	2650	1040	5620	2370	664	470	226	127	76
9	75	1000	1100	6580	987	7140	2110	627	449	218	126	75
10	72	2450	995	17600	963	9180	1890	603	429	213	123	73
11	70	1950	892	8430	936	10200	1670	566	410	208	120	74
12	70	2350	808	5610	910	10000	1520	540	401	203	116	74
13	71	4490	742	4630	882	11600	1390	520	389	202	113	72
14	78	6270	675	3840	846	7920	1280	497	384	197	110	70
15	79	5510	621	5290	814	5980	1180	480	406	192	106	68
16	76	5840	574	6440	936	6230	1080	458	381	191	103	67
17	73	7790	534	5840	1450	6450	987	439	354	208	100	70
18	71	4780	500	4750	2120	11800	925	456	338	202	99	81
19	69	3340	626	4090	3810	8610	864	438	329	191	98	84
20	69	2950	927	3700	2790	5730	862	410	319	186	97	79
21	67	7060	2090	3740	2430	6150	826	398	309	179	94	76
22	67	30200	4150	5020	5490	5260	1040	419	297	170	103	72
23	65	19500	3670	3830	6430	4100	1270	984	286	164	123	71
24	64	10300	3290	3110	4810	4130	1190	2130	272	161	118	69
25	63	10400	2670	2640	3720	11700	1570	1900	266	158	105	68
26	62	8210	2150	2330	3010	7460	1890	1410	265	156	99	71
27	62	6320	1960	2140	2540	5770	1620	1170	256	157	96	73
28	61	8440	1740	1990	2220	7200	1420	1060	251	152	94	74
29	60	5760	1620	1840	---	5940	1280	997	315	150	91	79
30	62	4360	4900	1990	---	4720	1180	888	490	149	94	90
31	64	---	5740	2090	---	4860	---	794	---	147	95	---
TOTAL	2179	170449	59294	131740	59654	218260	62734	24884	12178	6396	3548	2291
MEAN	70.3	5682	1913	4250	2130	7041	2091	803	406	206	114	76.4
MAX	83	30200	5740	17600	6430	15900	6410	2130	721	386	157	93
MIN	60	79	500	1840	814	2010	826	398	251	147	91	67
AC-FT	4320	338100	117600	261300	118300	432900	124400	49360	24160	12690	7040	4540
CFSM	.26	21.40	7.06	15.7	7.86	26.0	7.72	2.96	1.50	.76	.42	.28
IN.	.30	23.40	8.14	18.08	8.19	29.96	8.61	3.42	1.67	.88	.49	.31

CAL YR 1988	TOTAL 589493	MEAN 1611	MAX 30200	MIN 60	AC-FT 1169000	CFSM 5.94	IN. 80.92
WTR YR 1989	TOTAL 753607	MEAN 2065	MAX 30200	MIN 60	AC-FT 1495000	CFSM 7.62	IN. 103.45

CHEMICAL QUALITY OF PRECIPITATION

307

SANDY RIVER BASIN

452650122091801 BULL RUN RESERVOIR NUMBER TWO, OR

LOCATION.--Lat 45°26'55", long 122°08'45", in SE 1/4 SE 1/2 sec.26, T.1 S., R.5 E., Clackamas County, Hydrologic Unit 17080001, in Mount Hood National Forest, on headworks dam on Bull Run River, 4.4 mi northeast of town of Bull Run, and approximately 20 mi east of Portland.

PERIOD OF RECORD.--June 1980 to September 1981 (event sampling), September 1981 to November 1981 (weekly composite), July 1982 to current year (weekly composite).

INSTRUMENTATION.--A bulk-type plastic double cylinder with receiving funnel directing deposition to inner cylinder was used for the period of record June 1980 to September 1981. The wet-deposition sample collector is an Aerochem Model 301* wet/dry deposition collector. The sensing circuit is activated by wet deposition, causing the motor to move the cover from the wet bucket and cover the dry bucket. When the heater in the sensor evaporates the precipitation, the cycle is reversed. The sample buckets are polyethylene and have a capacity of 13 liters (28.6 cm inside diameter, 23.2 cm deep). The opening of the collector is approximately 5 ft above ground level and has been used for the weekly composite sampling period of record September 1981 to current year.

REMARKS.--Inches of precipitation obtained from an on-site recording weighing-bucket gage. The sample collector is located in the restricted access area of the city of Portland's Bull Run River Watershed.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	TOTAL PRECIP- ITATION FOR DEFINED PERIOD (IN)	COL- LECTOR EFFI- CIENCY WET DEPOS. PERCENT	SPEC. CONDUCT- TANCE CK.SOL.* ATM DEP WET TOT (US/CM)	SPEC. CONDUCT- TANCE FIELD ATM DEP WET TOT (US/CM)	SPEC. CONDUCT- TANCE LAB ATM DEP WET TOT (US/CM)	PH CK.SOL.* ATM DEP WET TOT (UNITS)	PH FIELD ATM DEP WET TOT (UNITS)	PH LAB ATM DEP WET TOT (UNITS)
OCT 18-25	1635	0.60	101	21.5	10.5	8.7	4.29	4.78	4.84
OCT 25-NOV 01	1615	0.11	103	22.0	17.3	14.4	4.30	4.56	4.69
NOV 01-08	1700	4.47	99	21.8	4.8	3.9	4.29	5.24	5.28
NOV 08-15	1740	2.41	104	22.1	7.1	5.9	4.27	5.26	5.43
NOV 15-22	1845	4.24	102	21.8	7.0	6.3	4.28	5.10	5.09
NOV 22-29	1350	5.05	101	21.9	6.2	5.4	4.31	5.30	5.34
NOV 29-DEC 06	1700	0.73	99	21.6	7.1	5.9	4.33	5.25	5.40
DEC 06-13	1740	0.77	95	21.6	11.5	11.0	4.33	5.04	5.14
DEC 13-20	1700	0.97	101	21.5	10.4	8.8	4.28	5.02	5.06
JAN 17-24	1745	1.46	95	21.7	8.5	7.2	4.30	4.94	5.00
JAN 24-31	1545	1.31	97	21.8	6.5	6.2	4.31	4.96	5.10
JAN 31-FEB 07	1700	0.51	84	21.8	9.4	8.5	4.32	5.30	5.34
FEB 07-14	1715	0.13	71	21.6	38.4	27.9	4.30	4.16	4.43
FEB 14-21	1820	3.73	101	21.7	3.5	2.2	4.31	5.32	5.39
FEB 21-28	1700	0.73	102	22.1	5.4	3.5	4.28	5.13	5.36
FEB 28-MAR 07	1715	3.49	97	21.8	4.1	2.8	4.28	5.27	5.45
MAR 07-14	1700	2.39	99	21.5	4.6	3.7	4.30	5.33	5.41
MAR 14-21	1645	2.11	105	21.7	4.2	3.3	4.28	5.17	5.23
MAR 28-APR 04	1700	2.37	100	21.6	12.7	11.0	4.34	4.95	5.02
APR 04-11	1618	0.29	85	21.7	4.3	2.9	4.27	5.18	5.63
APR 18-25	1530	1.02	114	21.4	10.5	7.8	4.35	5.16	5.84
APR 25-MAY 02	1600	3.41	102	22.2	11.5	10.6	4.29	4.95	5.05
MAY 09-16	1630	0.31	117	21.8	27.1	24.4	4.33	4.36	4.50
MAY 16-23	1600	0.70	110	22.1	9.8	7.8	4.31	5.04	5.28
MAY 23-30	1550	3.00	102	21.7	5.9	4.8	4.31	5.07	5.25
JUN 13-20	1600	1.36	98	21.8	7.4	6.4	4.33	4.99	5.23
JUN 27-JUL 05	1615	0.38	102	21.4	7.0	4.6	4.32	4.90	5.49
JUL 25-AUG 01	1600	0.15	108	22.1	20.5	16.5	4.33	4.80	5.71
AUG 01-08	1600	0.55	102	22.0	6.4	4.9	4.29	4.97	5.12
AUG 08-15	1600	0.04	116	22.0	44.1	31.6	4.32	4.13	4.47
AUG 15-22	1600	1.05	103	22.1	8.8	6.4	4.32	4.89	5.17
AUG 22-29	1615	0.28	113	22.1	11.4	10.2	4.33	4.67	4.79
AUG 29-SEP 05	1600	0.79	110	21.7	8.2	7.8	4.30	4.99	5.04
SEP 19-26	1600	0.06	95	21.8	34.0	18.8	4.21	4.23	5.32
SEP 26-OCT 03	1615	1.93	103	21.6	7.5	6.7	4.30	4.93	5.04

* Measurements of low ionic strength standard solution, with theoretical values of conductance 21.8 us/cm +/- 3 us/cm, pH 4.30 +/- 0.1, made prior to the corresponding sample measurement.

CHEMICAL QUALITY OF PRECIPITATION

SANDY RIVER BASIN

452650122091801 BULL RUN RESERVOIR NUMBER TWO, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	CALCIUM ATM DEP WET DIS (MG/L)	MAG- NESIUM ATM DEP WET DIS (MG/L)	SODIUM ATM DEP WET DIS (MG/L)	POTAS- SIUM ATM DEP WET DIS (MG/L)	SULFATE ATM DEP WET DIS AS SO4 (MG/L)	CHLO- RIDE ATM DEP WET DIS (MG/L)	NI- TROGEN AMMON. ATM DEP WET DIS AS NH4 (MG/L)	NI- TROGEN NITRATE ATM DEP WET DIS AS NO3 (MG/L)	PHOS- PHOROUS ORTHO ATM DEP WET DIS AS PO4 (MG/L)
OCT 18-25	0.08	0.019	0.109	0.033	0.80	0.17	0.21	0.91	<0.02
OCT 25- NOV 01	0.05	0.032	0.222	0.028	1.50	0.36	0.15	1.00	0.06
NOV 01-08	0.01	0.023	0.212	0.008	0.18	0.39	<0.02	0.13	<0.02
NOV 08-15	0.03	0.064	0.558	0.024	0.26	1.01	<0.02	0.05	<0.02
NOV 15-22	0.04	0.043	0.368	0.017	0.25	0.66	<0.02	<0.03	<0.02
NOV 22-29	0.03	0.055	0.474	0.018	0.22	0.91	<0.02	<0.03	<0.02
NOV 29- DEC 06	0.04	0.064	0.551	0.017	0.30	0.95	<0.02	0.14	<0.02
DEC 06-13	0.04	0.097	0.839	0.027	0.64	1.58	<0.02	0.37	<0.02
DEC 13-20	0.05	0.081	0.683	0.028	0.46	1.23	0.03	0.42	<0.02
JAN 17-24	0.04	0.024	0.239	0.005	0.37	0.43	<0.02	0.60	<0.02
JAN 24-31	0.02	0.024	0.227	0.006	0.36	0.37	<0.02	0.31	<0.02
JAN 31- FEB 07	0.05	0.089	0.734	0.029	0.45	1.44	0.08	0.36	<0.02
FEB 07-14	0.08	0.032	0.214	0.043	2.89	0.33	0.94	3.61	<0.02
FEB 14-21	<0.01	0.003	0.029	<0.003	0.12	0.04	<0.02	0.13	<0.02
FEB 21-28	0.03	0.015	0.108	0.004	0.25	0.19	<0.02	0.30	<0.02
FEB 28- MAR 07	0.01	0.011	0.092	<0.003	0.14	0.17	<0.02	0.15	<0.02
MAR 07-14	0.05	0.027	0.219	0.019	0.20	0.39	<0.02	<0.03	<0.02
MAR 14-21	0.03	0.008	0.076	0.007	0.15	0.14	<0.02	<0.03	<0.02
MAR 28- APR 04	0.07	0.086	0.719	0.036	0.89	1.18	0.16	0.78	<0.02
APR 04-11	0.05	0.008	0.127	<0.003	0.34	0.07	<0.02	0.30	<0.02
APR 18-25	0.18	0.047	0.253	0.049	0.88	0.42	0.48	1.02	<0.02
APR 25- MAY 02	0.07	0.077	0.626	0.044	0.83	1.07	0.23	0.54	<0.02
MAY 09-16	0.19	0.092	0.723	0.045	2.29	1.11	0.47	1.82	<0.02
MAY 16-23	0.12	0.052	0.386	0.031	0.67	0.66	0.28	0.72	<0.02
MAY 23-30	0.02	0.015	0.136	0.013	0.33	0.24	0.08	0.29	<0.02
JUN 13-20	0.02	0.029	0.251	0.017	0.39	0.44	0.06	0.39	<0.02
JUN 27- JUL 05	0.04	0.018	0.143	0.024	0.40	0.13	0.08	0.57	<0.02
JUL 25- AUG 01	0.13	0.053	0.311	0.395	2.10	0.70	1.11	2.46	0.02
AUG 01-08	0.02	0.013	0.077	0.017	0.43	0.15	0.04	0.36	<0.02
AUG 08-15	0.21	0.061	0.223	0.105	2.84	0.40	0.83	4.16	0.05
AUG 15-22	0.05	0.010	0.037	0.125	0.65	0.16	0.17	0.46	<0.02
AUG 22-29	0.03	0.012	0.065	0.064	0.83	0.19	0.21	0.91	<0.02
AUG 29- SEP 05	0.03	0.020	0.131	0.146	0.69	0.29	0.24	0.59	0.03
SEP 19-26	0.55	0.096	0.271	0.131	1.91	0.44	0.63	4.65	<0.02
SEP 26- OCT 03	0.04	0.018	0.147	0.024	0.52	0.27	0.18	0.54	<0.02

Crest-stage partial-record stations

The following table contains annual maximum discharge for crest-stage stations. 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 each 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 determined.

Annual maximum discharge at crest-stage partial-record stations during water year 1989

Station no.	Station name	Location	Drainage area (mi ²)	Period of record	Date	Annual maximum Gage height (ft)	Annual maximum Discharge (ft ³ /s)
Sandy River basin							
14138950	Deer Creek near Bull Run, OR	Lat 45°29'31", long 122°03'27", in SE 1/4 SW 1/4 sec.10, T.1 S., R.6 E., Multnomah County, Hydrologic Unit 17080001, at culvert on Forest Service road S10, 300 ft upstream from Bull Run Reservoir Number One, and 9.6 mi northeast of Bull Run.	1.62	1978-89	1- 9-89	4.06	228
14138960	Cougar Creek near Bull Run, OR	Lat 45°29'28", long 122°03'40", in SW 1/4 SW 1/4 sec.10, T.1 S., R.6 E., Multnomah County, Hydrologic Unit 17080001, at culvert on Forest Service road S10, 300 ft upstream from Bull Run Reservoir Number One, and 9.4 mi northeast of Bull Run.	3.06	1978-89	1- 9-89	3.60	456
14138990	Bear Creek near Bull Run, OR	Lat 45°29'18", long 122°04'58", in NW 1/4 NW 1/4 sec.16, T.1 S., R.6 E., Multnomah County, Hydrologic Unit 17080001, at culvert on Forest Service road S10, 400 ft upstream from Bull Run Reservoir Number One, and 8.3 mi northeast of Bull Run.	1.68	1978-89	No peak recorded.		
14139510	Fivemile Creek near Bull Run, OR	Lat 45°28'57", long 122°05'25", in SW 1/4 NE 1/4 sec.17, T.1 S., R.6 E., Multnomah County, Hydrologic Unit 17080001, at culvert on Forest Service road S10, 800 ft upstream from Bull Run Reservoir Number Two, and 7.9 mi northeast of Bull Run.	0.79	1978-89	1- 9-89	1.93	52
14139600	Camp Creek near Bull Run, OR	Lat 45°27'41", long 122°06'13", in SW 1/4 SW 1/4 sec.20, T.1 S., R.6 E., Multnomah County, Hydrologic Unit 17080001, 15 ft downstream from falls at confluence with West Branch of Camp Creek, 0.3 mi upstream from Bull Run Reservoir Number Two, and 6.6 mi northeast of Bull Run.	3.27	1978-89	1- 9-89	3.73	382

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Measurements of streamflow at points other than gaging stations or partial-record stations are given in the following table.

Discharge measurements at miscellaneous sites during water year 1989

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements Date	Discharge (ft ³ /s)
SANDY RIVER BASIN						
14138950 Deer Creek	Bull Run River	Lat 45°29'31", long 122°03'27", in SE 1/4 SW 1/4 sec.10, T.1 S., Multnomah County, Hydrologic Unit 17080001, at culvert on Forest Service road S10, 300 ft upstream from Bull Run Reservoir Number One, and 9.6 mi northeast of Bull Run.	1.62	1978-88	11- 7-88 1-17-89 3-23-89 5-18-89 7-19-89	12 52 16 2.6 *1.7
14138960 Cougar Creek	.....do.....	Lat 45°29'28", long 122°03'40", in SW 1/4 SW 1/4 sec.10, T.1 S., R.6 E., Multnomah County, Hydrologic Unit 17080001, at culvert on Forest Service Road S10, 300 ft upstream from Bull Run Reservoir Number One, and 9.4 mi northeast of Bull Run.	3.06	1978-88	11- 7-88 1-17-89 3-24-89 5-18-89 7-19-89	20 94 26 9.8 *3.2
14138990 Bear Creek	.....do.....	Lat 45°29'18", long 122°04'58", in NW 1/4 NW 1/4 sec.16, T.1 S., R.6 E., Multnomah County, Hydrologic Unit 17080001, at culvert on Forest Service Road S10, 400 ft upstream from Bull Run Reservoir Number One, and 8.3 mi northeast of Bull Run.	1.68	1978-88	11- 7-88 1-17-89 3-24-89 5-18-89 7-19-89	3.4 36 8.2 1.9 *0.74
14139510 Fivemile Creek	.....do.....	Lat 45°28'57", long 122°05'25", in SW 1/4 NE 1/4 sec.17, T.1 S., R.6 E., Multnomah County, Hydrologic Unit 17080001, at culvert on Forest Service Road S10, 800 ft from Bull Run Reservoir Number Two, and 7.9 mi northeast of Bull Run.	0.79	1977-88	11- 7-88 1-17-89 3-24-89 5-18-89 7-19-89	1.8 14 6.3 0.80 *0.20
14139600 Camp Creek	.....do.....	Lat 45°27'41", long 122°06'13", in SW 1/4 SW 1/4 sec.20, T.1 S., R.6 E., Multnomah County, Hydrologic Unit 17080001, 15 ft downstream from falls at confluence with West Branch of Camp Creek, 0.3 mi upstream from Bull Run Reservoir Number Two, and 6.6 mi northeast of Bull Run.	3.27	1978-88	11- 8-88 1-13-89 3-23-89 5-31-89 7-19-89	17 61 26 17 *2.1
WILLAMETTE RIVER BASIN						
Johnson Creek	Willamette River	Lat 45°29'10", long 122°25'15", in SE 1/4 NE 1/4 sec.15, T.1 S., R.3 E., Multnomah County, Hydrologic Unit 17090012, at Regner Road.	---	---	8-30-89	*0.64
Johnson Creek	.....do.....	Lat 45°29'17", long 122°27'57", in NE 1/4 NW 1/4 sec.17, T.1 S., R.3 E., Multnomah County, Hydrologic Unit 17090012, at Southeast 190th Avenue.	---	1987-88	8-31-89	*1.4
Kelley Creek	Johnson Creek	Lat 45°28'37", long 122°29'50", in SE 1/4 SE 1/4 sec.13, T.1 S., R.2 E., Multnomah County, Hydrologic Unit 17090012, at Southeast 159th Drive.	---	---	9- 1-89	*0.27

* Base flow.

DISCHARGE AT MISCELLANEOUS SITES

311

Discharge measurements at miscellaneous sites during water year 1989--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements Date	Discharge (ft ³ /s)
WILLAMETTE RIVER BASIN--Continued						
Johnson Creek	Willamette River	Lat 45°27'17", long 122°34'40", in SW 1/4 SW 1/4 sec.21, T.1 S., R.2 E., Multnomah County, Hydrologic Unit 17090012, at Southeast 82nd Avenue.	---	1987-88	9- 1-89	*1.9
Johnson Creek	.....do.....	Lat 45°27'31", long 122°35'30", in SE 1/4 NE 1/4 sec.29, T.1 S., R.2 E., Multnomah County, Hydrologic Unit 17090012, at Bell Avenue.	---	---	9 -5-89	*1.6
Johnson Creek	.....do.....	Lat 45°27'22", long 122°36'11", in SW 1/4 NE 1/4 sec.30, T.1 S., R.2 E., Multnomah County, Hydrologic Unit 17090012, at Stanley Avenue.	---	---	9- 5-89	*2.0
Johnson Creek	.....do.....	Lat 45°27'51", long 122°38'14", in SW 1/4 SW 1/4 sec.24, T.1 S., R.1 E., Multnomah County, Hydrologic Unit 17090012, at McLoughlin Boulevard.	---	---	9- 5-89	*3.5
Crystal Springs Creek	Johnson Creek	Lat 45°27'46", long 122°38'28", in NE 1/4 NE 1/4 sec.26, T.1 S., R.1E., Clackamas County, Hydrologic Unit 17090012, near confluence with Johnson Creek, at Sherrett Street.	---	1987-88	9- 6-89	*13
COOS RIVER BASIN						
Larson Slough	Coos Bay (Haynes Inlet)	Lat 43°28'13", long 124°09'41", in NE 1/4 SE 1/4 sec.19, T.24 S., R.12 W., Coos County, Hydrologic Unit 17100304, 2.5 mi upstream from mouth at 695 Larson Way, 20 ft downstream from bridge.	---	---	6-27-89 8-29-89	4.3 *1.0
Unnamed tributary	Larson Slough	Lat 43°27'55", long 124°09'44", in NE 1/4 NE 1/4 sec.30, T.24S., R.12 W., Coos County, Hydrologic Unit 17100304, 10 ft downstream from culvert under Larson Way. Drainage area includes contribution from small drainage upstream along left bank of road.	---	---	6-27-89	0.82
Unnamed tributary to unnamed tributary	.....do.....	Lat 43°27'54", long 124°09'41", in NE 1/4 NE 1/4 sec.30, T.24 S., R.12 W., Coos County, Hydrologic Unit 17100304, 20 ft upstream from culvert under Larson Way at drive- way to residence at 560 Larson Way. Drainage is area east of Larson Way only.	---	---	8-29-89	*0.41
Palouse Creek	Coos Bay (Haynes Inlet)	Lat 43°29'04", long 124°09'31", in SW 1/4 SW 1/4 sec.17, T.24 S., R.12 W., Coos County, Hydrologic Unit 17100304, at bridge to residence at 702 Palouse Creek Road, at mile post 2.1.	---	---	6-27-89 8-29-89	3.1 *1.6
ROGUE RIVER BASIN						
14371500 Grave Creek	Rogue River	Lat 42°38'30", long 123°12'40", in SE 1/4 sec.6, T.34 S., R.4W., Jackson County, Hydrologic Unit 17100310, on right bank 0.5 mi downstream from Pease Bridge, 0.5 mi upstream from Boulder Creek, 5.4 mi east of Placer, and at mile 27.1.	22.1	1940-89†	6-14-89	7.2 *1.2

† Operated as a continuous-record gaging station.

* Base flow.

PAGE	PAGE
Alsea River, near Tidewater..... 195	Fall Creek, below Winberry Creek, near Fall Creek.....86-88
North Fork, at Alsea..... 192	near Lowell..... 84
Applegate Lake near Copper..... 287	Fall Creek Lake near Lowell..... 85
Applegate River, near Applegate.....292-294	Fern Ridge Lake near Elmira..... 116
near Copper.....288-290	Fir Creek near Brightwood.....50-54
near Wilderville.....295-297	Fish Creek at Big Camas Ranger Station, near Toketee Falls..... 228
Bear Creek (Middle Rogue River basin) at Medford..... 282	Fish Lake near Lakecreek..... 281
Bear Creek (Sandy River basin) near Bull Run..... 309	Fivemile Creek near Bull Run..... 309
Big Butte Creek, near McLeod.....258-260	Five Rivers near Fisher..... 194
South Fork, above Willow Creek, near Butte Falls..... 256	Foster Lake at Foster..... 138
near Butte Falls..... 257	Galesville Reservoir near Azalea..... 206
Big Creek near Roosevelt Beach..... 196	Gaging station records.....33-306
Big Rock Creek near Valsetz..... 189	Gassy Creek near Nonpareil..... 235
Blazed Alder Creek near Rhododendron..... 44	Gate Creek at Vida..... 112
Blue River, at Blue River.....108-110	Grave Creek at Pease Bridge, near Placer..... 298
below Tidbits Creek, near Blue River..... 105	Hills Creek Lake near Foster..... 137
Blue River Lake near Blue River..... 107	Haskins Creek below Reservoir, near McMinnville..... 152
Bull Run Reservoir Number One near Bull Run..... 60	Haskins Creek Reservoir near McMinnville..... 151
Bull Run Reservoir Number Two near Bull Run.....67,307,308	Henry Hagg Lake near Gaston..... 154
Bull Run River, near Bull Run..... 68	Hills Creek Lake near Oakridge..... 73
near Multnomah Falls.....45-49	Illinois River, East Fork, near Takilma..... 302
North Fork, near Multnomah Falls.....55-59	near Kerby..... 305
South Fork, near Bull Run.....62-66	Introduction..... 1
Calapooia River, at Albany.....122,123	Joe Ney Creek, diversion from..... 241
at Holley.....119-121	Johnson Creek, at Sycamore..... 170
Calapooia Creek near Oakland..... 236	at Milwaukie..... 171
Camp Creek near Bull Run..... 309	Lake Creek near Deadwood..... 197
Cedar Creek near Brightwood..... 61	Lakes and reservoirs:
Chemical quality of precipitation.....307,308	Applegate Lake near Copper..... 287
Chetco River near Brookings..... 306	Blue River Lake near Blue River..... 107
Clackamas River, above Three Lynx Creek..... 167	Bull Run Reservoir Number One near Bull Run..... 60
at Estacada..... 168	Bull Run Reservoir Number Two near Bull Run.....67,307,308
near Clackamas..... 169	Cottage Grove Lake near Cottage Grove..... 90
Clearwater River above Trap Creek, near Toketee Falls.. 227	Cougar Lake near Rainbow..... 101
Columbia River, at Longview, WA.....177,178	Detroit Lake near Detroit..... 128
at Warrendale.....35-40	Dorena Lake near Cottage Grove..... 93
below Bonneville Dam.....33,34	Fall Creek Lake near Lowell..... 85
Cooperation..... 2	Fern Ridge Lake near Elmira..... 116
Coos River basin, discharge measurements at	Fish Lake near Lakecreek..... 281
miscellaneous sites in..... 311	Foster Lake at Foster..... 138
Coquille River, South Fork, at Powers..... 243	Galesville Reservoir near Azalea..... 206
Cottage Grove Lake near Cottage Grove..... 90	Green Peter Lake near Foster..... 137
Cougar Creek near Bull Run..... 309	Haskins Creek Reservoir near McMinnville..... 151
Cougar Lake near Rainbow..... 101	Henry Hagg Lake near Gaston..... 154
Cow Creek, above Galesville Reservoir, near Azalea..... 205	Hills Creek Lake near Oakridge..... 73
near Azalea.....207-209	Lemolo Lake near Toketee Falls..... 225
near Riddle..... 211	Lookout Point Lake near Lowell..... 80
West Fork, near Glendale..... 210	Lost Creek Lake near McLeod..... 253
Cowlitz River at Longview, WA.....175,176	Lower Pony Creek Reservoir at Coos Bay..... 241
Deer Creek near Bull Run..... 309	McGuire Lake near Fairdale..... 184
Definition of terms.....15-25	Smith River Reservoir near Belknap Springs..... 98
Detroit Lake near Detroit..... 128	Timothy Lake near Government Camp..... 164
Discharge at partial-record stations and	Upper Pony Creek Reservoir near Coos Bay..... 241
miscellaneous sites.....309-311	Lemolo Lake near Toketee Falls..... 225
Dorena Lake near Cottage Grove..... 93	Little Butte Creek, North Fork, at Fish Lake, near Lakecreek..... 281
East Humbug Creek near Detroit..... 127	Little North Santiam River near Mehama..... 132
Elk Creek, (Illinois River basin) near O'Brien..... 304	Little River at Peel..... 231
Elk Creek, (Rogue River basin) below Alco Creek, near Trail.....267-269	Little Sandy River near Bull Run..... 69
near Cascade Gorge.....264-266	Lobster Creek, East Fork, near Alsea..... 193
West Branch, near Trail.....270-272	Long Tom River, at Monroe..... 118
near Trail.....273-275	near Alvaldore..... 117
Elk Creek, (South Umpqua River basin) near Drew..... 203	near Noti..... 115
Elk Creek, (Umpqua River basin) near Elkhead..... 240	Lookingglass Creek at Brockway..... 212
Explanation of the records.....4-14	Lookout Creek near Blue River..... 106
	Lookout Point Lake near Lowell..... 80
	Lost Creek Lake near McLeod..... 253
	Lower Pony Creek Reservoir at Coos Bay..... 241
	Lower Pony Creek Reservoir, diversion from..... 241
	Luckiamute River near Suver..... 145

	PAGE		PAGE
McGuire Lake near Fairdale.....	184	Scoggins Creek below Henry Hagg Lake, near Gaston.....	155
McKenzie River, at McKenzie Bridge.....	100	Siletz River at Siletz.....	190
at Outlet of Clear Lake.....	96	Siuslaw River near Mapleton.....	198-200
below Trail Bridge Dam, near Belknap Springs.....	99	Smith River above Smith River Reservoir,	
near Vida.....	111	near Belknap Springs.....	97
South Fork, near Rainbow.....	102-104	Smith River Reservoir near Belknap Springs.....	98
Middle Santiam River near Upper Soda.....	135	South Santiam River, at Waterloo.....	143
Mohawk River near Springfield.....	113	below Cascadia.....	134
Molalla River above Pine Creek, near Wilhoit.....	153	near Foster.....	140-142
		South Umpqua River, at Days Creek.....	204
Nehalem River near Foss.....	180-182	at Tiller.....	202
Nestucca River, near Beaver.....	187	near Brockway.....	213
near Fairdale.....	185	near Roseburg.....	214-224
North Santiam River, at Mehama.....	133	South Yamhill River, near Whiteson.....	149
at Niagara.....	129-131	near Willamina.....	147
below Boulder Creek, near Detroit.....	126	Special networks and programs.....	4
North Umpqua River, above Copeland Creek, near		Star Gulch near Ruch.....	291
Toketee Falls.....	229	Steamboat Creek near Glide.....	230
at Winchester.....	232-234	Sucker Creek below Little Grayback Creek, near Holland.....	303
below Lemolo Lake, near Toketee Falls.....	226	Summary of hydrologic conditions.....	2,3
North Yamhill River near Fairdale.....	150	Sunshine Creek near Valsetz.....	188
Oak Grove Fork, above Powerplant Intake.....	166	Timothy Lake near Government Camp.....	164
near Government Camp.....	165	Tualatin River, at West Linn.....	158-160
Oswego Canal near Lake Oswego.....	157	near Dilley.....	156
		Tucca Creek near Blaine.....	186
Pony Creek at Coos Bay.....	241,242		
Publications on Techniques of		Umpqua River near Elkton.....	237-239
Water-Resources Investigations.....	26-28	Upper Pony Creek Reservoir near Coos Bay.....	241
Quartzville Creek near Cascadia.....	136	WATSTORE data, access to.....	14
		Wiley Creek near Foster.....	139
Rogue River, above Prospect.....	245	Willamette River, above Falls, at Oregon City.....	161
at Dodge Bridge, near Eagle Point.....	278-280	at Albany.....	124
at Grants Pass.....	286	at Harrisburg.....	114
at McLeod.....	254,255	at Portland.....	172-174
at Raygold, near Central Point.....	283-285	at Salem.....	146
at Trail.....	276,277	below Falls, at Oregon City.....	162,163
below Prospect.....	246-248	Coast Fork, below Cottage Grove Dam.....	91
near Agness.....	299-301	near Goshen.....	95
near McLeod.....	261-263	Middle Fork, above Salt Creek, near Oakridge.....	74-76
South Fork, near Prospect.....	249	at Jasper.....	89
South of Prospect.....	250-252	below North Fork, near Oakridge.....	79
Rogue River basin, discharge measurements at		near Dexter.....	81-83
miscellaneous sites in.....	311	near Oakridge.....	72
Row River, above Pitcher Creek, near Dorena.....	92	North Fork, near Oakridge.....	78
near Cottage Grove.....	94	Willamette River basin, discharge measurements at	
		miscellaneous sites in.....	310,311
Salmon Creek near Oakridge.....	77	Willamina Creek near Willamina.....	148
Salmon River near Government Camp.....	42	Wilson River near Tillamook.....	183
Sandy River, below Bull Run River, near Bull Run.....	70		
near Marmot.....	43	Yaquina River near Chitwood.....	191
Sandy River basin, discharge measurements at			
miscellaneous sites in.....	310		
Santiam River at Jefferson.....	144	Zigzag River near Rhododendron.....	41

FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI).

Multiply inch-pound units	By	To obtain SI units
<i>Length</i>		
inches (in)	2.54×10^1	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^0	kilometers (km)
<i>Area</i>		
acres	4.047×10^3	square meters (m ²)
	4.047×10^{-1}	square hectometers (hm ²)
	4.047×10^{-3}	square kilometers (km ²)
square miles (mi ²)	2.590×10^0	square kilometers (km ²)
<i>Volume</i>		
gallons (gal)	3.785×10^0	liters (L)
	3.785×10^0	cubic decimeters (dm ³)
	3.785×10^{-3}	cubic meters (m ³)
million gallons	3.785×10^3	cubic meters (m ³)
	3.785×10^{-3}	cubic hectometers (hm ³)
cubic feet (ft ³)	2.832×10^1	cubic decimeters (dm ³)
	2.832×10^{-2}	cubic meters (m ³)
cfs-days	2.447×10^3	cubic meters (m ³)
	2.447×10^{-3}	cubic hectometers (hm ³)
acre-feet (acre-ft)	1.233×10^3	cubic meters (m ³)
	1.233×10^{-3}	cubic hectometers (hm ³)
	1.233×10^{-6}	cubic kilometers (km ³)
<i>Flow</i>		
cubic feet per second (ft ³ /s)	2.832×10^1	liters per second (L/s)
	2.832×10^1	cubic decimeters per second (dm ³ /s)
	2.832×10^{-2}	cubic meters per second (m ³ /s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm ³ /s)
	6.309×10^{-5}	cubic meters per second (m ³ /s)
million gallons per day	4.381×10^1	cubic decimeters per second (dm ³ /s)
	4.381×10^{-2}	cubic meters per second (m ³ /s)
<i>Mass</i>		
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons

U.S. DEPARTMENT OF THE INTERIOR
Geological Survey
10615 S.E. Cherry Blossom Drive
Portland, OR 97216

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300
SPECIAL 4TH CLASS BOOK RATE



RIOR

