



Water Resources Data California Water Year 1988

Volume 4. Northern Central Valley Basins and
The Great Basin from Honey Lake
Basin to Oregon State Line



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT CA-88-4
Prepared in cooperation with the California Department of
Water Resources and with other agencies

CALENDAR FOR WATER YEAR 1988

1987

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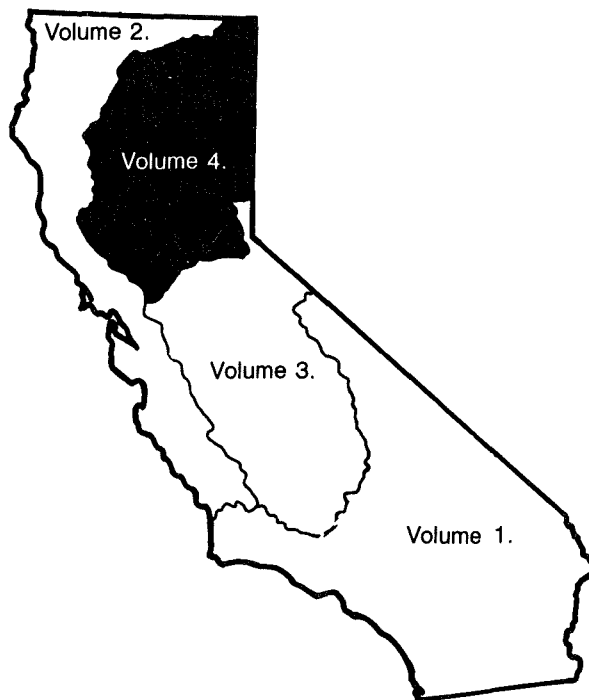
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Volume 4. Northern Central Valley Basins and
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by W.F. Shelton, S.W. Anderson, and J.R. Mullen



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT CA-88-4
Prepared in cooperation with the California Department of
Water Resources and with other agencies

DEPARTMENT OF THE INTERIOR

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PREFACE

This volume of the annual hydrologic data report of California 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 California are contained in five volumes:

- Volume 1. Southern Great Basin from Mexican Border to Mono Lake Basin, and Pacific Slope Basins from the Tijuana River to the Santa Maria River
- Volume 2. Pacific Slope Basins from Arroyo Grande to Oregon State Line except Central Valley
- Volume 3. Southern Central Valley Basins and The Great Basin from the Walker River to the Truckee River
- Volume 4. Northern Central Valley Basins and The Great Basin from Honey Lake Basin to Oregon State Line
- Volume 5. Ground-Water Data for California

This 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. In addition to the authors, who had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to U.S. Geological Survey policy and established guidelines, the individuals contributing significantly to the collection, processing, and tabulation of the data are given on page V.

This report was prepared in cooperation with the California Department of Water Resources and with other agencies, under the general supervision of John M. Klein, District Chief, California.

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SURFACE-WATER AND WATER-QUALITY STATIONS
IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED

[Letters after station name designate type of data: (d), discharge;
(l), lake contents; (c), chemical; (b), biological; (p), precipitation;
(t), water temperature; and (s), sediment]

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WATER RESOURCES DATA - CALIFORNIA, WATER YEAR 1988
VOLUME 4--NORTHERN CENTRAL VALLEY BASINS AND THE GREAT BASIN
FROM HONEY LAKE BASIN TO OREGON STATE LINE

By W.F. Shelton, S.W. Anderson, and J.R. Mullen

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 California 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 U.S. Geological Survey, the data are published annually in this report series entitled "Water Resources Data - California."

This volume of the report includes records on surface water in the State. Specifically, it contains: (1) discharge records for 160 streamflow-gaging stations; (2) stage and content records for 35 lakes and reservoirs; (3) precipitation records for 2 stations; and (4) water-quality records for 9 streamflow-gaging stations and 1 low-flow partial-record station.

The series of annual reports for California 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 changed to one volume, including data on quantities of surface water, quality of surface and ground water, and ground-water levels. Beginning with the 1985 water year, a separate volume for ground-water levels and quality was published for California.

Prior to introduction of this series and for several water years concurrent with it, water-resources data for California 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 and 11." 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 public libraries of principal cities of the United States and may be purchased from U.S. Geological Survey, Books and Open-File Reports Section, Federal Center, Building 810, Box 25425, Denver, CO 80225.

Publications similar to this report are published annually by the U.S. Geological Survey for all States. Each report has 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 volume is identified as "U.S. Geological Survey Water-Data Report CA-88-4." 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 District Chief at the address given on back of title page or by telephone (916) 978-4668.

COOPERATION

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

California Department of Water Resources, David N. Kennedy, Director.
Georgetown Divide Public Utility District, Charles F. Gierau, General Manager.
Oroville-Wyandotte Irrigation District, Gordon Andoe, President, Board of Directors.
Sacramento Municipal Utility District, John P. Hiltz, Manager.
Sacramento Regional County Sanitation District, John W. Newton, Chief of Administration.
Siskiyou County Flood Control and Water Conservation District, David A. Gavenkamp, Director.
Yolo County Flood Control and Water Conservation District, James F. Eagan, General Manager.
Yuba County Water Agency, Arthur Aseltine, Administrator.

Assistance in the form of funds or services was given by the Corps of Engineers, U.S. Army; Bureau of Reclamation, U.S. Department of Interior; and Forest Service, U.S. Department of Agriculture.

The following organizations aided in collecting records: California Department of Water Resources; Pacific Gas and Electric Co.; Sacramento Municipal Utility District; Nevada and Oroville-Wyandotte Irrigation Districts; and Placer and Yuba County Water Agencies.

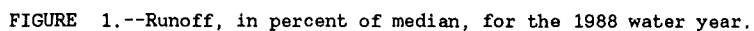
SUMMARY OF HYDROLOGIC CONDITIONS

Surface Water

Runoff during the 1988 water year in the area covered by this volume was 44 percent of the 1951-80 median (based on six representative streamflow records). Total runoff, in percent of median, at selected sites in California is shown in figure 1. Runoff ranged from 16 percent of median in Susan River at Susanville (station 10356500) to 66 percent in Sacramento River at Keswick, station 11370500 (a regulated site). In figure 2, monthly mean runoff in the 1988 water year at four index stations is compared to the 1951-80 maximum, minimum, and median monthly mean runoff.

Runoff in California for water year 1988 was about the 10th driest of this century. The 1988 drought was comparable in intensity to 1920, 1929, 1933, and 1934, it is considered a critically dry year. A persistent high-pressure ridge off the California coast displaced the usual winter storm path, leaving most of the State deficient in precipitation. Three storm periods during December, January, and April produced no peak flows of record and few peaks above base. Warm temperatures during April and early May caused rapid melting, and the snowmelt peak occurred about a month earlier than usual. Precipitation varied from 100 percent of average at Red Bluff to 37 percent at Susanville. Precipitation in the area covered by this volume (based on seven representative rain gages) was 77 percent of the long-term average.

The water year began with many reservoir levels below average. By the end of the water year, storage in major reservoirs was about 57 percent of the 10-year average; many small to moderate-sized reservoirs were less than 50 percent of capacity. Northeastern California depends upon local water supplies, however, the amount available was about 40 percent of normal, and some areas ran out of water. The Truckee River basin experienced severe shortages; Lake Tahoe declined nearly 300,000 acre-feet, Stampede Reservoir ended the year at only 27 percent of capacity, and Bridgeport Reservoir ran dry. The town of Markleeville experienced a severe water shortage and stringent rationing was applied. Storage in selected reservoirs is shown in figure 3.



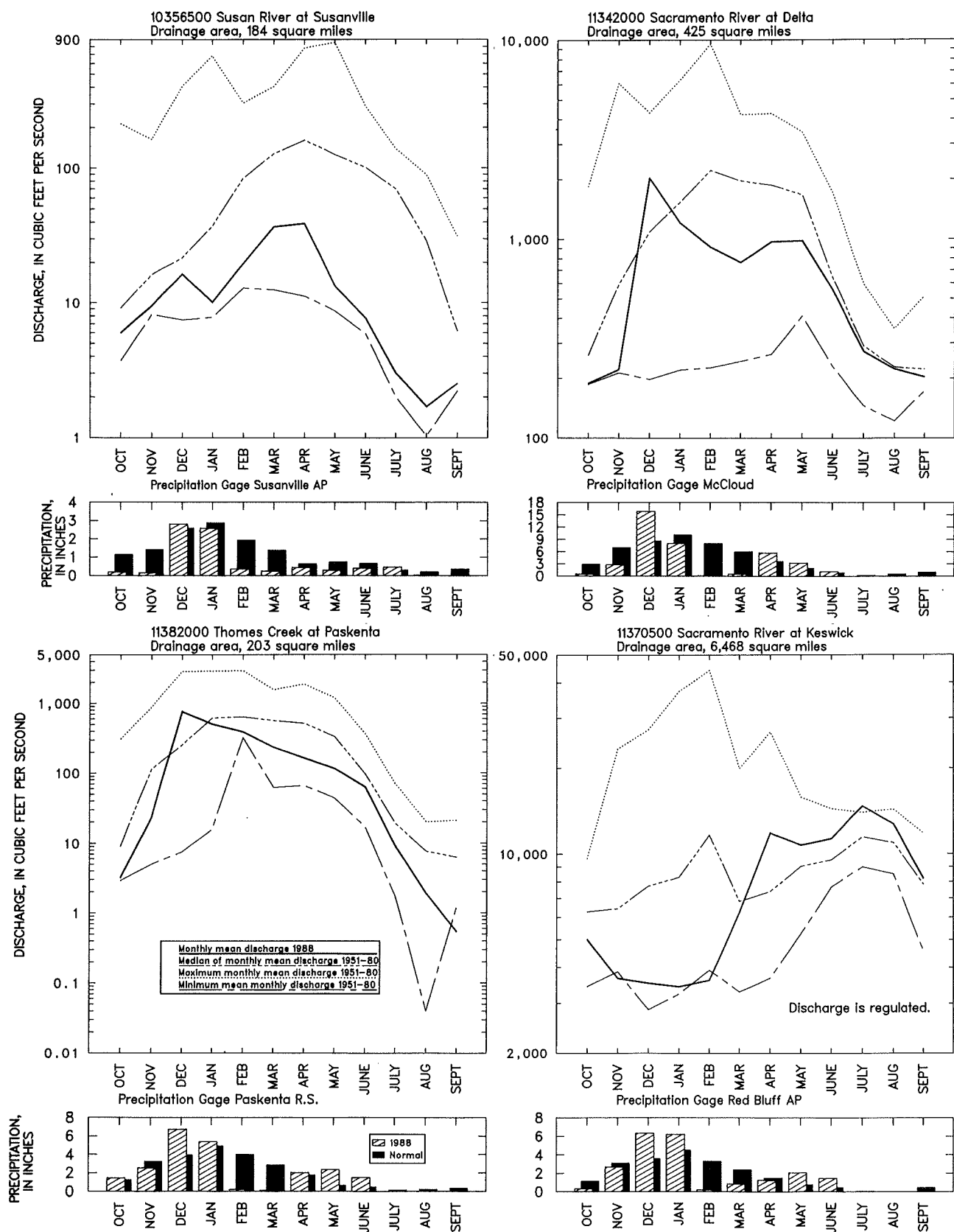


FIGURE 2.--Comparison of discharge during water year 1988 with long-term discharge statistics and rainfall of four representative gaging stations

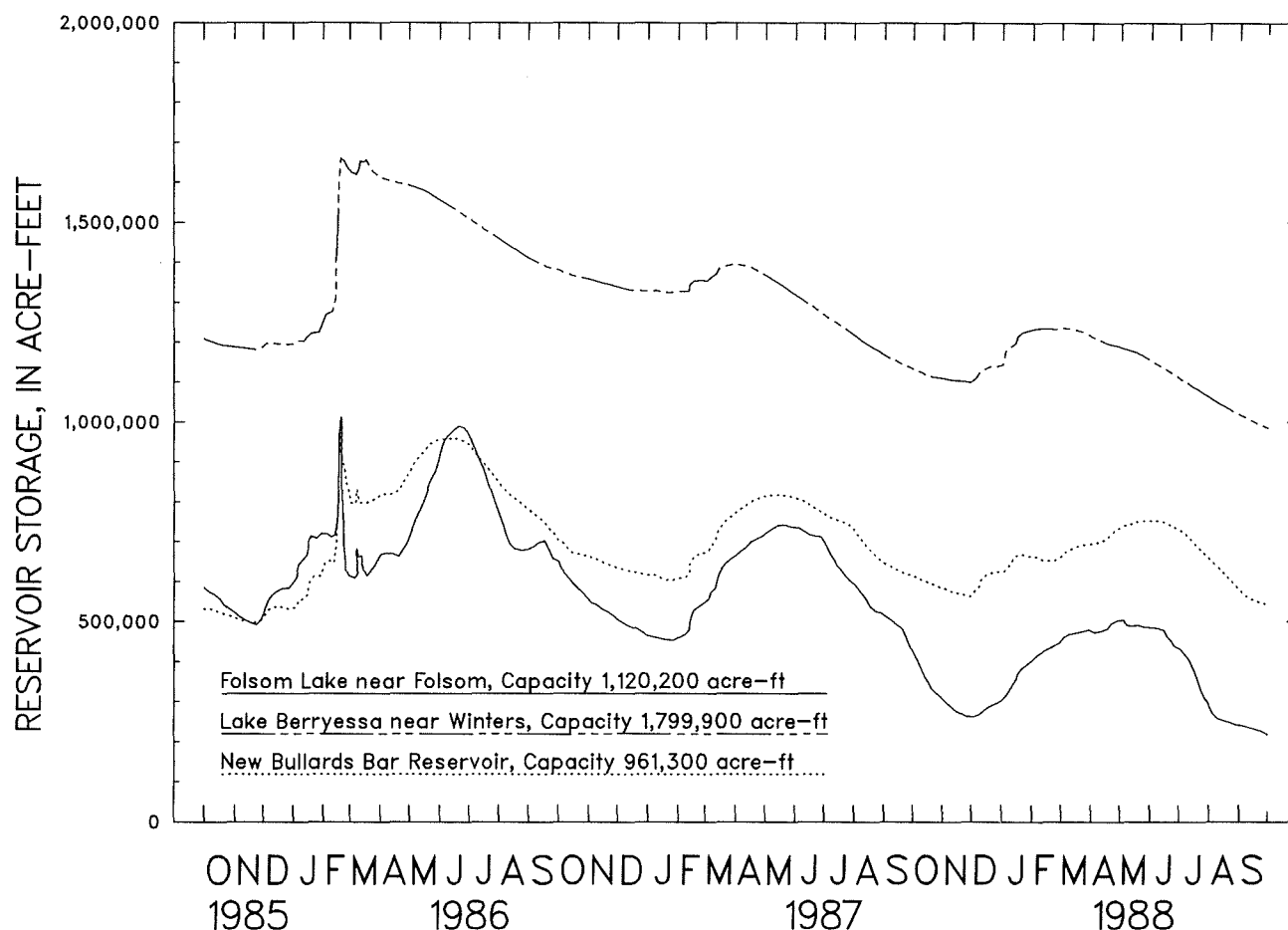


FIGURE 3.--Storage in selected reservoirs, water years 1986-88.

Water Quality

Water samples collected at the three NASQAN stations reported in this volume were analyzed for water-quality constituents. Water quality at these stations changed slightly from the previous year. Median dissolved-solids concentrations increased slightly. The monthly dissolved-solids concentrations during water year 1988 are compared with long-term mean dissolved-solids concentrations at two selected stations in figure 4. There were no chemical-constituent concentrations that exceeded water-quality criteria recommended by the U.S. Environmental Protection Agency.

The largest densities of fecal-coliform and fecal-streptococcus bacteria were found in waters sampled from the Sacramento River near Freeport, station 11447650 (290 and 440 colonies per 100 milliliters, respectively). These bacterial densities were substantially higher than those found in 1987.

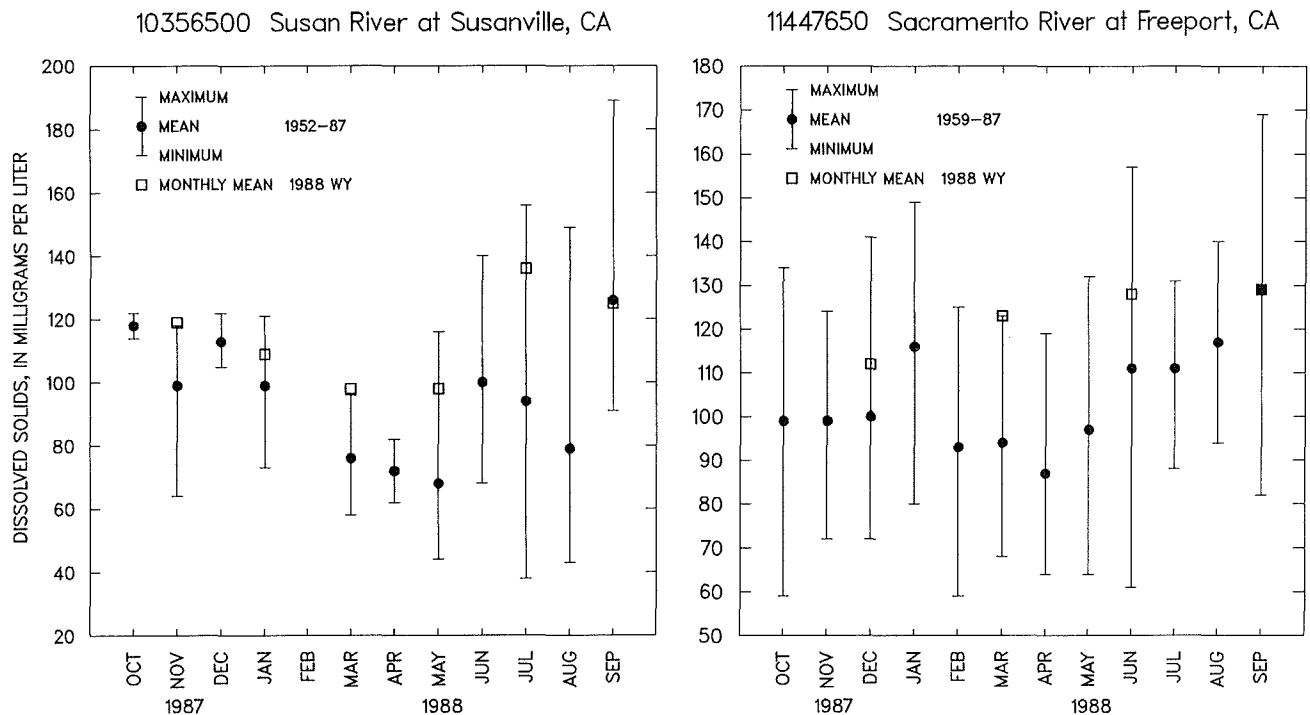


FIGURE 4.--Comparison of monthly mean dissolved-solids concentrations during water year 1988 with long-term dissolved-solids concentrations of two selected stations

Sediment

Suspended-sediment discharge and concentrations were monitored daily at two stations and periodically at three stations in the area included in this volume. The variation in precipitation, drainage-basin characteristics, and streamflow regulation in northern California resulted in significant differences in sediment-discharge rates and concentrations at the sampled streams.

Sediment discharge was significantly below normal during the 1988 water year, as indicated by comparison with the 1968-87 mean sediment discharge at the two long-term daily stations. Annual sediment discharge was 16 percent of the mean in the Feather River near Gridley (station 11407150) and 31 percent in the Sacramento River at Freeport.

Annual sediment discharge at the two daily stations ranged from 16,900 tons at the Feather River near Gridley to 696,000 tons at the Sacramento River at Freeport.

SPECIAL NETWORKS AND PROGRAMS

Hydrologic Bench-Mark Network is a network of 56 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. The data 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 natural or regional water-quality planning and management. The 408 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 objectives of NASQAN are (1) 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 that the data may be used for, (2) to describe the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) to detect changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) to provide a nationally consistent data base useful for water-quality assessment and hydrologic research.

EXPLANATION OF THE RECORDS

The surface-water records published in this report are for the 1988 water year that began October 1, 1987, and ended September 30, 1988. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and contents data for lakes and reservoirs, and water-quality data for surface water. The locations of the stations where the data were collected are shown in figures 6 through 26. 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 streamsite 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 systems used by the U.S. Geological Survey to assign identification numbers for surface-water stations and for ground-water well sites differ, but both 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 in California where only miscellaneous measurements are made.

Downstream Order System

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports has been 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 11396310, which appears just to the left of the station name, includes the two-digit part number "11" plus the six-digit downstream-order number "396310." The part number designates the major river basin; for example, part "11" is the Pacific Slope Basins in California.

Latitude-Longitude System

The identification numbers for miscellaneous surface-water sites are assigned according to the grid system of latitude and longitude. The number consists of 15 digits. The first six digits denote the degrees, minutes, and seconds of latitude, the next seven digits denote degrees, minutes, and seconds of longitude, and the last two digits (assigned sequentially) identify the other sites within a 1-second grid. This site-identification number, once assigned, is a pure number and has no locational significance. In the rare instance where the initial determination of latitude and longitude are found to be in error, the station will retain its initial identification number; however, its true latitude and longitude will be listed in the LOCATION paragraph of the station description (fig. 5).

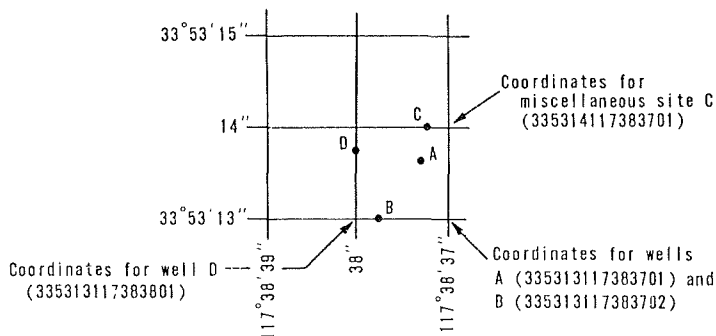


FIGURE 5.--System for numbering miscellaneous sites (latitude and longitude).

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 and reservoir contents, similarly, are those for which stage or contents 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. Location of all complete-record stations for which data are given in this report are shown, by county, in figures 6 through 26.

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 relationships 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 relationship between stage and lake contents. 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 U.S. Geological Survey as a result of experience accumulated since 1880. These methods are described in standard textbooks, in U.S. Geological Survey 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 are prepared for any stage within the range of the measurements. If it is necessary to define extremes of discharge outside the range of 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-dam 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 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 or 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 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 the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

In computing records of lake or reservoir contents, it is necessary to have available surveys, curves, or tables defining the relationship of stage and contents. 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 relationship changes because of deposition of sediment in a lake or reservoir, periodic resurveys may be necessary to redefine the relationship. When this is done, the contents computed may become increasingly in error as time increases since the last survey. Discharges over lake or reservoir spillways are computed from stage-discharge relationships, in the same manner as other stream discharges are computed.

For some gaging stations there are periods when no gage-height record is obtained, or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods, the daily discharges are estimated 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, given for only a few stations, were determined by methods given in "River Mileage Measurement," Bulletin 14, Revision of October 1968, prepared by the Water Resources Council or were provided by the U.S. Army Corps of Engineers.

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 when 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 that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the most recently revised figure was 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, to special methods of computation, to conditions that affect natural flow at the station, and, possibly, to 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 U.S. Geological Survey by a cooperating organization are identified.

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. The median of yearly mean discharges also is given under this heading for stations having 10 or more water years of record, if the median differs from the average given by more than 10 percent.

EXTREMES FOR PERIOD OF RECORD.--Extremes may include 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, 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 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 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.

Occasionally the records of a discontinued gaging station may need revision. Because, for these stations, there would be no current or, possible, 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 District office to determine if the published records were revised after the station was discontinued. 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 storage-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"), 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 the 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 "REMARKS." "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 (ft^3/s) for values less than $1 \text{ ft}^3/\text{s}$, to the nearest tenth between 1.0 and $10 \text{ ft}^3/\text{s}$, to whole numbers between 10 and $1,000 \text{ ft}^3/\text{s}$, and to three significant figures for more than $1,000 \text{ ft}^3/\text{s}$. 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 due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to 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, for changes in contents of reservoirs, or for 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

The National Water Data Exchange (NAWDEX), U.S. Geological Survey, Reston, VA 22092, maintains an index of sites as well as an index of records of discharge collected by other agencies but not published by the U.S. Geological Survey. Information on records at specific sites can be obtained from that office upon request.

Information used in the preparation of the records in this publication, such as discharge measurement notes, gage-height records, temperature measurements, and rating tables are on file in the California District office. Also, most of the daily mean discharges are in computer-readable form and have been analyzed statistically. Information on the availability of the unpublished information or on the results of statistical analyses of the published records may be obtained from the District office.

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. Locations of stations for which records on the quality of surface water appear in this report are shown in figures 6 through 26.

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.

Onsite Measurements and Sample Collection

In obtaining water-quality data, a major concern is the assurance 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, are made onsite when samples are taken. To assure that measurements made in the laboratory also represent the in-situ water, carefully prescribed procedures are followed in collecting the samples, in treating the samples to prevent changes in quality pending analysis, and in shipping the samples to the laboratory. Procedures for onsite measurements and for collecting, treating, and shipping samples are given in "Techniques of Water-Resources Investigations," Book 1, Chapter D2; Book 3, Chapter C2; Book 5, Chapters A1, A3, and A4. All these references are listed on p. 20 of this report. Also, detailed information on collecting, treating, and shipping samples may be obtained from the California District office.

One sample can adequately define 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 definitions) 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 value 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 and minimum values for each constituent measured and are based on 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 District office whose address is given on the back of the title page of this report.

Water Temperature

Water temperatures are measured at 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 District office.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross section.

During periods of rapidly changing flow or rapidly changing 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 at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observation, 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, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included for some stations.

Cross-Sectional Data

Cross-sectional surveys of water temperature, pH, specific conductance, dissolved oxygen, and suspended sediment are done at all NASQAN and Hydrologic Bench-mark stations during various seasons and surface-water discharges. Documentation of cross-section variation of water quality is essential in order to determine how many samples in a cross section are necessary to ensure a representative composite sample.

Laboratory Measurements

Sediment samples, samples for biochemical-oxygen demand (BOD), samples for indicator bacteria, and daily samples for specific conductance are analyzed locally. All other samples are analyzed in the U.S Geological Survey's Natural Water-Quality Laboratory located in Arvada, Colorado. Methods used in analyzing sediment samples and computing sediment records are given in Techniques of Water-Resources Investigations, Book 5, Chapter C1; methods used by the laboratories are given in Book 1, Chapter D2; Book 3, Chapter C2; and Book 5, Chapters A1, A3, and A4.

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 other data 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 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 individual parameters.

INSTRUMENTATION.--Information on instrumentation is given only if a water-quality monitor temperature record, 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 U.S. 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.

REVISIONS.--If errors in 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 to ensure the most recent updates.

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 OUTPUT

REMARK

E	Estimated value
>	Actual value is known to be greater than the value shown
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptable range (non-ideal colony count)
L	Biological organism count less than 0.5 percent (organism may be observed rather than counted)
D	Biological organism count equal to or greater than 15 percent (dominant)
&	Biological organism estimated as dominant
*	Instantaneous streamflow at the time of cross-sectional measurement
1	Laboratory value

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 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, VA 22092

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report are defined below. See the table for converting inch-pound 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 equivalent 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 a 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; others perform an essential role in nature in the recycling of materials, for example, 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. For the membrane filter method these bacteria are defined as the organisms which produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35 °C ± 0.5 °C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 milligrams per liter of sample.

Fecal-coliform bacteria are bacteria that are present in the intestines or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. For the membrane filter method they are defined as all organisms which produce blue colonies within 24 hours when incubated at 44.5 °C ± 0.2 °C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 milligrams per liter of sample.

Fecal-streptococcal bacteria are bacteria found in intestines of warm-blooded 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. For the membrane filter method they are defined as all the organisms which produce red or pink colonies within 48 hours at 35 °C ± 0.5 °C on KF streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 milligrams per liter of sample.

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

Benthic organisms (invertebrates) are the group of animals living in or on the bottom of an aquatic environment. They include a number of types of organisms, such as bacteria, fungi, insect larvae and nymphs, snails, clams, and crayfish.

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/m³) and periphyton and benthic organisms in grams per square meter (g/m²).

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 ash mass, and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.

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

Bottom material: See Bed material.

Cell volume determination is one of several common methods used to estimate biomass of algae in aquatic systems. Cell numbers of algae are frequently used in aquatic surveys as an indicator of algal production. However, cell numbers alone cannot represent true biomass because of considerable cell-size variation among the algal species. Cell volume (μm³) is determined by obtaining critical cell measurements on cell dimensions (that is, length, width, height, or radius) for 20 to 50 cells of each important species to obtain an average biovolume per cell. Cells are categorized according to the correspondence of their cellular shape to the nearest geometric solid or combinations of simple solids (that is, spheres, cones, or cylinders). Representative formulae used to compute biovolume are as follows:

$$\text{sphere } \frac{4}{3} \pi r^3 \quad \text{cone } \frac{1}{3} \pi r^2 h \quad \text{cylinder } \pi r^2 h.$$

From cell volume, total algal biomass expressed as biovolume (μm³/mL) is thus determined by multiplying the number of cells of a given species by its average cell volume and then summing these volumes over all species.

Cells per volume (cells/volume) refers to the number of cells of any organism that are 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 in 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 pigments in plants.

Color unit is produced by 1 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 saltwater.

Cubic foot per second (ft³/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Cubic foot per second-day (cfs.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, or about 646,000 gallons or 2,445 cubic meters.

Discharge is the volume of water (or more broadly, total 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-micrometer 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. It is recognized that certain kinds of samples cannot be filtered; to provide for this, procedures that are considered equivalent to filtering through a 0.45-micrometer membrane filter will be identified and announced at a later date.

Dissolved-solids concentration of water is determined either analytically or 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.

Diversity index is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\bar{d} = \sum_{i=1}^s \frac{n_i}{n} \log^2 \frac{n_i}{n},$$

where n_i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the samples are the same; to some positive number, when some or all the organisms in the sample are different.

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 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 body of impounded surface water, together with all tributary surface streams and bodies of impounded surface water.

Gage datum is the elevation of the zero point of the reference gage from which gage height is determined as compared to the National Geodetic Vertical Datum of 1929. This elevation is established by a system of levels from known bench marks or by approximation from topographic maps.

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 that is required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate (CaCO₃).

Hydrologic Bench-Mark Network is a network of 56 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.

Light-attenuation coefficient, also known as the extinction coefficient, is a measure of water clarity. Light is attenuated according to the Lambert-Beer equation

$$I = I_0 e^{-\lambda L},$$

where I_0 is the source light intensity, I is the light intensity at length L (in meters) from the source, λ is the light-attenuation coefficient, and e is the base of the natural logarithm. The light-attenuation coefficient is defined as

$$\lambda = -\frac{1}{L} \log_e \frac{I}{I_0}.$$

Macrophytes are the macroscopic plants in the aquatic environment. The most common macrophytes are the rooted vascular plants that are usually arranged in zones in aquatic ecosystems and restricted in the area by the extent of illumination through the water and sediment deposition along the shoreline.

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This development 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-pupa-adult or egg-nymph-adult.

Methylene blue active substance (MBAS) is a measure of apparent detergents. This determination depends on the formation of a blue color when methylene blue dye reacts with synthetic detergent compounds.

Micrograms per gram (UG/G, 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 1 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 represent the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in milligrams per liter and is based on the mass of sediment per liter of water-sediment mixture.

National Geodetic Vertical Datum of 1929 (NGVD) 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 natural or regional water-quality planning and management. The 408 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 objectives of NASQAN are (1) 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 that the data may be used for, (2) to describe the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) to detect changes in trends with time in the pattern occurrence of water-quality characteristics, and (4) to provide a nationally consistent data base useful for water-quality assessment and hydrologic research.

Nekton are the consumers in the aquatic environment and consist of large free-swimming organisms that are capable of sustained, directed mobility.

Organism is any living entity, such as an insect, phytoplankter, or zooplankter.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per unit area of the 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 five-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 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 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 recommendations 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.....	0.004-0.062	Sedimentation
Sand.....	0.062-2.0	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 material 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 or percent of total 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, weight, or volume.

Periphyton is the assemblage of micro-organisms attached to and living upon submerged solid surfaces. While primarily consisting of algae, the periphyton also include bacteria, fungi, protozoa, rotifers, and other small organisms. Periphyton are useful indicators of water quality.

Pesticides are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides. Insecticides and herbicides, which control insects and plants respectively, are the two categories reported.

pH of water is the negative logarithm of the hydrogen-ion activity. Solutions with pH less than 7 are termed "acidic," and solutions with a pH greater than 7 are termed "basic." Solutions with a pH of 7 are neutral. The presence and concentration of many dissolved chemical constituents found in water are, in part, influenced by the hydrogen-ion activity of water. Biological processes including growth, distribution of organisms, and toxicity of the water to organisms are also influenced, in part, by the hydrogen-ion activity of water.

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 dpm (disintegrations per minute).

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

Phytoplankton compose the plant part of the plankton. They are usually microscopic, and their movement is subject to water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials into the surrounding water, the phytoplankton have a profound effect on 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 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 algal 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.

Polychlorinated biphenyls (PCBs) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

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 carbon assimilated by plants (carbon method) or the amount of oxygen released (oxygen method).

Milligrams of carbon per area or volume per unit time [$\text{mg C}/(\text{m}^2/\text{time})$ for periphyton and macrophytes and $\text{mg C}/(\text{m}^3/\text{time})$ for phytoplankton] are the 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 [$\text{mg O}_2/(\text{m}^2/\text{time})$ for periphyton and macrophytes and $\text{mg O}_2/(\text{m}^3/\text{time})$ for phytoplankton] are the 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; 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.

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 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.

Bedload is the sediment that is transported in a stream by rolling, sliding, or skipping along the bed and very close to it. In this report, bedload is considered to consist of particles in transit within 0.25 ft (0.076 m) of the streambed.

Bedload discharge (tons per day) is the quantity of sediment, as measured by dry weight, that moves past a section as bedload 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 period.

Suspended-sediment discharge (tons per day) is the rate at which dry weight 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 by multiplying discharge times milligrams per liter times 0.0027.

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

Total-sediment discharge or total-sediment load (tons per day) is the sum of suspended-sediment discharge and the bedload discharge. It is the total quantity of sediment, as measured by dry mass, that passes a section in 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.

Sodium-adsorption-ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions with 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 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 in 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." 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 emersed 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 collection.

Surface area of a lake is the area, in square miles or acres, outlined on the latest U.S. Geological Survey topographic map as the boundary of the lake and measured by a planimeter. In localities not covered by topographic maps, the areas are computed from the best maps available. Areas shown are for the lake stage at the time the map was made.

Surficial bed material is the part (upper 0.1 to 0.2 ft or 0.03 to 0.06 m) of the bed material that is sampled by 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. The water-sediment mixture is associated with (or sorbed on) the material retained on a 0.45-micrometer 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-micrometer 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; 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 would be 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-micrometer 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 a thermometer that continuously and automatically records, on a chart, the water temperature of a stream. "Temperature recorder" is the term used to indicate the presence of a thermograph or a digital mechanism that records water temperature in a digital format on punched paper tape.

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 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 load (tons) is the total amount of any individual constituent, as measured by dry mass or volume, that is dissolved in a specific amount of water (discharge) during a given time. It is computed by multiplying the total discharge, times the milligrams per liter of the constituent, times the factor 0.0027, times the number of days.

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; 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 would be required of all laboratories performing such analyses, because different digestion procedures are likely to produce different analytical results.

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 the dissolved and suspended phases of the sample. A knowledge of the expected form 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 determines all the constituent in the sample.)

Turbidity of a sample is the reduction of transparency due to the presence of particulate matter. In this report it is expressed in Nephelometric turbidity units (NTU), obtained from the Nephelometric method for turbidity determination which measures the intensity of light scattered by suspended particles at 90° from the path of incident light source.

Water year in U.S. 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, 1988, is called the "1988 water year."

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

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 reference 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, Building 810, Denver, CO 80225. Prepayment is required. Remittance should be sent by check or money order payable to U.S. Geological Survey, Department of the Interior. 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-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.
- 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 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.
- 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. 1986. 41 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-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 programmed 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, edited by M.W. Skougstad and others: USGS--TWRI Book 5, Chapter A1. 1979. 626 pages.
- 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. 322 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. Shaffranek, 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.

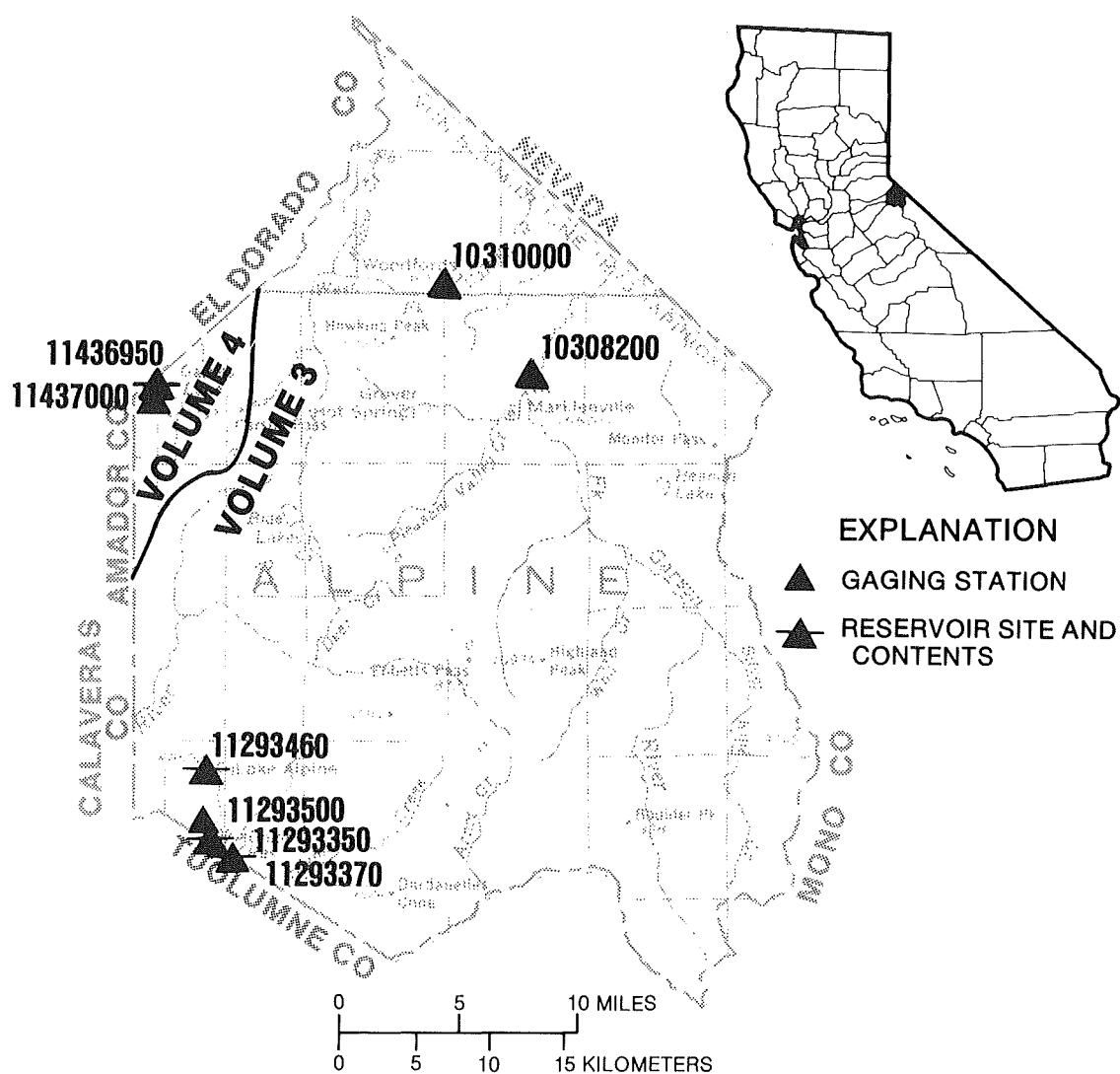


FIGURE 6.--Location of discharge stations in Alpine County.
(Note: Records for stations 10308200, 10310000, and 11293350 through 11293500 published in volume 3)

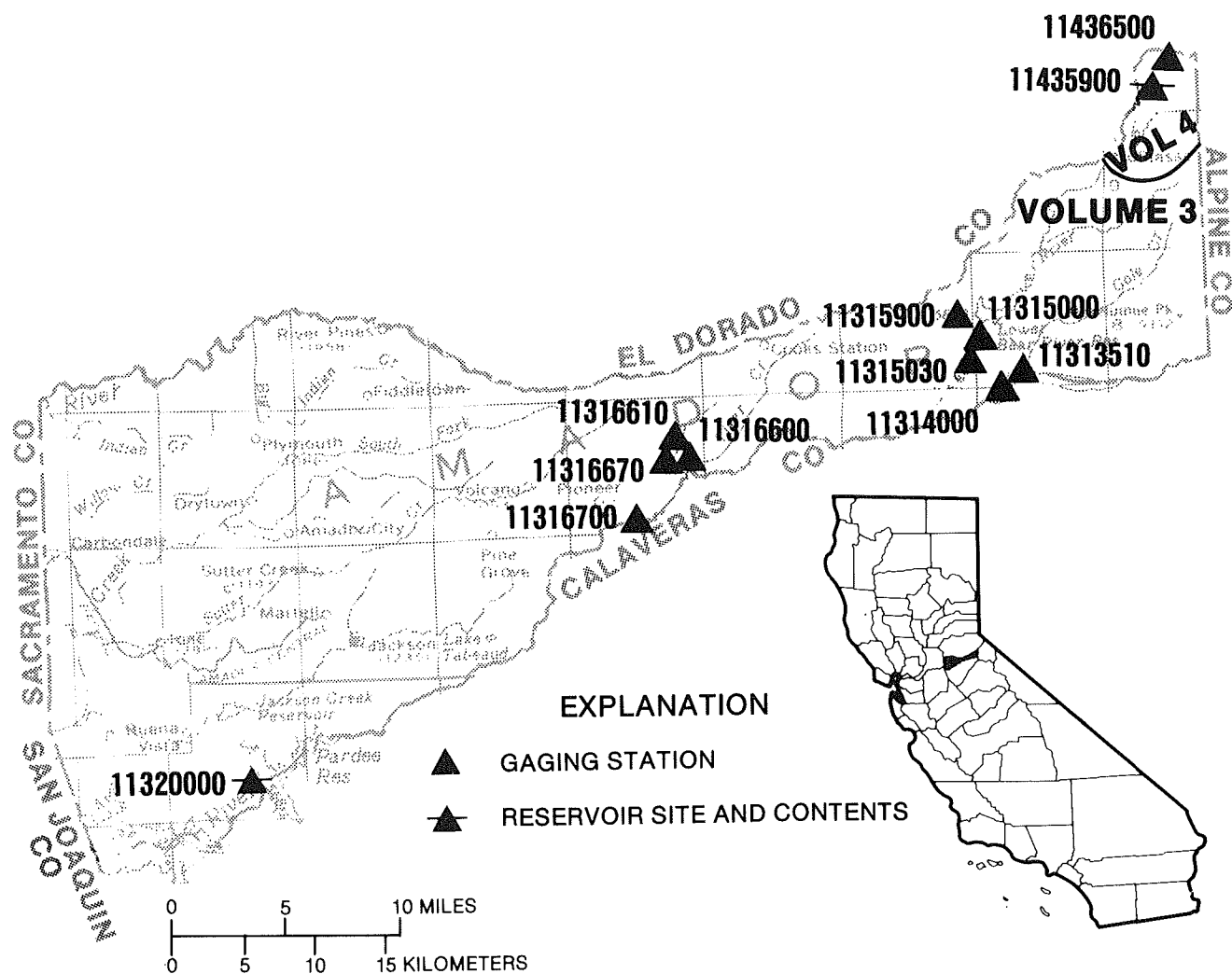


FIGURE 7.--Location of discharge stations in Amador County.
 (Note: Records for stations 11313510 through 11320000 are published in volume 3).

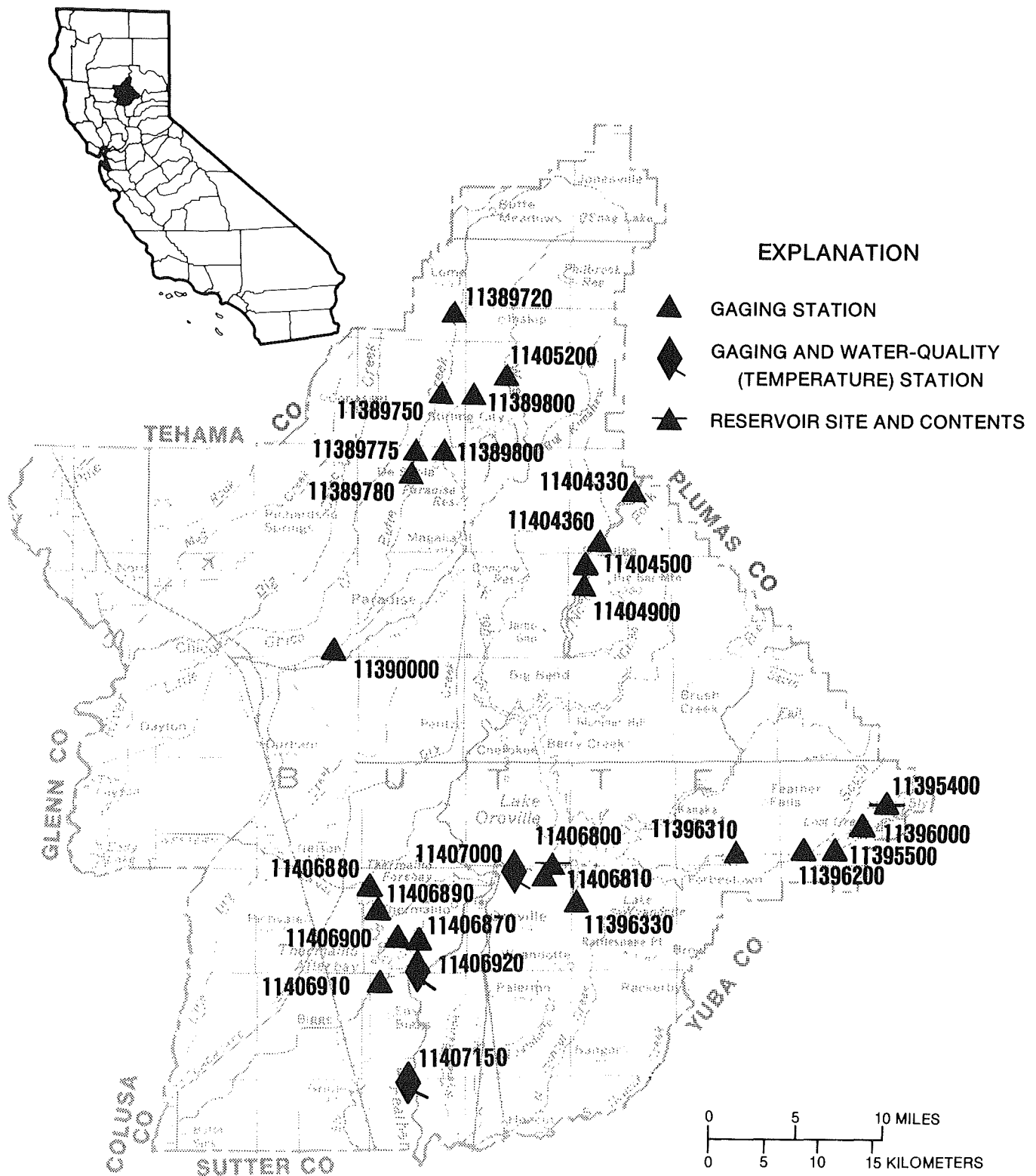


FIGURE 8.--Location of discharge and water-quality stations in Butte County.

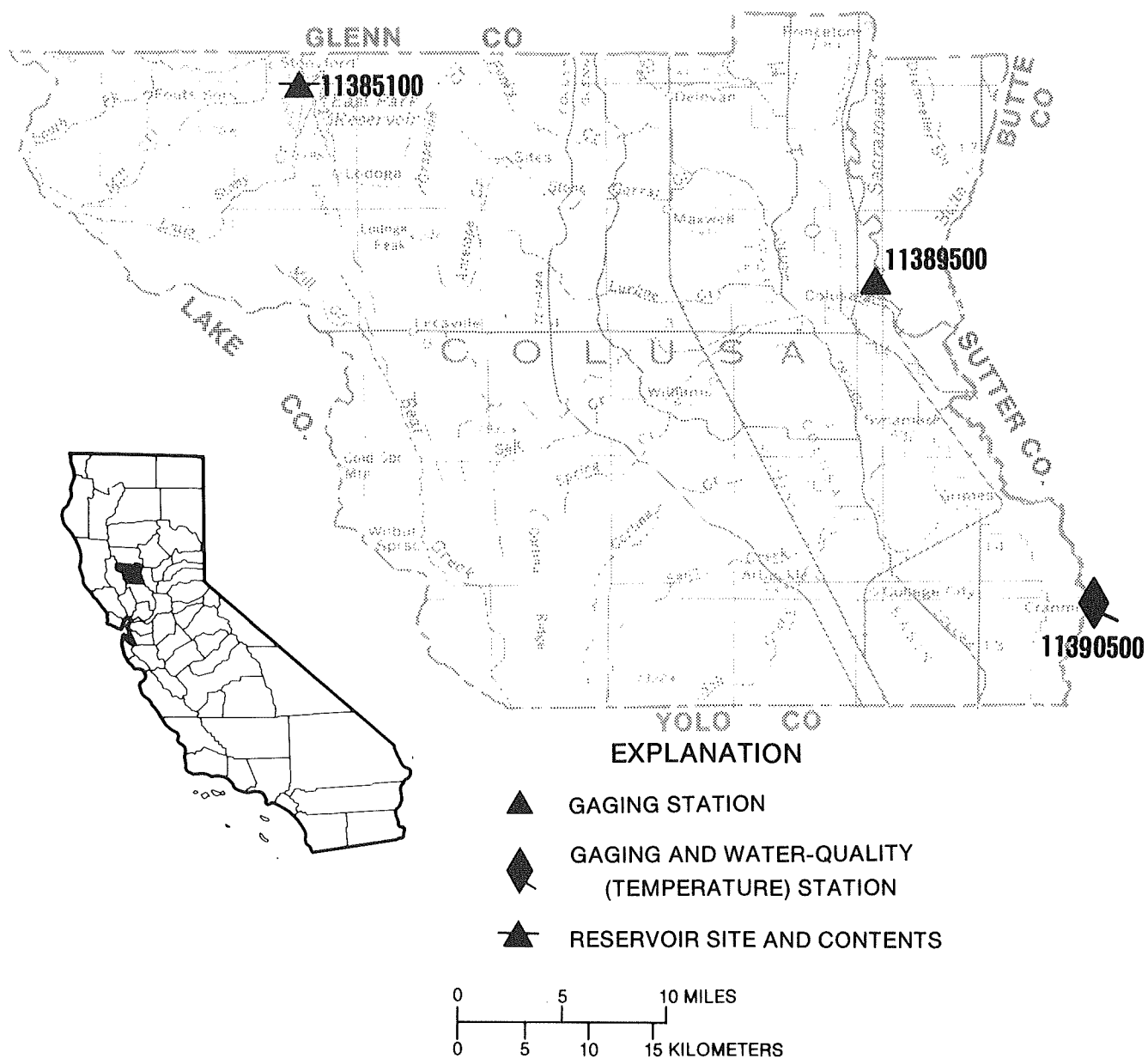


FIGURE 9.--Location of discharge and water-quality stations in Colusa County.

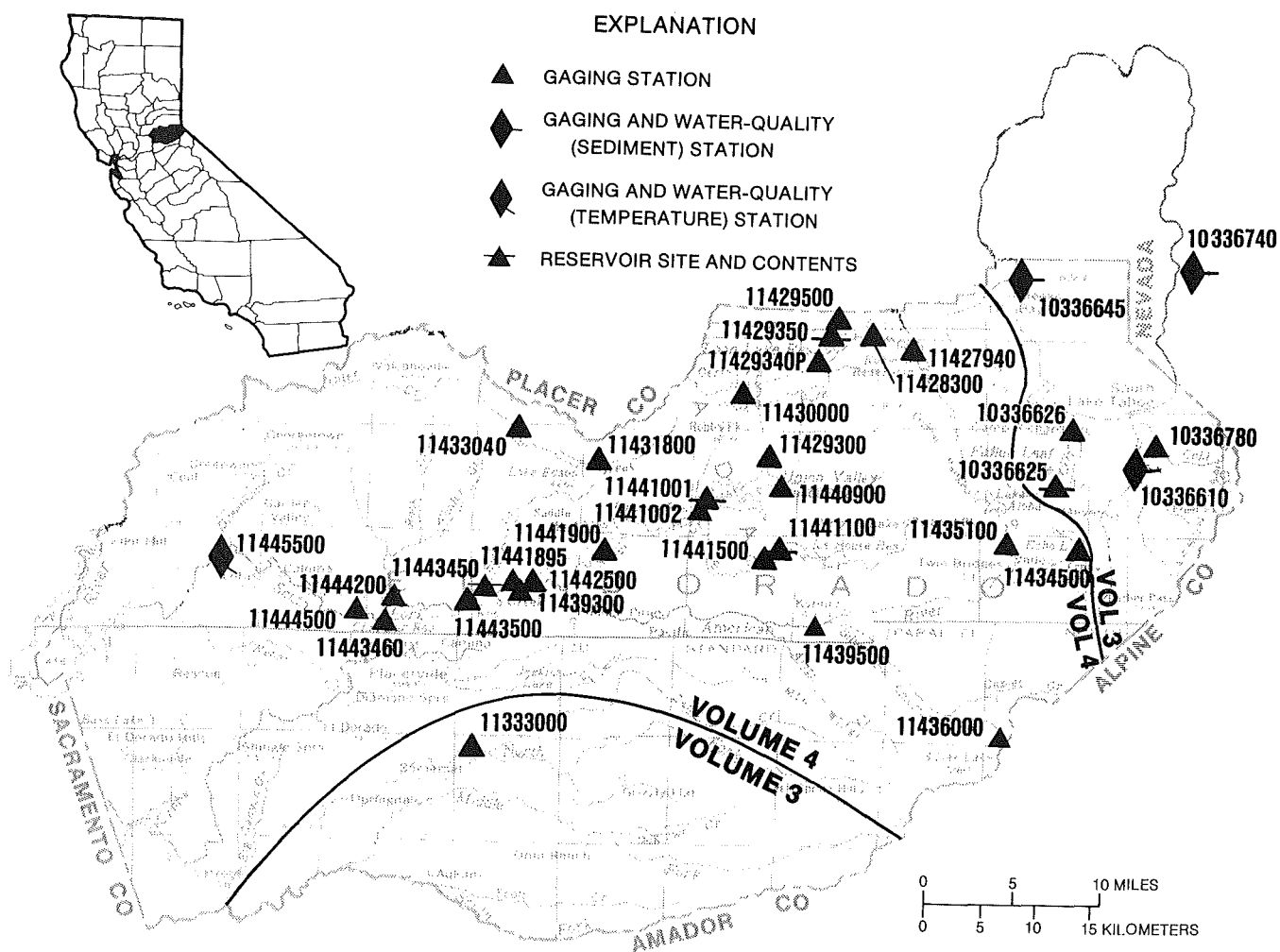


FIGURE 10.--Location of discharge and water-quality stations in El Dorado County.
(Note: Record for station 11333000 published in volume 3).

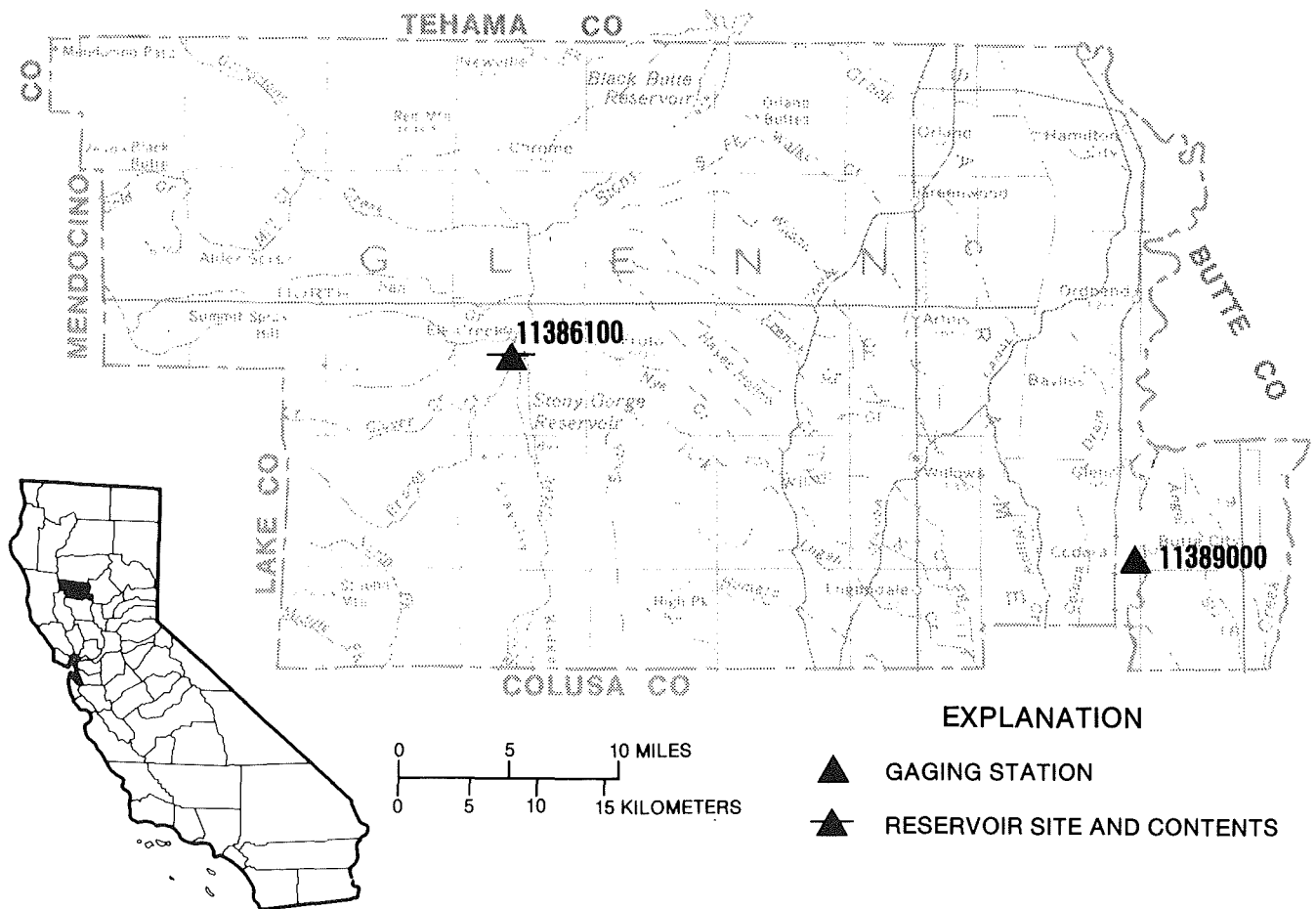


FIGURE 11.--Location of discharge stations in Glenn County.

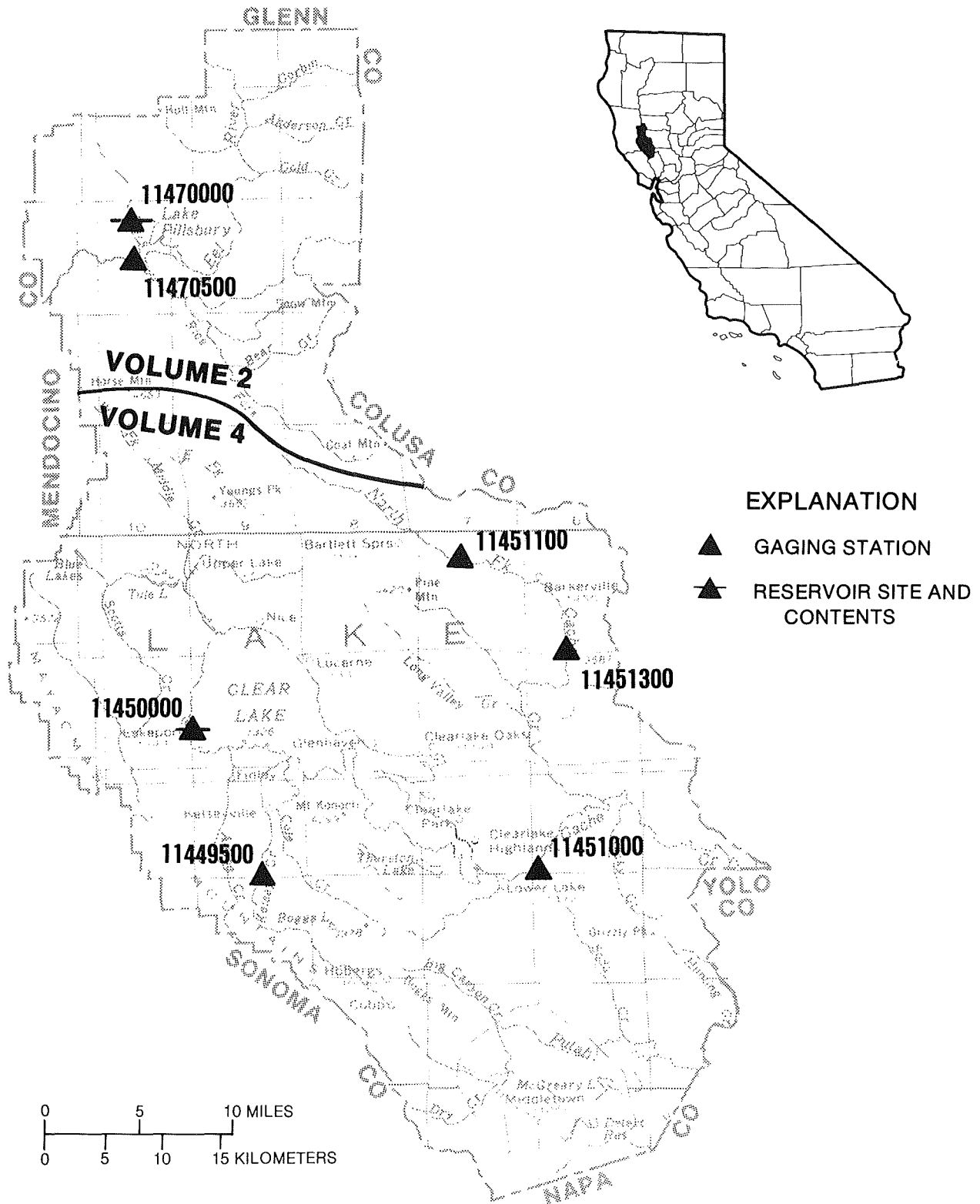


FIGURE 12.--Location of discharge stations in Lake County.
 (Note: Records for stations 11470000 and 11470500 published in volume 2)

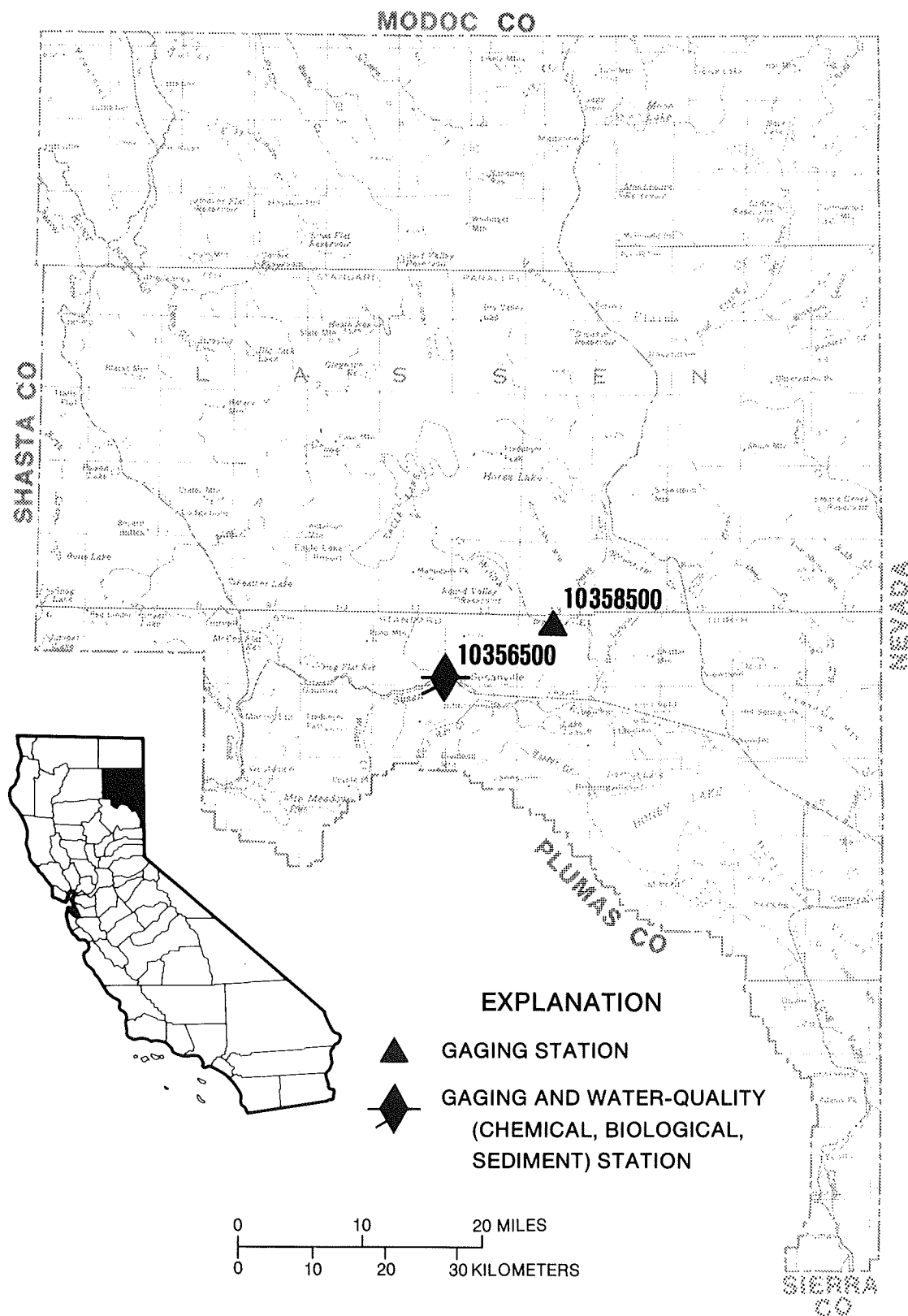


FIGURE 13.--Location of discharge and water-quality stations in Lassen County.

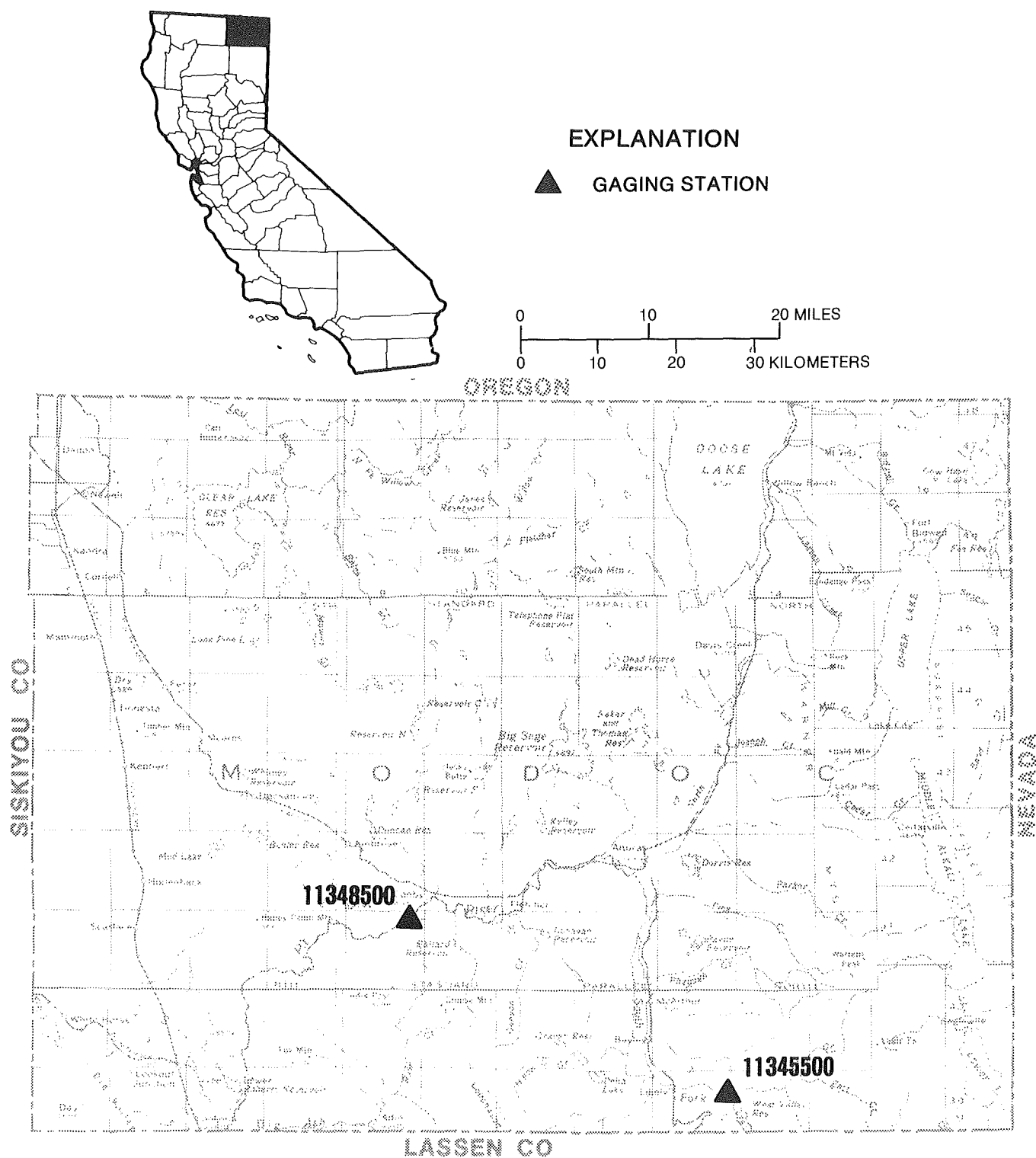


FIGURE 14.--Location of discharge stations in Modoc County.

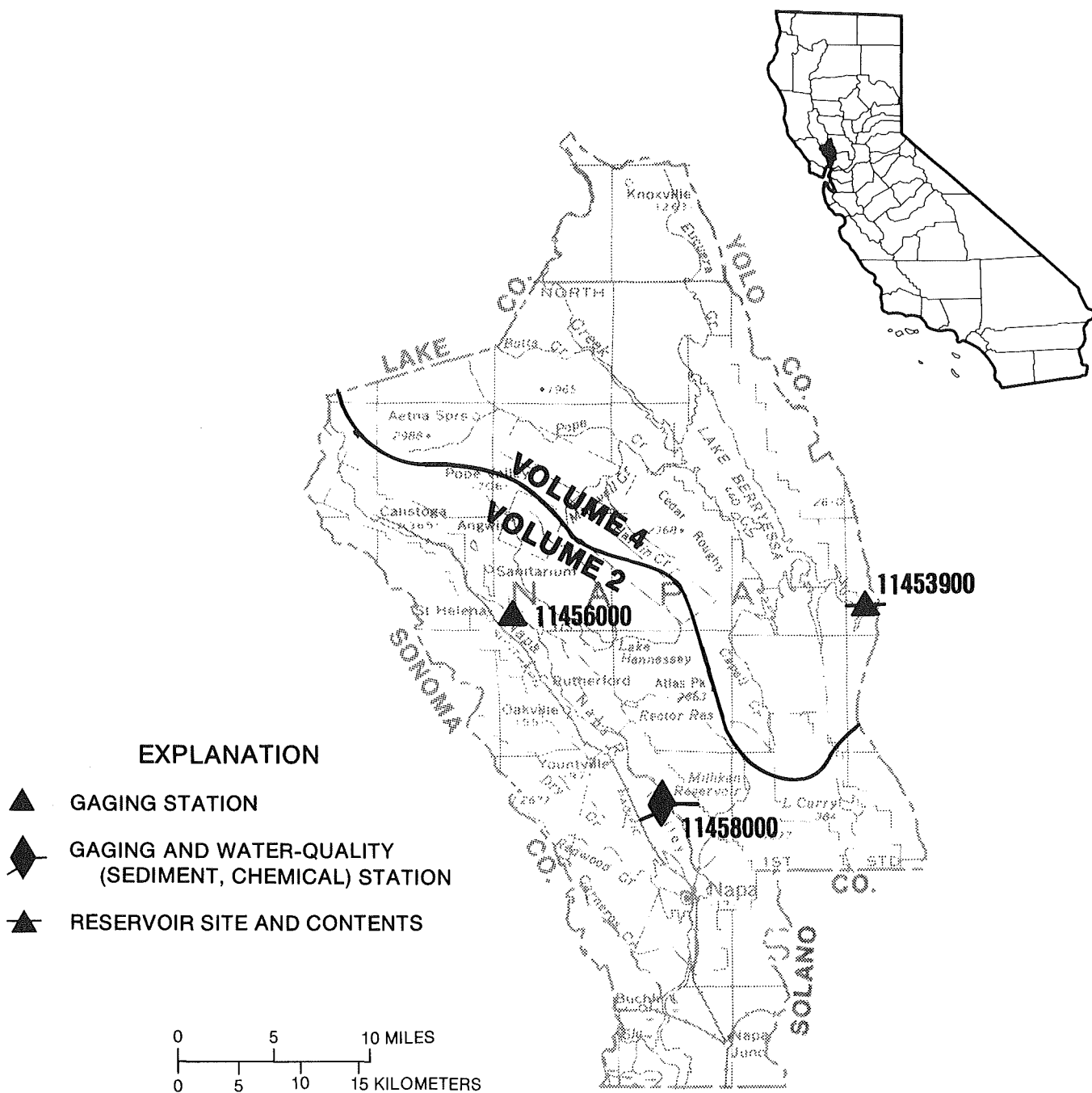


FIGURE 15.--Location of discharge and water-quality stations in Napa County.
(Note: Records for stations 11456000 and 11458000 published in volume 2).

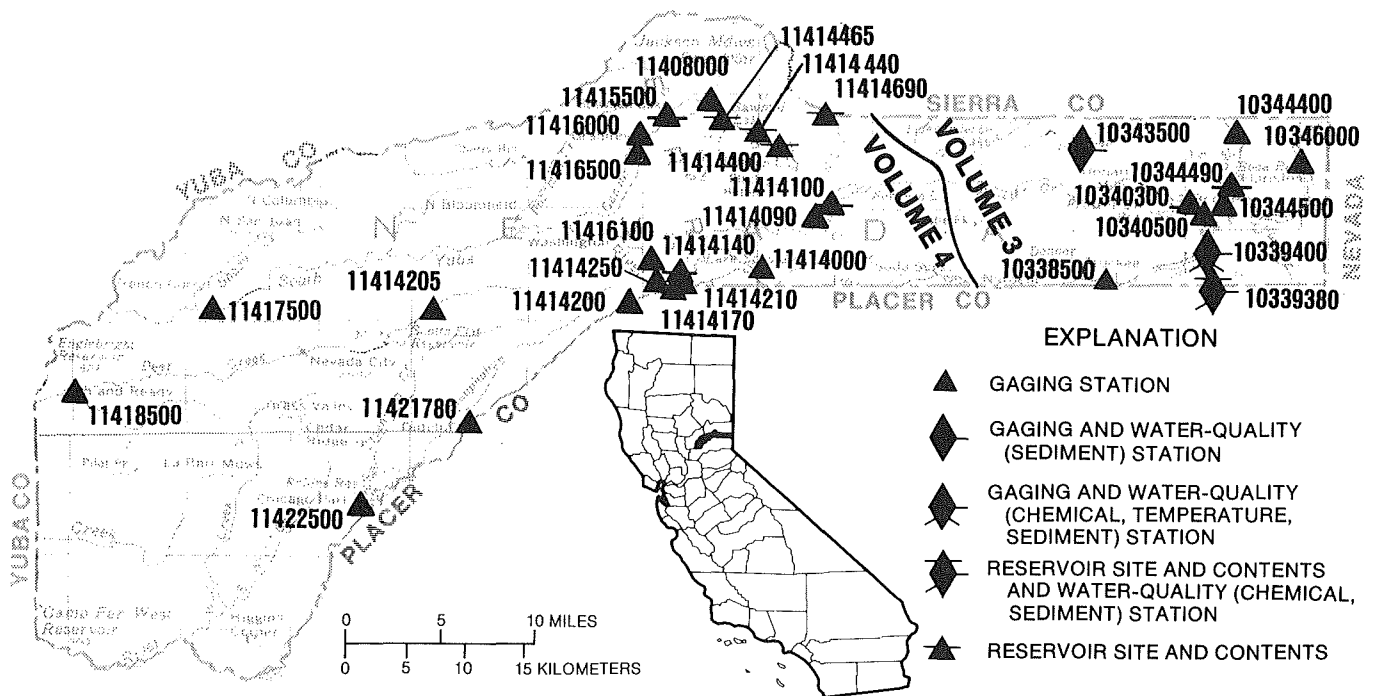


FIGURE 16.--Location of discharge and water-quality stations in Nevada County.
(Note: Records for stations 10338500 through 10346000 published in volume 3)

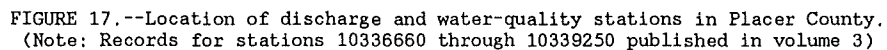


FIGURE 17.--Location of discharge and water-quality stations in Placer County.
(Note: Records for stations 10336660 through 10339250 published in volume 3)

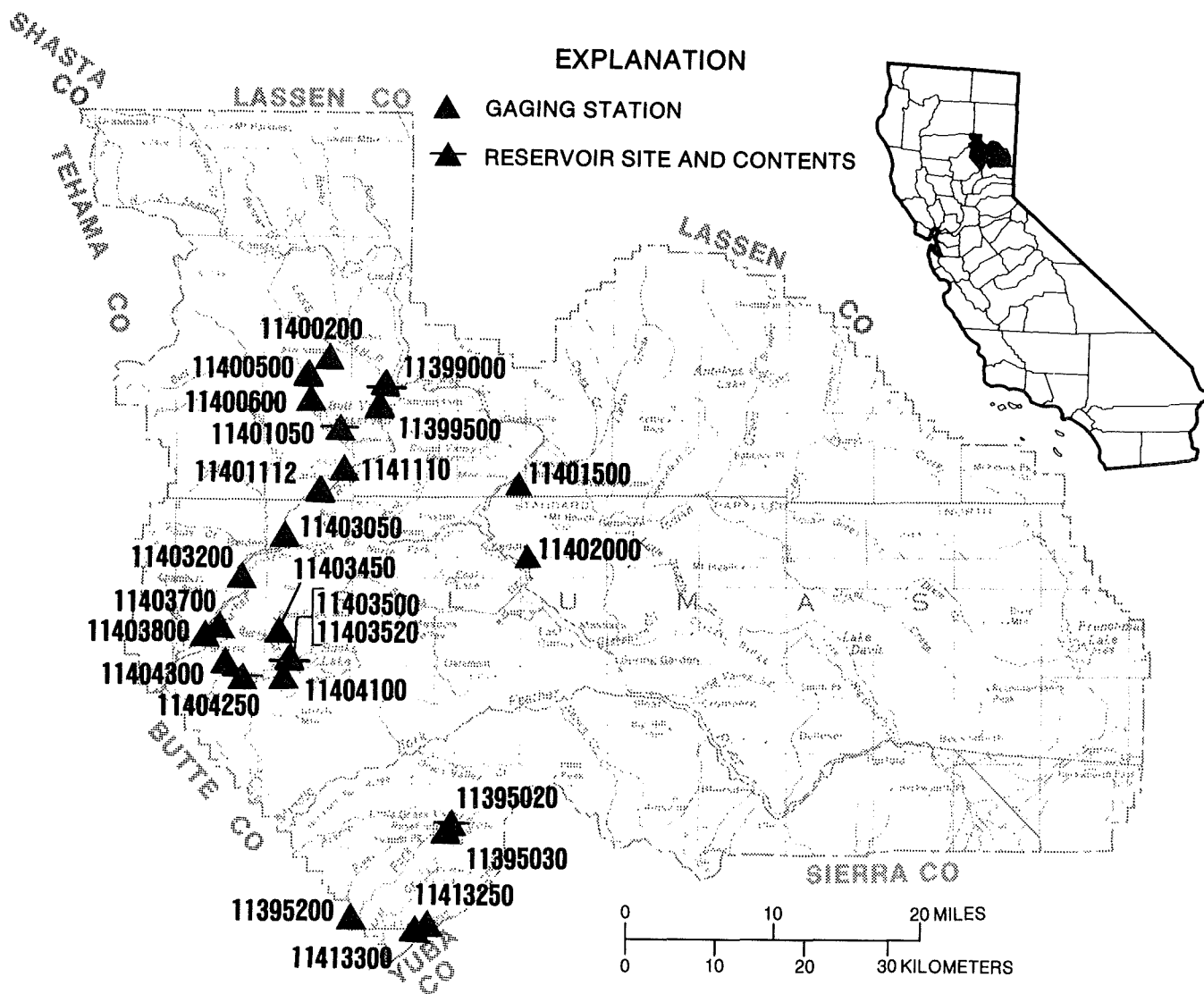


FIGURE 18.--Location of discharge stations in Plumas County.

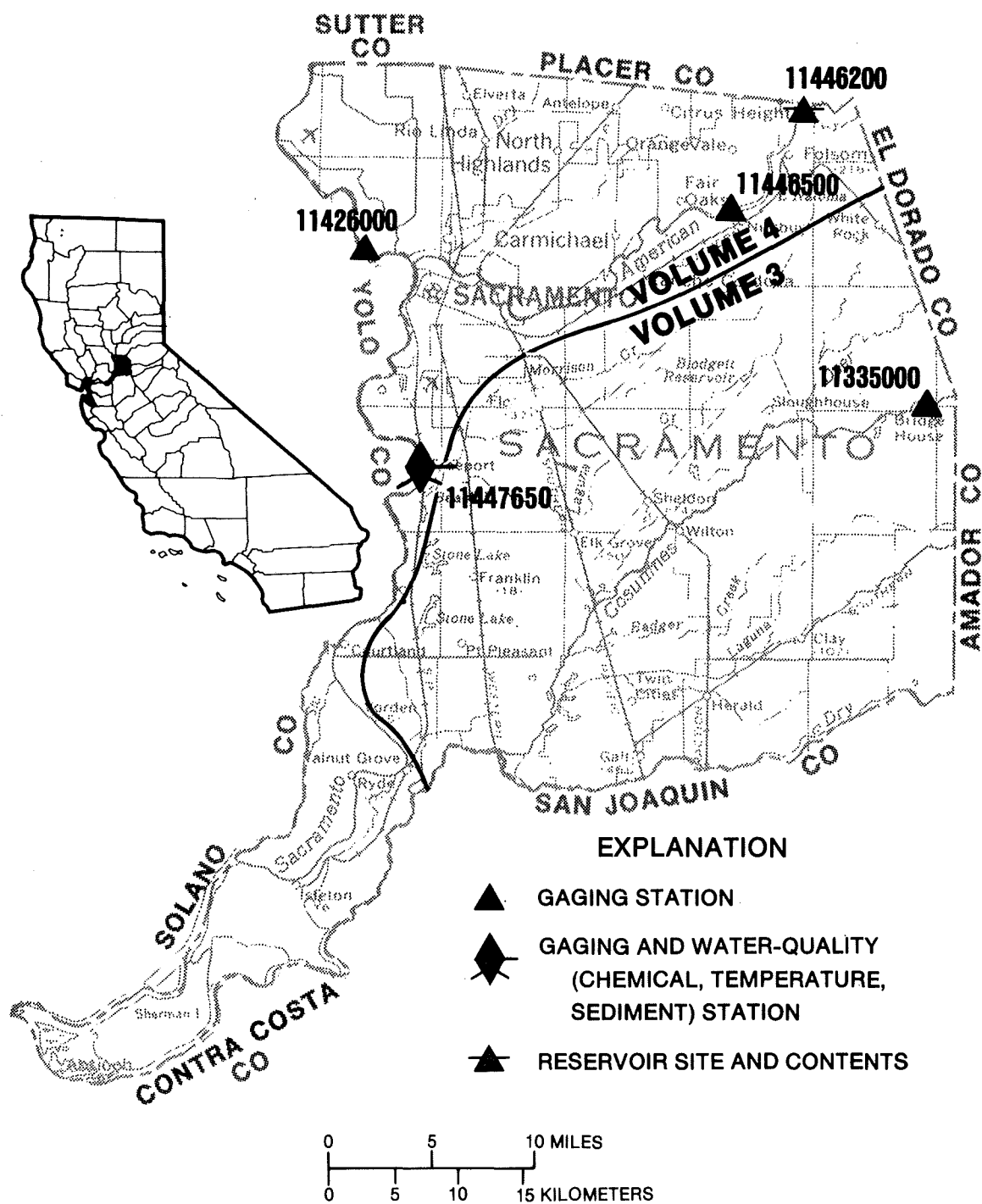


FIGURE 19.--Location of discharge and water-quality stations in Sacramento County.
(Note: Record for station 11335000 published in volume 3).

EXPLANATION

- ▲ GAGING STATION
- ◆ GAGING AND WATER-QUALITY
(CHEMICAL, BIOLOGICAL)
STATION
- ▲ RESERVOIR SITE AND CONTENTS
- POWERHOUSE

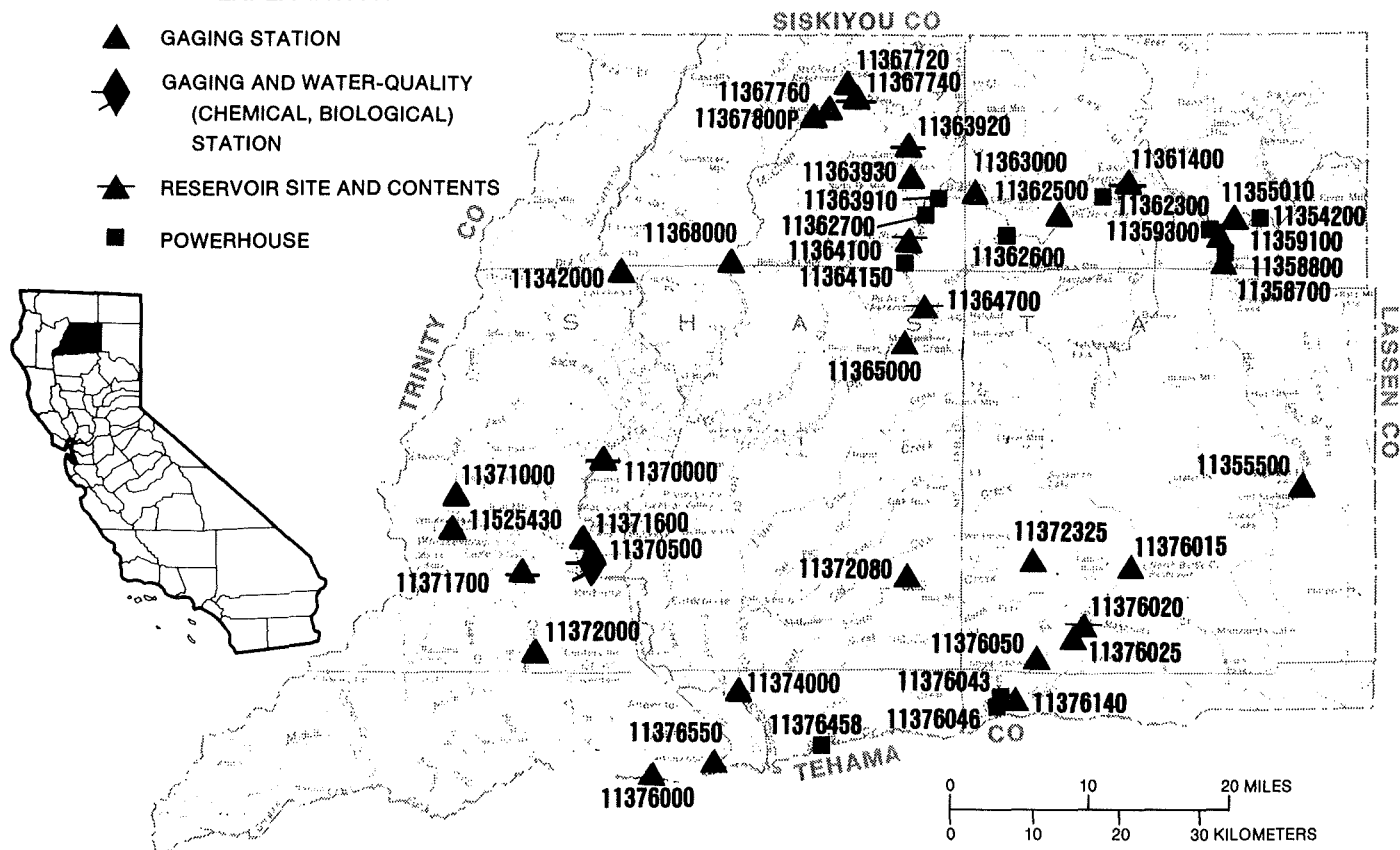


FIGURE 20.--Location of discharge and water-quality stations in Shasta County

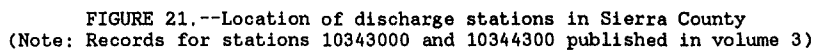


FIGURE 21.--Location of discharge stations in Sierra County
(Note: Records for stations 10343000 and 10344300 published in volume 3)

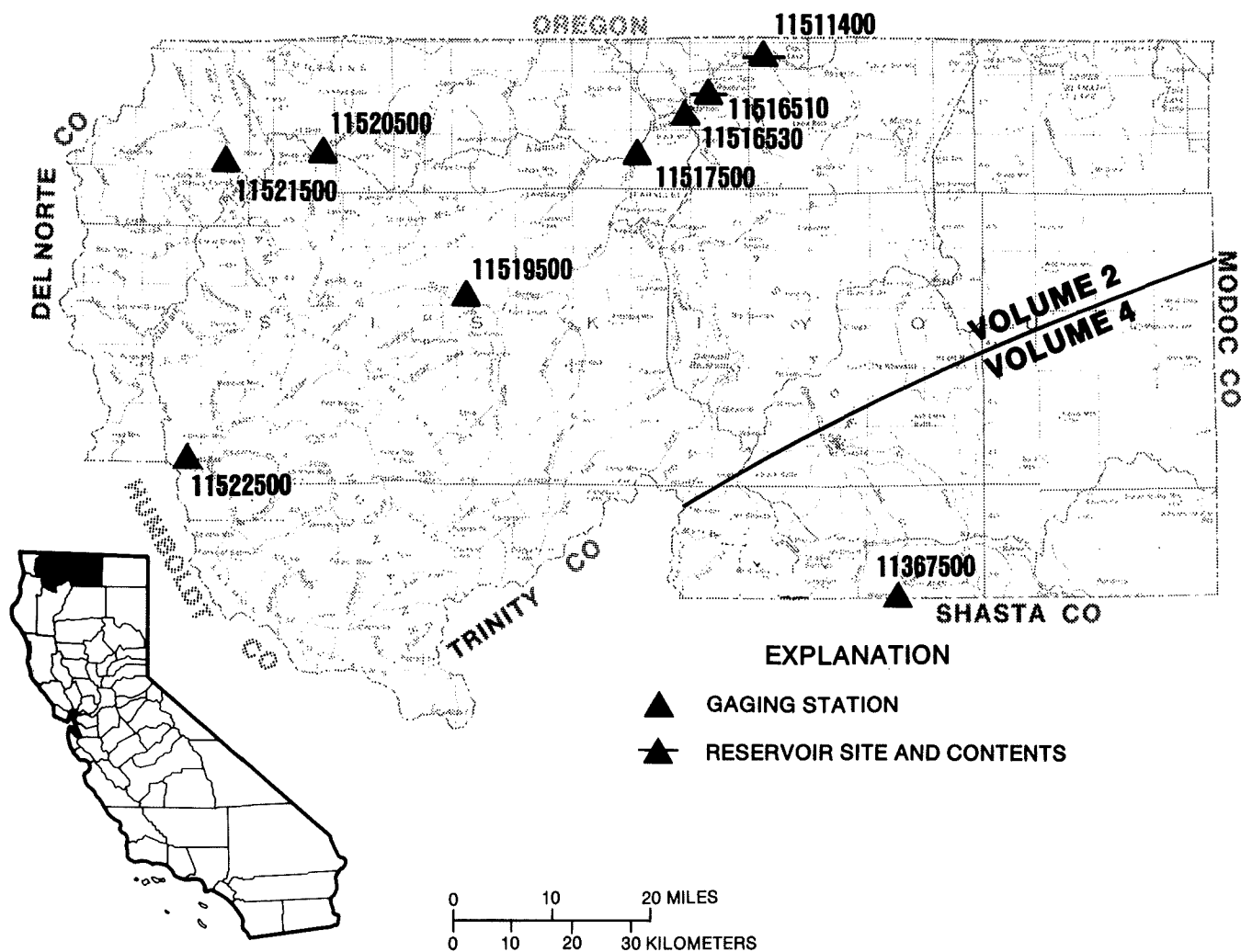
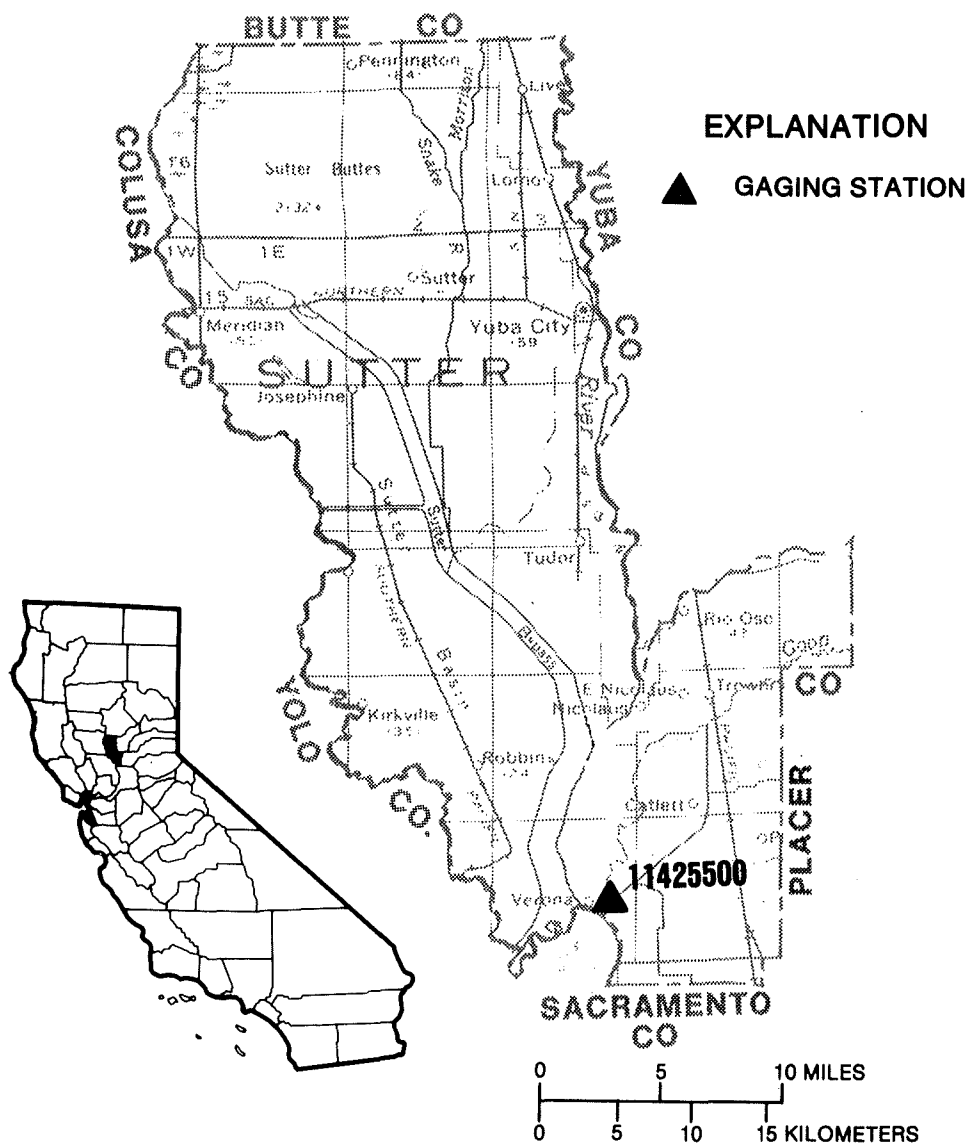


FIGURE 22.--Location of discharge stations in Siskiyou County.
(Note: Records for stations 11511400 through 11522500 published in volume 2).



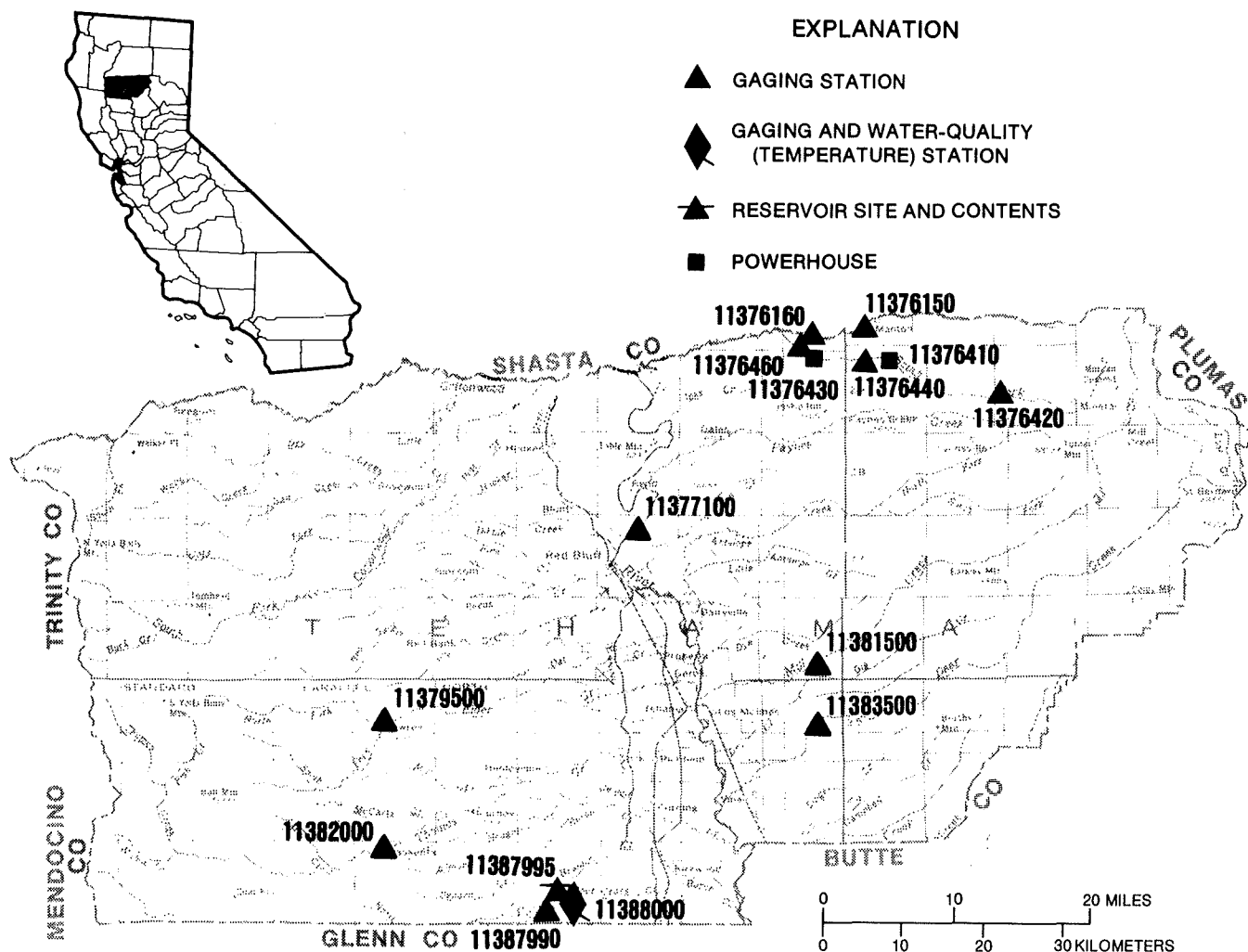


FIGURE 24.--Location of discharge and water-quality stations in Tehama County.

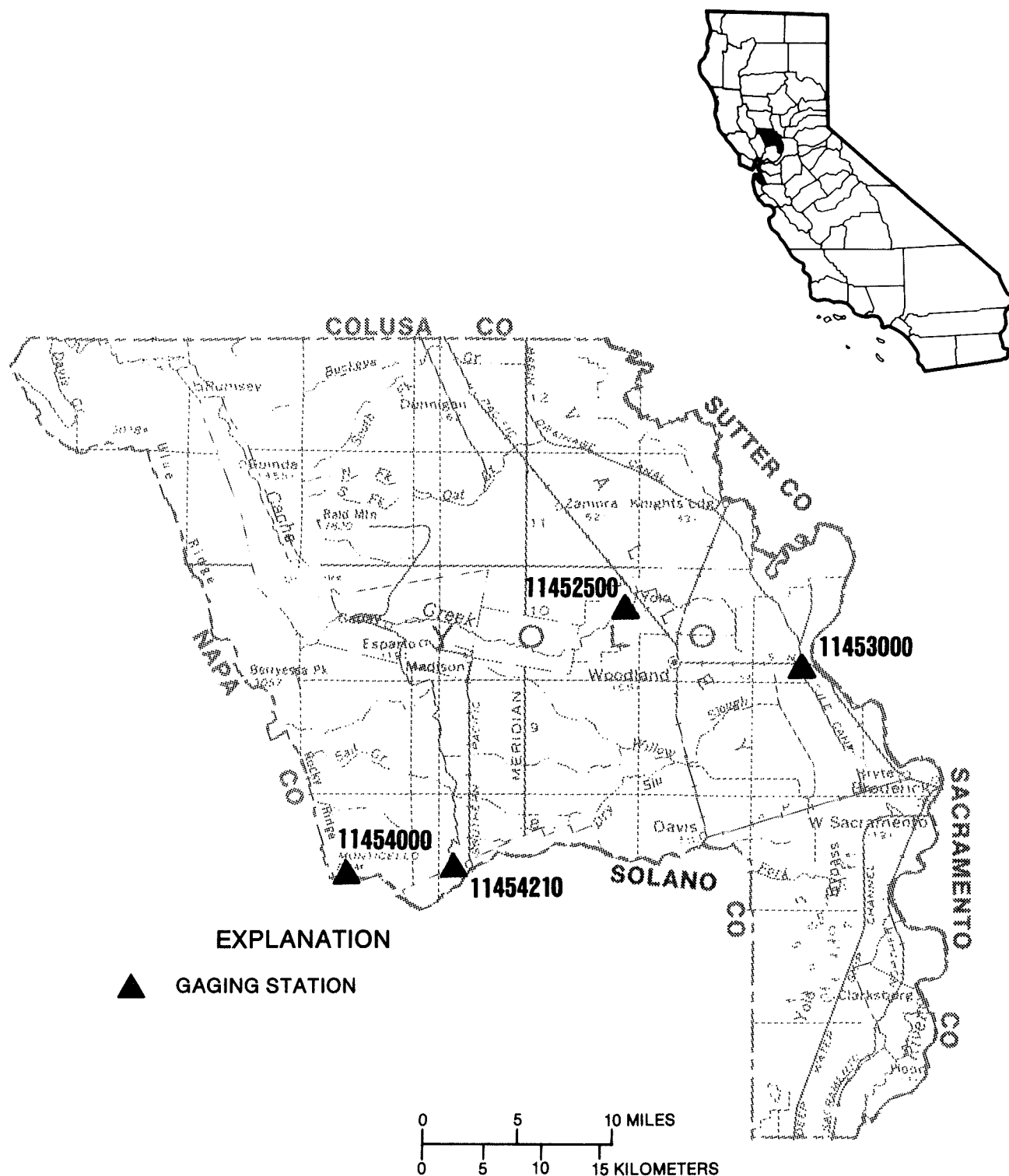


FIGURE 25.--Location of discharge stations in Yolo County.

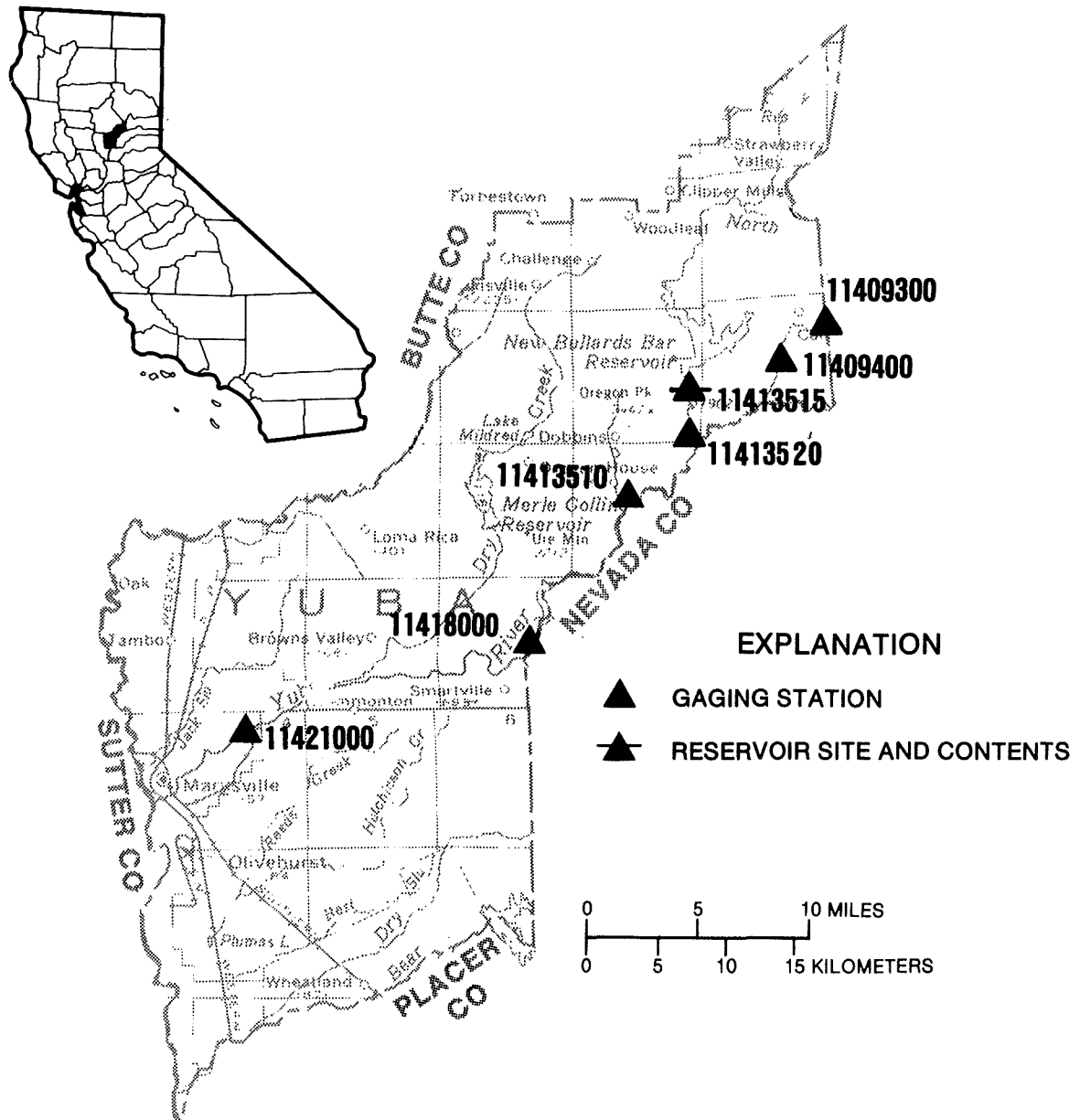


FIGURE 26.--Location of discharge stations in Yuba County.

HONEY LAKE BASIN

10356500 SUSAN RIVER AT SUSANVILLE, CA
(National stream-quality accounting network station)

LOCATION.--Lat 40°25'03", long 120°40'15", in SW 1/4 NE 1/4 sec.31, T.30 N., R.12 E., Lassen County, Hydrologic Unit 18080003, on left bank 0.5 mi west of Susanville, 1.1 mi upstream from Piute Creek, and 19.8 mi downstream from McCoy Flat Reservoir.

DRAINAGE AREA.--184 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1900 to December 1905 (gage heights only, August 1901 to January 1903), March to May 1913 (gage heights only), February 1917 to June 1921, October 1950 to current year. Published as "near Susanville" 1900-5. Discharge records for August to December 1901 and January 1903, published in WSP 300, have been found to be unreliable and should not be used.

GAGE.--Water-stage recorder. Datum of gage is 4,225.72 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1950, nonrecording gages at several sites in vicinity of old powerplant 0.9 mi upstream at various datums.

REMARKS.--Estimated daily discharges for the following ice-affected period: Dec. 12 to Feb. 24. Records fair except for period with ice affect, which is poor. Flow regulated by McCoy Flat Reservoir and Hog Flat Reservoir, combined usable capacity, 25,300 acre-ft. Diversions for irrigation of 1,400 acres above station.

AVERAGE DISCHARGE.--44 years (water years 1901, 1904-5, 1918-20, 1951-88), 94.7 ft³/s, 68,610 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,850 ft³/s, Jan. 24, 1970, gage height, 8.89 ft, in gage well, 10.4 ft, from floodmarks, from rating curve extended above 1,000 ft³/s on basis of slope-area measurement at gage height 6.62 ft and contracted-opening measurement of peak flow; no flow Aug. 15, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 96 ft³/s, Dec. 10, gage height, 1.94 ft; minimum daily, 0.68 ft³/s, Aug. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.4	8.4	12	9.0	11	61	32	19	12	4.3	1.5	1.5
2	4.3	8.3	25	9.3	10	54	32	18	15	4.3	1.4	1.4
3	4.2	8.3	25	9.4	8.7	48	35	17	11	3.9	1.2	2.2
4	4.1	8.1	17	9.7	8.8	48	35	16	9.6	4.1	1.7	1.4
5	4.0	8.1	15	10	10	52	33	17	9.5	4.4	1.5	1.6
6	4.0	8.2	22	10	12	53	34	15	11	3.8	2.0	1.9
7	4.0	8.1	29	11	12	49	35	17	10	4.3	2.1	1.5
8	4.0	8.1	20	11	13	42	34	18	11	4.2	2.1	1.3
9	4.2	8.4	21	11	14	54	32	14	11	3.6	.74	1.6
10	4.6	8.4	66	12	15	41	28	14	9.8	3.2	1.2	1.8
11	4.7	8.3	43	10	16	34	28	13	8.9	2.8	1.6	1.9
12	5.7	8.3	19	8.6	18	31	66	14	8.7	2.6	1.6	2.5
13	7.2	9.0	17	7.9	20	29	52	14	8.5	2.7	.68	3.1
14	6.4	10	16	11	19	27	53	13	8.4	3.5	1.2	2.2
15	6.1	9.6	15	12	18	28	54	12	7.8	3.3	1.2	3.4
16	5.9	9.7	13	13	19	26	51	13	6.4	2.3	1.6	3.8
17	5.8	10	12	11	18	25	46	16	6.8	2.1	2.5	4.7
18	5.7	10	10	7.0	18	26	45	14	6.6	1.8	2.4	3.8
19	6.5	10	9.6	5.8	17	28	53	13	6.3	2.1	2.4	1.6
20	6.9	10	9.8	6.3	17	31	61	13	4.8	2.4	2.4	2.2
21	7.2	10	9.2	7.1	19	32	59	12	4.4	2.4	2.3	3.5
22	7.1	10	8.8	7.9	20	32	47	12	3.8	2.5	2.6	1.7
23	6.3	10	8.1	8.1	23	33	38	11	3.8	2.6	1.3	1.7
24	6.6	10	7.4	8.4	25	35	34	9.0	3.9	2.8	1.2	1.7
25	7.1	11	7.4	8.9	29	33	30	9.6	4.9	2.2	1.2	3.7
26	7.2	10	7.6	9.8	32	33	27	6.4	6.4	2.1	1.4	1.9
27	7.4	11	7.8	14	35	35	25	7.6	5.7	2.6	1.5	1.9
28	7.9	12	8.2	13	47	31	24	9.1	4.8	3.5	1.5	4.5
29	9.4	12	8.8	15	47	29	23	14	4.4	1.9	2.1	3.9
30	8.9	12	8.2	14	---	31	20	12	4.5	1.8	2.0	5.5
31	8.6	---	7.9	13	---	33	---	10	---	1.6	1.8	---
TOTAL	186.4	285.3	505.8	314.2	571.5	1144	1166	412.7	229.7	91.7	51.92	75.4
MEAN	6.01	9.51	16.3	10.1	19.7	36.9	38.9	13.3	7.66	2.96	1.67	2.51
MAX	9.4	12	66	15	47	61	66	19	15	4.4	2.6	5.5
MIN	4.0	8.1	7.4	5.8	8.7	25	20	6.4	3.8	1.6	.68	1.3
AC-FT	370	566	1000	623	1130	2270	2310	819	456	182	103	150

CAL YR 1987 TOTAL 9594.90 MEAN 26.3 MAX 258 MIN 1.2 AC-FT 19030
WTR YR 1988 TOTAL 5034.62 MEAN 13.8 MAX 66 MIN .68 AC-FT 9990

HONEY LAKE BASIN

10356500 SUSAN RIVER AT SUSANVILLE, CA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1952 to current year.

CHEMICAL DATA: Water years 1952 to current year.

BIOLOGICAL DATA: Water years 1978-81.

SEDIMENT DATA: Water years 1978 to current year.

REMARKS.--No values exceeded the historical maximum-minimum data.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (FTU)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, (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 TOTAL (MG/L AS CACO3)
NOV												
18...	1215	10	165	8.30	7.0	0.50	660	10.7	102	<1	80	78
JAN												
27...	1130	14	152	8.20	0.0	0.60	655	14.0	112	<1	<1	74
MAR												
23...	1300	34	127	8.50	9.0	1.4	655	10.5	106	<1	56	53
MAY												
18...	1115	18	¹ 145	8.60	13.0	0.80	655	10.4	115	K8	57	64
JUL												
20...	1145	3.7	203	8.40	20.0	1.3	660	8.4	107	50	95	93
SEP												
14...	1315	5.6	194	8.60	13.0	1.1	655	10.8	120	K4	K10	88

DATE	HARD- NESS NONCARB WH WAT TOT FLD 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)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER WH IT FIELD MG/L AS HCO3	CAR- BONATE WATER WH IT FIELD MG/L AS CO3	ALKA- LINITY WAT WH TOT IT FIELD MG/L AS CACO3	ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)
NOV												
18...	0	16	9.3	6.3	15	0.3	1.1	111	0	91	92	1.6
JAN												
27...	0	16	8.3	5.9	14	0.3	1.9	102	0	83	82	3.3
MAR												
23...	0	12	5.7	5.0	16	0.3	1.5	71	5	66	65	4.9
MAY												
18...	0	14	7.0	5.4	15	0.3	1.4	82	4	74	74	2.6
JUL												
20...	0	19	11	7.3	14	0.3	3.0	116	3	104	107	2.8
SEP												
14...	0	17	11	7.0	14	0.3	2.6	113	4	104	104	2.1

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	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 AC-FT)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)
NOV												
18...	1.9	0.10	33	119	125	0.16	<0.010	<0.100	<0.010	<0.010	<0.20	0.020
JAN												
27...	1.3	0.10	32	109	118	0.15	0.010	<0.100	<0.010	<0.010	<0.20	0.140
MAR												
23...	0.90	0.10	27	98	96	0.13	<0.010	<0.100	<0.010	0.010	<0.20	0.040
MAY												
18...	0.60	0.20	29	98	105	0.13	<0.010	<0.100	<0.010	0.020	<0.20	0.040
JUL												
20...	1.0	0.10	37	136	145	0.18	<0.010	<0.100	<0.010	<0.010	0.40	0.050
SEP												
14...	0.80	<0.10	33	125	136	0.17	<0.010	<0.100	<0.010	<0.010	<0.20	0.020

See footnotes at end of table.

HONEY LAKE BASIN

10356500 SUSAN RIVER AT SUSANVILLE, CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)	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)
NOV 18...	0.020	0.020	<10	<1	19	<0.5	<1	<1	<3	<1	48
JAN 27...	0.120	0.020	<10	<1	17	<0.5	<1	<1	<3	<1	32
MAR 23...	0.030	0.030	--	--	--	--	--	--	--	--	--
MAY 18...	0.030	<0.010	<10	<1	18	<0.5	<1	1	<3	<1	45
JUL 20...	0.040	0.040	--	--	--	--	--	--	--	--	--
SEP 14...	0.020	<0.010	<10	<1	25	<0.5	<1	<1	<3	<1	42

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	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)
NOV 18...	<5	<4	18	<0.1	<10	<1	<1	<1.0	120	<6	21
JAN 27...	<5	<4	13	<0.1	<10	4	<1	1.0	120	<6	<3
MAR 23...	--	--	--	--	--	--	--	--	--	--	--
MAY 18...	<5	<4	16	<0.1	<10	3	<1	<1.0	110	<6	4
JUL 20...	--	--	--	--	--	--	--	--	--	--	--
SEP 14...	<5	<4	18	<0.1	<10	<1	<1	<1.0	140	<6	6

< Actual value is known to be less than the value shown.

¹ Laboratory value.

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

CROSS-SECTIONAL DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	SEDI- MENT, SUS- PENDED (MG/L)
MAR									
23...*	1130	8.00	127	8.20	8.5	655	10.5	105	4
23...*	1135	18.0	127	8.20	8.5	655	10.5	105	5
23...*	1140	26.0	128	8.30	8.5	655	10.5	105	7
23...*	1145	32.0	128	8.30	8.5	655	10.5	105	10
23...*	1150	38.0	127	8.30	8.5	655	10.5	105	4
SEP									
14...*	1230	5.00	192	8.60	13.0	655	10.8	120	2
14...*	1235	11.0	194	8.60	13.0	655	10.8	120	4
14...*	1240	15.0	194	8.50	13.0	655	10.8	120	4
14...*	1245	19.0	194	8.50	13.0	655	10.8	120	5
14...*	1250	24.0	194	8.60	13.0	655	10.9	121	3

* Instantaneous streamflow at the time of cross-sectional measurements:

Mar. 23, 34 ft³/s; Sept. 14, 5.6 ft³/s.

HONEY LAKE BASIN

10356500 SUSAN RIVER AT SUSANVILLE, CA--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE WATER (DEG C)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV						
18...	1220	10	7.0	1	0.03	--
JAN						
27...	1135	14	0.0	1	0.04	--
MAR						
23...	1305	34	9.0	4	0.37	--
MAY						
18...	1110	18	13.0	5	0.24	90
JUL						
20...	1150	3.7	20.0	5	0.05	61
SEP						
14...	1255	5.6	13.0	4	0.06	--

HONEY LAKE BASIN

10358500 WILLOW CREEK NEAR SUSANVILLE, CA

LOCATION.--Lat 40°29'21", long 120°32'10", in SW 1/4 NE 1/4 sec.5, T.30 N., R.13 E., Lassen County, Hydrologic Unit 18080003, on left bank 4 mi upstream from Peters Valley Creek and 8 mi northeast of Susanville.

DRAINAGE AREA.--90.4 mi², excludes that of Eagle Lake Basin.

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

REVISED RECORDS.--WDR CA-75-4: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,836.27 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records fair. Diversions for irrigation of 5,200 acres above station. Some flow at times enters Willow Creek from Eagle Lake through a pipe in a concrete plug in an abandoned tunnel.

AVERAGE DISCHARGE.--38 years, 34.8 ft³/s, 25,210 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,210 ft³/s, Feb. 18, 1986, gage height, 6.25 ft, from rating curve extended above 600 ft³/s; minimum daily, 4.2 ft³/s, Sept. 11, 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Feb. 28	1545	*106	*3.24				

Minimum daily, 4.2 ft³/s, Sept. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	23	27	23	33	94	26	23	10	8.7	6.8	4.8
2	12	23	34	30	31	90	22	26	9.6	8.6	6.4	4.6
3	13	23	31	29	29	72	17	24	8.6	8.6	6.3	4.5
4	14	23	29	29	31	61	14	21	8.1	8.6	6.2	4.7
5	14	23	28	30	32	52	13	19	7.8	8.5	6.3	4.7
6	15	23	31	30	33	46	13	20	7.9	8.3	6.2	4.3
7	15	23	39	29	33	40	12	22	7.9	8.1	6.2	4.4
8	13	26	35	30	34	37	11	23	7.7	8.1	5.9	4.4
9	12	25	34	30	34	37	9.3	23	7.9	8.3	6.0	4.4
10	12	24	41	33	34	36	9.0	20	8.2	8.8	6.0	4.6
11	11	24	35	37	35	34	9.3	15	8.0	11	6.1	4.2
12	12	24	31	32	36	34	12	13	7.9	9.8	6.2	4.4
13	11	25	29	33	37	34	15	16	7.7	8.6	5.7	4.5
14	11	25	28	34	37	33	20	18	7.7	8.1	6.0	4.7
15	11	25	28	39	39	33	19	16	8.2	7.9	6.1	4.9
16	12	25	27	37	40	32	18	13	9.1	7.9	6.1	5.0
17	12	25	28	34	38	32	17	14	9.1	7.7	6.1	5.9
18	16	26	28	29	37	32	19	14	9.4	8.3	6.2	6.6
19	20	26	28	31	36	31	21	13	9.3	10	6.3	6.7
20	18	26	27	31	38	30	24	12	9.1	10	6.6	6.7
21	18	26	29	33	42	30	25	11	8.9	10	6.6	6.4
22	20	25	30	31	49	31	25	9.5	8.9	10	6.3	6.0
23	21	25	25	32	58	30	26	8.8	8.9	11	6.5	5.6
24	24	25	23	32	69	30	26	8.5	8.9	11	6.3	6.6
25	23	26	28	30	85	27	28	8.3	9.3	8.7	5.9	7.4
26	21	26	26	31	94	24	31	8.2	9.4	7.6	5.5	7.4
27	21	26	26	34	93	26	29	8.7	9.4	7.9	4.6	7.3
28	22	26	27	33	99	27	26	9.3	9.2	9.2	4.7	7.4
29	23	26	28	33	95	28	23	11	8.9	7.5	4.6	10
30	23	26	27	33	---	27	21	11	8.7	7.0	4.7	12
31	23	---	27	33	---	26	---	11	---	6.9	4.7	---
TOTAL	506	744	914	985	1381	1196	580.6	470.3	259.7	270.7	184.1	175.1
MEAN	16.3	24.8	29.5	31.8	47.6	38.6	19.4	15.2	8.66	8.73	5.94	5.84
MAX	24	26	41	39	99	94	31	26	10	11	6.8	12
MIN	11	23	23	23	29	24	9.0	8.2	7.7	6.9	4.6	4.2
AC-FT	1000	1480	1810	1950	2740	2370	1150	933	515	537	365	347

CAL YR 1987 TOTAL 7378.4 MEAN 20.2 MAX 76 MIN 5.0 AC-FT 14640
WTR YR 1988 TOTAL 7666.5 MEAN 20.9 MAX 99 MIN 4.2 AC-FT 15210

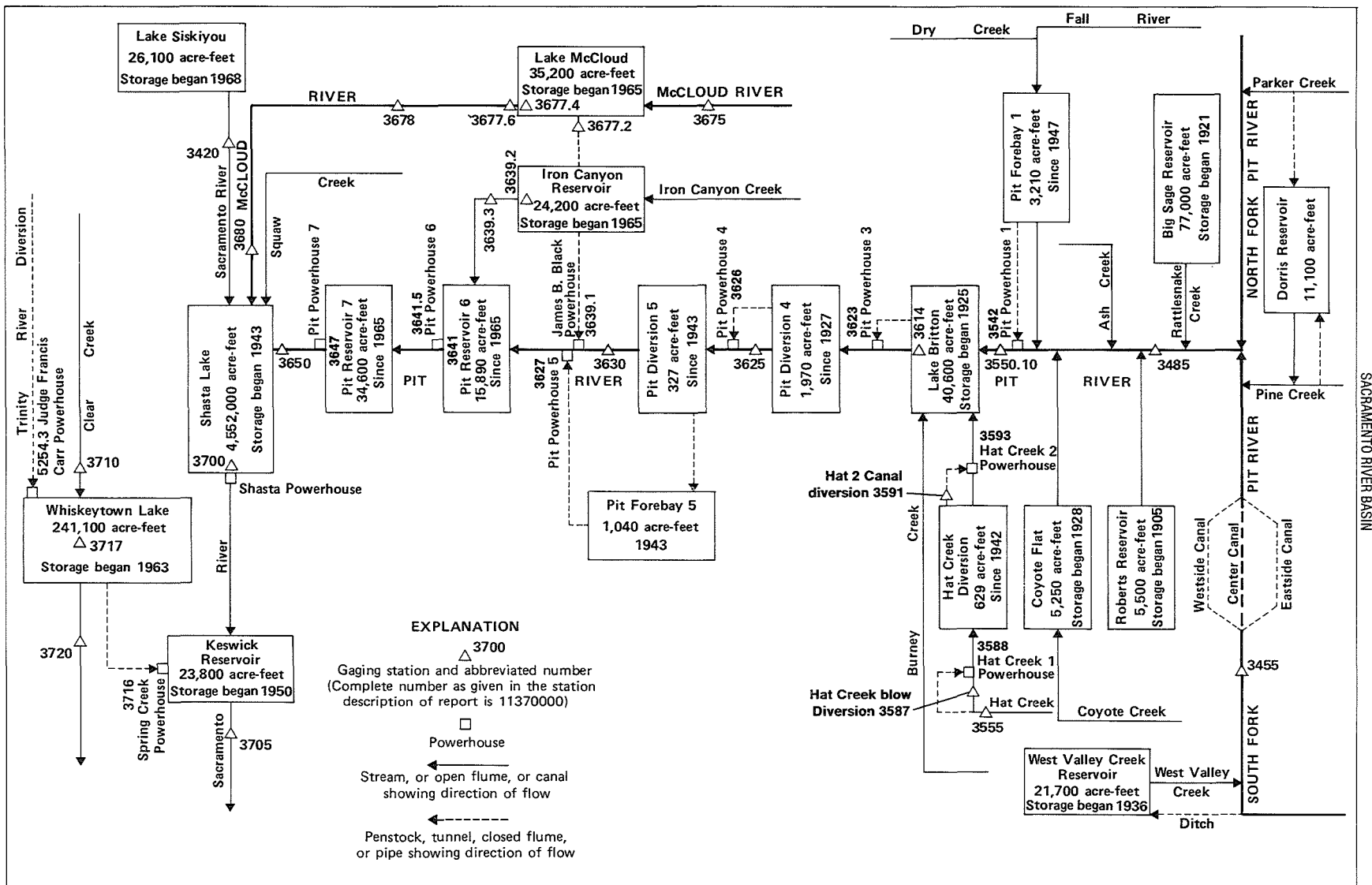


FIGURE 27--Schematic diagram showing diversions and storage in Pit and McCloud River basins.

PACIFIC SLOPE BASINS
SACRAMENTO RIVER BASIN

11342000 SACRAMENTO RIVER AT DELTA, CA

LOCATION.--Lat 40°56'23", long 122°24'58", in SW 1/4 NW 1/4 sec.35, T.36 N., R.5 W, Shasta County, Hydrologic Unit 18020005, U.S. Bureau of Reclamation property, on left bank 0.2 mi downstream from Dog Creek, 0.6 mi southeast of Delta, 2.8 mi south of Lamoine, and 29 mi downstream from Lake Siskiyou.

DRAINAGE AREA.--425 mi².

PERIOD OF RECORD.--October 1944 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

CHEMICAL DATA: Water years 1951-81.

WATER TEMPERATURE: Water years 1951, 1954-57, 1963-79.

GAGE.--Water-stage recorder. Datum of gage is 1,075.00 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation).

REMARKS.--No estimated daily discharges. Records excellent. Some regulation by Lake Siskiyou, capacity, 26,100 acre-ft, since December 1968. Some minor diversions for irrigation above station. See schematic diagram of Pit and McCloud River basins.

AVERAGE DISCHARGE.--44 years, 1,177 ft³/s, 852,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 69,800 ft³/s, Jan. 16, 1974, gage height, 27.20 ft in gage well, 28.7 ft from floodmarks, from rating curve extended above 19,000 ft³/s on basis of slope-area measurements at gage height 19.50 ft, and of peak flow; minimum daily, 117 ft³/s, Aug. 5, 6, 12-15, 1977.

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)
Dec. 6	1130	*12,900	*11.89				

Minimum daily, 181 ft³/s, Oct. 5-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	184	203	913	483	1250	1230	575	1220	659	345	242	199
2	183	210	2430	461	1070	1070	567	1090	673	327	243	199
3	184	201	3180	551	980	1010	579	942	646	323	248	199
4	182	197	5990	809	900	987	590	937	656	313	244	199
5	181	197	5840	865	832	995	575	896	693	310	243	197
6	181	199	8570	811	794	988	583	884	713	316	245	196
7	181	205	3750	778	770	946	617	1230	762	293	242	196
8	183	206	2740	823	755	930	629	1250	765	288	239	196
9	184	256	3640	1110	821	871	628	1270	749	285	235	198
10	185	216	5490	2060	906	817	619	1180	750	278	231	201
11	185	206	3220	3320	970	791	621	1140	703	271	232	200
12	185	203	2220	1790	1020	754	650	1140	656	275	230	200
13	185	295	1760	1330	1040	702	703	1310	619	276	230	199
14	184	243	1440	1500	945	667	754	1110	589	276	232	201
15	183	213	1120	2140	957	643	748	1060	565	276	231	202
16	185	210	959	1980	908	604	737	1220	541	271	228	206
17	185	221	885	1650	853	610	768	1240	527	262	224	203
18	185	218	817	1320	829	597	912	1010	503	262	206	205
19	184	213	755	1080	777	611	2090	946	488	256	216	208
20	184	241	717	979	778	632	1840	900	462	251	213	211
21	184	280	673	893	785	665	1440	873	449	249	211	209
22	186	228	663	863	813	684	1390	852	434	247	210	211
23	197	216	667	849	834	690	1380	826	421	247	215	212
24	200	214	628	882	850	674	1260	788	400	248	214	213
25	195	212	596	871	836	662	1180	750	393	247	206	205
26	192	207	580	872	858	674	1140	719	399	246	202	207
27	190	206	551	915	914	695	1190	694	375	245	203	207
28	192	206	553	969	1160	648	1230	788	361	242	206	206
29	200	204	539	1480	1220	625	1680	844	349	241	206	204
30	218	308	532	1550	---	601	1410	677	345	240	201	198
31	207	---	512	1360	---	585	---	649	---	240	200	---
TOTAL	5834	6634	62930	37344	26425	23658	29085	30435	16645	8446	6928	6087
MEAN	188	221	2030	1205	911	763	970	982	555	272	223	203
MAX	218	308	8570	3320	1250	1230	2090	1310	765	345	248	213
MIN	181	197	512	461	755	585	567	649	345	240	200	196
AC-FT	11570	13160	124800	74070	52410	46930	57690	60370	33020	16750	13740	12070
CAL YR 1987	TOTAL	302964	MEAN 830	MAX 10100	MIN 179	AC-FT 600900						
WTR YR 1988	TOTAL	260451	MEAN 712	MAX 8570	MIN 181	AC-FT 516600						

SACRAMENTO RIVER BASIN

11345500 SOUTH FORK PIT RIVER NEAR LIKELY, CA

LOCATION.--Lat 41°13'51", long 120°26'10", in NE 1/4 SE 1/4 sec.11, T.39 N., R.13 E., Modoc County, Hydrologic Unit 18020002, on left bank 250 ft downstream from highway bridge, 1.4 mi downstream from West Valley Creek, 2 mi downstream from West Valley Reservoir, and 3.5 mi east of Likely.

DRAINAGE AREA.--247 mi².

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

CHEMICAL DATA: Water years 1951-79.

WATER TEMPERATURE: Water years 1965-79.

SEDIMENT DATA: Water years 1957-61, 1967-70.

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,507.74 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1931, at site 1,000 ft downstream at different datum.

REMARKS.--Estimated daily discharges for the following ice-affected periods: Nov. 21 to Dec. 1, Dec. 9 to Jan. 26, and Jan. 31 to Feb. 26. Records good except those for the winter period, which are fair. Considerable regulation by West Valley Reservoir on West Valley Creek beginning in May 1937, usable capacity, 21,700 acre-ft. Diversions for irrigation of about 3,800 acres above station. See schematic diagram of Pit and McCloud River basins.

AVERAGE DISCHARGE.--60 years, 81.4 ft³/s, 58,970 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,620 ft³/s, June 2, 1971, gage height, 6.05 ft; minimum, 0.2 ft³/s, Feb. 3, 1941.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 236 ft³/s, Apr. 17, gage height, 3.34 ft; minimum daily, 2.3 ft³/s, Mar. 15.

REVISIONS.--The maximum discharge for the water year 1983 has been revised to 1,000 ft³/s, May 31, 1983, gage height, 5.14 ft, superseding figure published in the report for 1983.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	20	9.0	5.6	5.0	16	33	97	82	148	119	21
2	23	21	15	6.1	3.8	13	43	93	84	161	124	21
3	18	22	18	6.9	4.0	8.3	45	86	70	159	150	21
4	17	21	14	8.2	4.5	7.5	44	82	67	155	146	22
5	15	21	12	9.9	5.0	9.8	21	75	66	155	143	22
6	15	23	13	9.2	4.8	9.7	30	62	66	151	140	22
7	15	23	13	7.9	5.2	6.8	37	64	64	144	139	22
8	13	17	11	8.8	5.8	5.6	18	66	59	144	134	21
9	13	7.1	9.5	8.6	6.8	6.4	17	61	53	143	129	23
10	13	8.7	6.3	8.2	7.2	5.2	15	54	48	142	120	22
11	14	7.7	5.7	7.2	7.4	6.1	20	49	42	143	102	22
12	15	7.3	5.4	6.1	7.4	4.9	24	50	41	154	80	22
13	19	7.5	5.4	5.5	6.8	4.5	24	65	65	156	66	23
14	19	9.6	5.5	7.6	5.8	3.7	43	66	84	154	63	24
15	20	6.9	5.7	6.7	5.5	2.3	52	74	81	154	44	26
16	20	9.1	5.3	5.5	5.1	3.2	72	126	94	153	15	26
17	20	12	5.0	4.4	5.0	11	203	184	157	150	16	26
18	20	10	4.9	3.3	5.0	11	143	172	184	137	15	27
19	20	9.3	4.7	2.9	5.6	9.4	132	158	189	121	14	29
20	20	9.0	4.6	3.2	5.5	8.1	155	150	187	109	15	34
21	20	7.5	4.8	3.8	5.6	12	162	173	173	107	15	31
22	20	5.8	5.2	5.5	5.9	12	180	207	157	105	14	25
23	21	5.0	4.5	4.8	6.2	10	123	210	110	103	14	20
24	21	5.6	4.0	4.5	7.2	8.0	110	197	88	101	13	20
25	20	4.5	3.7	4.3	8.6	8.7	117	162	88	116	13	20
26	19	4.1	3.8	5.8	11	11	111	120	87	137	14	20
27	19	4.4	4.2	8.5	16	16	109	105	82	136	18	20
28	19	4.2	4.8	8.4	19	13	105	105	81	135	22	21
29	20	5.0	5.4	8.9	12	13	101	123	93	132	22	20
30	20	7.0	4.8	8.5	---	10	101	97	128	128	22	20
31	20	---	5.1	6.8	---	14	---	88	---	124	22	---
TOTAL	574	325.3	223.3	201.6	202.7	280.2	2390	3421	2870	4257	1963	693
MEAN	18.5	10.8	7.20	6.50	6.99	9.04	79.7	110	95.7	137	63.3	23.1
MAX	26	23	18	9.9	19	16	203	210	189	161	150	34
MIN	13	4.1	3.7	2.9	3.8	2.3	15	49	41	101	13	20
AC-FT	1140	645	443	400	402	556	4740	6790	5690	8440	3890	1370

CAL YR 1987 TOTAL 20689.6 MEAN 56.7 MAX 235 MIN 3.1 AC-FT 41040
WTR YR 1988 TOTAL 17401.1 MEAN 47.5 MAX 210 MIN 2.3 AC-FT 34520

SACRAMENTO RIVER BASIN

11348500 PIT RIVER NEAR CANBY, CA

LOCATION.--Lat 41°24'22", long 120°55'36", in NW 1/4 SW 1/4 sec.10, T.41 N., R.9 E., Modoc County, Hydrologic Unit 18020002, on right bank at lower end of Warm Spring Valley, 3.9 mi southwest of Canby.

DRAINAGE AREA.--1,431 mi², excluding Goose Lake basin.

PERIOD OF RECORD.--January 1904 to December 1905, May 1929 to current year (1929-31 incomplete).

CHEMICAL DATA: Water years 1951-79.

WATER TEMPERATURE: Water years 1965-79.

SEDIMENT DATA: Water years 1957-61, 1967-70.

REVISED RECORDS.--WSP 1445: 1904, 1935(M), 1936, 1937(M). WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,266.0 ft above National Geodetic Vertical Datum of 1929.

January 1904 to December 1905, nonrecording gage and May 6, 1929, to Sept. 30, 1931, water-stage recorder, at site 100 ft upstream at different datum.

REMARKS.--Estimated daily discharges: ice-affected periods Dec. 16-27, Jan. 11-26; and no gage-height record July 20-22. Records good except those for period of ice effect, which are fair. Low flow regulated by many small reservoirs, total capacity about 144,000 acre-ft. Diversions for irrigation of about 39,000 acres above station. See schematic diagram of Pit and McCloud River basins.

AVERAGE DISCHARGE.--58 years (water years 1905, 1932-88), 251 ft³/s, 181,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 13,000 ft³/s, Mar. 8, 1904, gage height, 15.0 ft, site and datum then in use; minimum discharge, 0.1 ft³/s, Apr. 29, Aug. 5, Sept. 18, 1934, Aug. 18-21, 1935.

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)
Apr. 24	1330	*1,520	*5.56				

Minimum daily, 2.9 ft³/s, July 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	24	51	57	131	421	54	295	124	13	48	28
2	18	30	93	52	115	445	53	307	185	13	29	23
3	17	37	148	53	89	439	43	243	191	13	28	21
4	20	49	135	55	78	322	36	152	134	12	28	21
5	22	54	105	61	73	262	55	125	104	11	37	24
6	21	72	88	70	69	239	57	133	75	9.9	35	25
7	17	76	97	77	73	232	48	92	59	9.0	40	24
8	15	70	88	80	77	220	33	115	34	9.1	38	27
9	14	76	88	80	96	187	19	157	38	9.1	38	28
10	13	73	122	87	144	161	22	168	42	9.1	30	26
11	16	76	147	71	238	152	21	123	58	9.1	19	30
12	20	69	138	58	325	138	18	65	74	9.1	13	25
13	22	66	99	66	384	124	13	57	69	8.6	12	19
14	22	65	91	81	394	114	18	41	52	8.4	13	14
15	22	61	71	92	346	107	37	28	39	8.4	14	13
16	22	69	58	52	310	98	29	39	33	9.2	15	28
17	21	70	53	36	277	92	28	43	24	9.1	15	44
18	21	67	48	28	203	91	48	49	17	9.6	16	53
19	23	67	44	30	158	88	224	50	19	11	15	42
20	28	72	46	35	141	82	269	48	19	21	15	38
21	41	66	52	40	150	80	237	40	16	38	14	41
22	35	61	58	52	191	82	612	22	14	66	11	47
23	31	58	43	60	235	86	977	14	13	18	8.6	32
24	31	55	36	53	268	90	1270	7.8	10	11	7.6	31
25	33	56	37	50	320	93	986	4.4	6.1	6.7	20	27
26	33	55	38	57	362	95	643	4.2	12	4.1	19	25
27	36	52	43	64	372	73	491	20	14	2.9	19	29
28	50	67	51	70	374	60	410	34	14	3.0	19	46
29	32	50	54	84	405	65	348	42	13	18	18	38
30	25	50	57	123	---	69	283	45	13	45	20	26
31	25	---	55	147	---	69	---	57	---	49	29	---
TOTAL	762	1813	2334	2021	6398	4876	7382	2620.4	1515.1	473.4	683.2	895
MEAN	24.6	60.4	75.3	65.2	221	157	246	84.5	50.5	15.3	22.0	29.8
MAX	50	76	148	147	405	445	1270	307	191	66	48	53
MIN	13	24	36	28	69	60	13	4.2	6.1	2.9	7.6	13
AC-FT	1510	3600	4630	4010	12690	9670	14640	5200	3010	939	1360	1780

CAL YR 1987 TOTAL 29885.0 MEAN 81.9 MAX 626 MIN 13 AC-FT 59280
WTR YR 1988 TOTAL 31773.1 MEAN 86.8 MAX 1270 MIN 2.9 AC-FT 63020

SACRAMENTO RIVER BASIN

11354200 PIT NO. 1 POWERPLANT NEAR FALL RIVER MILLS, CA

LOCATION.--Lat 40°59'28", long 121°29'49", in SE 1/4 NE 1/4 sec.10, T.37 N., R.4 E., Shasta County, Hydrologic Unit 18020003, on right bank of Pit River 2.3 mi downstream from Pit River Falls and 3.2 mi southwest of Fall River Mills.

PERIOD OF RECORD.--October 1986 to current year. Unpublished records for water years 1973-86 available in files of U.S. Geological Survey. Fragmentary record for water years 1922-72 available in files of the Pacific Gas & Electric Co.

GAGE.--Discharge computed from powerplant output.

REMARKS.--Water is diverted from Fall River (station 11354100) at NW 1/4 SW 1/4 sec.25, T.37 N., R.4 E., through a tunnel to powerplant and then into Pit River. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 2,100 ft³/s, Mar. 14, 15, 1987; minimum daily, 431 ft³/s, Mar. 2, 1987.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1120	1180	1250	1210	802	1160	1190	1250	1230	1100	1140	984
2	1120	1280	1270	1210	1120	1230	1160	1220	1220	1090	1050	1030
3	1170	1240	1290	1170	1180	1140	1080	1200	1300	1050	1130	1070
4	1180	1210	1300	1330	1170	1180	1250	1190	1300	1070	1040	1060
5	1160	1200	1240	1240	1120	1250	1100	1230	1300	1120	1060	1130
6	1210	1230	1180	1210	1280	1270	1150	1210	1260	1100	1070	1050
7	1160	1140	1330	1210	1160	1390	1300	1320	1210	1130	1050	1090
8	1180	1200	1430	1220	1230	1230	1170	1220	1210	1110	1010	1080
9	1190	1290	1370	1200	1220	1350	1130	1280	1380	1110	1010	1100
10	1220	1220	1330	1140	1200	1220	1120	1220	1170	1110	1030	755
11	1120	1210	1410	1320	1200	1210	1200	1250	1220	1070	1080	1200
12	1220	1210	1510	1270	1270	1190	1100	1140	1200	1090	1100	1060
13	1190	1230	1320	1150	1160	1260	1280	1260	1170	1030	1090	1030
14	1150	1250	1270	1340	1300	1270	1180	1240	1160	983	1050	1110
15	1180	1200	1260	1350	1120	1230	1440	1340	1160	1110	1070	1090
16	1190	1210	1270	1360	1260	1250	1500	1280	919	1050	1110	1100
17	1200	1230	1280	1250	1170	1060	1230	1270	1150	1140	1090	1130
18	1180	1190	1250	1250	1240	1380	1230	1230	1120	1090	1110	1070
19	1220	1220	1130	1230	1170	1230	1250	1190	1200	1070	1010	1050
20	1200	1250	1330	1220	1190	1190	1340	1200	1160	1070	1070	1060
21	1200	1210	1200	1200	1150	1200	1320	1130	1140	1020	1040	1090
22	1150	1220	1230	1190	1250	1190	1340	1180	1160	1080	1100	1120
23	1200	1230	1270	1270	1230	1230	1300	1210	1150	1030	1060	1110
24	1230	1200	1200	1210	1230	1220	1200	1180	978	982	1060	1140
25	1230	1230	1190	1210	1230	1220	1340	1190	1210	1140	1110	1160
26	1210	1170	1210	1220	1180	1030	1270	1190	1060	1020	1030	1130
27	1220	1240	1190	1220	1270	1410	1270	1190	1180	1060	1050	1170
28	1200	1210	1240	1200	1250	1160	1160	1180	1050	1070	1010	1110
29	1240	1220	1130	1260	1250	1330	1300	1260	1050	1150	1130	1130
30	1210	1210	1250	1360	---	1150	1340	1290	1220	1060	1070	1130
31	1210	---	1230	1140	---	1190	---	1290	---	1010	1060	---
TOTAL	36860	36530	39360	38360	34602	38020	37240	38030	35237	33315	33090	32539
MEAN	1189	1217	1269	1237	1193	1226	1241	1226	1174	1074	1067	1084
MAX	1240	1290	1510	1360	1300	1410	1500	1340	1380	1150	1140	1200
MIN	1120	1140	1130	1140	802	1030	1080	1130	919	982	1010	755
AC-FT	73110	72460	78070	76090	68630	75410	73870	75430	69890	66080	65630	64540
CAL YR 1987	TOTAL	455226	MEAN	1247	MAX	2100	MIN	431	AC-FT	902900		
WTR YR 1988	TOTAL	433183	MEAN	1183	MAX	1510	MIN	755	AC-FT	859200		

SACRAMENTO RIVER BASIN

11355010 PIT RIVER BELOW PIT NO. 1 POWERPLANT, NEAR FALL RIVER MILLS, CA

LOCATION.--Lat 40°59'00", long 121°30'39", in NE 1/4 NW 1/4 sec.15, T.36 N., R.4 E., Shasta County, Hydrologic Unit 18020003, on left bank 0.9 mi downstream from Pit No. 1 powerplant and 4 mi southwest of Fall River Mills.

DRAINAGE AREA.--3,761 mi², excluding Goose Lake basin.

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

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2,840 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Low flow regulated by many small reservoirs (total usable reservoir capacity, 210,000 acre-ft) and Pit No. 1 powerplant. Many diversions above station for irrigation.

AVERAGE DISCHARGE.--13 years, 1,979 ft³/s, 1,434,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,000 ft³/s, Feb. 20, 1986, gage height, 17.03 ft; minimum daily, 819 ft³/s, Feb. 1, 1979.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of January 1974 reached a stage of 14.8 ft, from floodmarks on right bank, discharge 22,600 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)
Feb. 14	1215	*3,130	*7.50				

Minimum daily, 1,050 ft³/s, Sept. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1220	1390	1450	1410	1320	2230	1420	1870	1310	1170	1220	1140
2	1230	1600	1570	1440	1610	2210	1360	1720	1330	1160	1140	1150
3	1270	1480	1630	1450	1660	2230	1260	1670	1400	1140	1240	1180
4	1310	1440	1670	1570	1590	2240	1400	1650	1410	1150	1160	1130
5	1260	1400	1610	1530	1500	2150	1290	1690	1400	1220	1130	1250
6	1350	1440	1550	1460	1680	1950	1250	1610	1320	1190	1150	1110
7	1290	1320	1790	1480	1530	2090	1470	1720	1260	1210	1120	1170
8	1280	1490	1820	1500	1630	1910	1310	1560	1270	1220	1160	1150
9	1340	1610	1830	1450	1660	1980	1230	1640	1550	1200	1110	1190
10	1320	1470	1730	1430	1690	1790	1250	1530	1370	1180	1170	1050
11	1250	1460	1910	1740	1780	1710	1360	1550	1330	1160	1160	1310
12	1370	1450	2060	1650	2130	1660	1210	1410	1320	1160	1220	1170
13	1320	1470	1880	1600	2250	1690	1410	1470	1330	1130	1190	1130
14	1320	1510	1640	1720	2420	1670	1370	1500	1340	1200	1130	1220
15	1330	1480	1590	2000	2300	1610	1650	1610	1320	1200	1200	1210
16	1360	1460	1600	1940	2310	1620	1620	1730	1260	1150	1200	1210
17	1340	1460	1540	1800	2090	1390	1340	1520	1280	1230	1170	1220
18	1300	1410	1550	1720	2110	1670	1460	1430	1220	1180	1220	1150
19	1390	1470	1380	1650	1890	1540	1400	1360	1330	1160	1090	1140
20	1330	1490	1610	1590	1810	1470	1480	1370	1260	1170	1160	1240
21	1320	1450	1470	1560	1710	1400	1440	1300	1170	1100	1130	1150
22	1330	1460	1520	1580	1800	1400	1520	1360	1170	1160	1190	1280
23	1350	1440	1560	1620	1800	1430	1450	1320	1210	1100	1170	1210
24	1400	1440	1440	1580	1870	1680	1490	1240	1080	1120	1150	1240
25	1350	1440	1440	1530	1900	1580	2380	1250	1290	1150	1180	1260
26	1380	1400	1440	1560	1970	1360	2460	1240	1160	1190	1130	1210
27	1370	1450	1470	1560	2080	1740	2340	1230	1250	1140	1150	1250
28	1370	1430	1470	1570	2090	1410	2090	1230	1150	1140	1090	1190
29	1440	1410	1400	1660	2080	1550	2020	1360	1280	1230	1230	1190
30	1400	1450	1430	1940	---	1460	2070	1420	1200	1180	1180	1210
31	1400	---	1520	1680	---	1420	---	1410	---	1080	1150	---
TOTAL	41290	43670	49570	49970	54260	53240	46800	45970	38570	36170	36090	35710
MEAN	1332	1456	1599	1612	1871	1717	1560	1483	1286	1167	1164	1190
MAX	1440	1610	2060	2000	2420	2240	2460	1870	1550	1230	1240	1310
MIN	1220	1320	1380	1410	1320	1360	1210	1230	1080	1080	1090	1050
AC-FT	81900	86620	98320	99120	107600	105600	92830	91180	76500	71740	71580	70830
CAL YR 1987	TOTAL	551436	MEAN	1511	MAX	4270	MIN	966	AC-FT	1094000		
WTR YR 1988	TOTAL	531310	MEAN	1452	MAX	2460	MIN	1050	AC-FT	1054000		

SACRAMENTO RIVER BASIN

11355500 HAT CREEK NEAR HAT CREEK, CA

LOCATION.--Lat 40°41'12", long 121°25'25", in NW 1/4 SE 1/4 sec.28, T.33 N., R.5 E., Shasta County, Hydrologic Unit 18020003, on right bank 0.15 mi downstream from Cave Campground, 0.9 mi northeast of Old Station, and 8.9 mi southeast of Hat Creek Ranger Station.

DRAINAGE AREA.--162 mi², hydrologic drainage boundary uncertain owing to ground-water exchange.

PERIOD OF RECORD.--July 1926 to September 1929, April 1930 to current year.

REVISED RECORDS.--WSP 1395: 1938. WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 4,300 ft above National Geodetic Vertical Datum of 1929, from topographic map. July 1926 to April 1928, at site 0.5 mi upstream at different datum. May 1928 to July 1965, at site 80 ft upstream at datum 2.76 ft higher.

REMARKS.--No estimated daily discharges. Records excellent. Diversions for irrigation of 260 acres above station. See schematic diagram of Pit and McCloud River basins.

AVERAGE DISCHARGE.--61 years (water years 1927-29, 1931-88), 143 ft³/s, 103,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,320 ft³/s, Dec. 11, 1937, gage height, 7.75 ft, in gage well, affected by drawdown, site and datum then in use, from rating curve extended above 610 ft³/s on basis of slope-area measurement of peak flow; minimum, 67 ft³/s, Sept. 7, 1934.

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)
Dec. 2	2015	*246	*3.25				
Minimum daily, 110 ft ³ /s, Sept. 9-16.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	127	136	140	133	132	133	132	142	168	134	115	121
2	127	137	195	135	132	132	133	139	166	132	115	120
3	126	135	179	137	131	131	134	138	160	132	114	120
4	126	135	153	137	132	131	135	140	152	132	115	120
5	126	135	147	137	132	132	134	139	147	131	114	120
6	127	135	149	136	133	132	137	137	145	131	113	120
7	126	135	142	136	133	131	140	138	143	130	113	120
8	127	135	140	136	133	132	139	137	141	129	113	115
9	131	135	144	135	132	133	138	135	141	129	121	110
10	135	135	183	137	132	131	139	133	143	122	126	110
11	135	135	171	136	133	131	141	130	142	118	125	110
12	135	135	145	133	133	131	144	139	138	118	124	110
13	135	138	137	136	132	131	148	148	138	119	124	110
14	135	138	136	138	132	131	155	142	139	119	125	110
15	135	136	140	136	132	131	151	145	140	118	124	110
16	135	137	140	137	131	129	150	154	143	118	124	110
17	135	137	141	134	130	129	152	155	142	118	123	111
18	135	136	139	134	131	130	152	146	140	118	123	117
19	135	135	140	134	130	130	151	145	139	118	117	121
20	135	136	136	134	131	132	148	147	139	122	113	121
21	135	136	141	134	131	132	146	156	139	124	113	121
22	135	135	142	134	130	132	143	162	136	124	113	121
23	136	135	137	134	131	132	141	158	134	124	113	120
24	135	136	134	134	130	132	141	151	132	125	113	120
25	135	135	133	134	130	132	141	150	133	125	113	120
26	135	134	133	134	131	133	142	150	131	125	113	120
27	135	134	135	134	131	134	144	148	128	126	112	120
28	135	135	136	135	132	133	147	155	127	126	112	120
29	136	134	137	136	132	133	148	154	125	125	118	119
30	135	136	136	134	---	132	147	145	131	119	121	118
31	135	---	135	133	---	131	---	142	---	115	121	---
TOTAL	4115	4066	4496	4187	3815	4079	4293	4500	4222	3846	3643	3505
MEAN	133	136	145	135	132	132	143	145	141	124	118	117
MAX	136	138	195	138	133	134	155	162	168	134	126	121
MIN	126	134	133	133	130	129	132	130	125	115	112	110
AC-FT	8160	8060	8920	8300	7570	8090	8520	8930	8370	7630	7230	6950

CAL YR 1987	TOTAL	56072	MEAN 154	MAX 234	MIN 126	AC-FT	111200
WTR YR 1988	TOTAL	48767	MEAN 133	MAX 195	MIN 110	AC-FT	96730

SACRAMENTO RIVER BASIN

11358700 HAT CREEK BELOW HAT NO. 1 DIVERSION DAM, NEAR BURNEY, CA

LOCATION.--Lat 40°55'08", long 121°33'02", in NW 1/4 SW 1/4 sec.5, T.36 N., R.4 E., Shasta County, Hydrologic Unit 18020003, at Hat No. 1 diversion dam on Hat Creek, 6.5 mi northeast of Burney.

DRAINAGE AREA.--347 mi².

PERIOD OF RECORD.--Oct. 1 to Dec. 8, 1987 (fragmentary) and Dec. 9, 1987 to September 1988 (operated as a low-flow station only). Unpublished records for water years 1980-87 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder and Cipoletti weir. Elevation of gage is 3,180 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 17-21, Jan. 18 to Feb. 12, Apr. 19, and June 17, 18. This station records fishwater release only. The release requirement is 2 ft³/s at all times; therefore flow is computed to 4 ft³/s.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	3.5	3.1	3.3	3.4	3.4	3.3	3.3	3.4	3.6	3.7
2	---	---	3.6	3.1	3.3	3.4	3.4	3.3	3.3	3.4	3.6	3.7
3	---	3.6	---	3.1	3.3	3.4	3.4	3.3	3.5	3.5	3.6	3.7
4	3.8	---	---	3.1	3.3	3.4	3.4	3.3	3.5	3.6	3.7	3.7
5	---	3.5	---	3.1	3.3	3.4	3.4	3.3	3.4	3.6	3.6	3.7
6	---	---	---	3.1	3.3	3.4	3.4	3.3	3.4	3.6	3.6	3.5
7	---	---	---	3.1	3.3	3.4	3.4	3.4	3.4	3.5	3.8	3.3
8	3.5	---	---	3.0	3.3	3.4	3.4	3.4	3.4	3.4	4.2	3.3
9	---	---	3.9	2.9	3.3	3.4	3.4	3.4	3.3	3.6	4.0	3.3
10	---	---	3.3	2.9	3.3	3.4	3.4	3.4	3.4	3.8	3.8	3.2
11	---	3.5	3.3	2.8	3.3	3.4	3.4	3.4	3.3	3.1	3.7	3.3
12	---	---	3.3	2.9	3.3	3.4	3.4	3.4	3.3	3.2	3.6	3.3
13	---	---	3.2	3.1	3.3	3.3	3.4	3.4	---	3.3	3.6	3.2
14	3.7	---	3.3	3.3	3.3	3.2	3.4	3.4	---	3.4	3.7	3.2
15	---	---	2.9	3.3	3.3	3.7	3.4	3.3	---	3.4	3.8	3.3
16	---	---	3.0	3.3	3.2	3.7	3.4	3.3	---	3.5	3.7	3.4
17	---	---	3.0	3.3	3.2	3.4	3.3	3.3	3.3	---	3.7	3.4
18	3.5	3.4	3.0	3.3	3.3	3.4	3.4	3.3	3.3	---	3.7	3.4
19	---	---	3.0	3.3	3.3	3.4	3.4	3.3	3.3	3.7	3.6	3.4
20	---	---	3.0	3.3	3.3	3.4	3.4	3.4	3.3	3.7	3.7	3.3
21	---	---	3.0	3.3	3.3	3.4	3.4	3.4	3.3	3.6	3.7	3.3
22	3.4	---	3.0	3.3	3.3	3.4	3.4	3.4	3.4	3.3	3.8	3.3
23	---	---	3.0	3.3	3.3	3.3	3.4	3.3	3.4	3.3	3.6	3.2
24	---	---	3.0	3.3	3.4	3.3	3.4	3.3	3.4	3.2	3.5	3.2
25	---	---	3.0	3.3	3.4	3.4	3.4	3.3	3.5	3.2	3.5	3.2
26	---	---	3.0	3.3	3.3	3.3	3.3	3.3	3.5	3.5	3.5	3.3
27	---	---	3.0	3.3	3.4	3.3	3.3	3.3	3.5	3.6	3.5	3.3
28	---	---	3.0	3.3	3.3	3.3	3.3	3.3	3.5	3.6	3.5	3.3
29	3.4	---	3.0	3.3	3.3	3.3	3.3	3.3	3.4	3.6	3.6	3.3
30	---	3.5	3.0	3.4	---	3.3	3.3	3.3	3.4	3.9	3.6	3.4
31	---	---	3.0	3.4	---	3.4	---	3.3	---	3.6	3.7	---
TOTAL	---	---	---	98.9	95.8	105.0	101.4	103.4	---	109.3	113.8	101.1
MEAN	---	---	---	3.19	3.30	3.39	3.38	3.34	---	3.53	3.67	3.37
MAX	---	---	---	3.4	3.4	3.7	3.4	3.4	---	4.1	4.2	3.7
MIN	---	---	---	2.8	3.2	3.2	3.3	3.3	---	3.1	3.5	3.2
AC-FT	---	---	---	196	190	208	201	205	---	217	226	201

NOTE: Oct. 1 to Dec. 8, discharges from ditch-tender log. Recorder installed Dec. 9. Discharges above 4 ft³/s June 13-16, July 17, 18.

SACRAMENTO RIVER BASIN

11358800 HAT CREEK NO. 1 POWERPLANT NEAR BURNEY, CA

LOCATION.--Lat 40°55'45", long 121°32'37", in SW 1/4 SW 1/4 sec.32, T.36 N., R.4 E., Shasta County, Hydrologic Unit 18020003, on right bank of Hat Creek at the upper end of Baum Lake, 7.4 mi northeast of Burney.

PERIOD OF RECORD.--October 1986 to current year. Unpublished records for water years 1981-85 available in files of the U.S. Geological Survey. Fragmentary records for water years 1921-80 in files of the Pacific Gas & Electric Co.

REMARKS.--Water is diverted from left bank of Hat Creek at NW 1/4 SW 1/4 sec.5, T.36 N., R.8 W., through a canal to powerplant and then into Hat Creek. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 453 ft³/s, Oct. 20, 1986; no flow several days most years.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	326	373	384	384	384	384	292	292	303	280	268	280
2	315	384	407	384	384	384	292	303	303	280	280	268
3	315	396	430	384	373	384	280	292	303	280	280	280
4	315	407	430	384	373	373	280	292	303	280	280	280
5	315	396	430	384	384	373	280	303	303	280	268	280
6	315	396	280	384	373	373	257	292	303	280	280	280
7	326	384	221	384	384	373	257	292	315	280	280	280
8	326	384	430	396	373	373	268	303	303	280	280	268
9	315	396	338	396	384	373	280	303	303	268	268	280
10	315	396	430	384	384	373	292	303	303	250	280	268
11	315	396	418	384	373	361	292	315	303	257	280	280
12	315	396	418	373	373	373	292	303	303	268	268	268
13	315	396	396	384	384	373	303	303	150	280	268	268
14	315	396	315	396	373	373	303	280	0	280	268	268
15	315	396	396	396	373	361	306	292	0	292	268	268
16	315	396	396	407	373	373	313	292	126	292	280	280
17	303	396	418	407	373	373	303	292	268	280	268	268
18	315	396	396	396	373	361	303	303	303	268	268	280
19	338	396	384	396	373	373	315	303	280	280	268	280
20	338	396	384	384	373	361	315	292	280	268	268	280
21	326	396	373	384	373	373	338	292	280	268	268	280
22	326	384	373	384	373	361	338	292	280	268	268	280
23	338	384	373	373	373	373	350	303	280	280	280	280
24	338	373	373	384	373	361	350	303	268	280	268	280
25	361	430	373	384	373	361	338	292	280	257	268	280
26	361	384	373	384	373	361	338	280	280	268	280	280
27	350	338	373	384	384	338	326	292	280	280	280	280
28	350	384	384	384	373	338	326	292	280	280	280	280
29	361	384	384	373	384	338	326	315	280	280	268	280
30	373	384	384	384	---	326	315	280	280	280	268	280
31	361	---	384	384	---	303	---	303	---	280	280	---
TOTAL	10212	11713	11848	11989	10916	11278	9168	9194	7843	8544	8476	8304
MEAN	329	390	382	386	376	363	305	296	261	275	273	276
MAX	373	430	430	407	384	384	350	315	315	292	280	280
MIN	303	338	221	373	373	303	257	280	0	250	268	268
AC-FT	20260	23230	23500	23780	21650	22370	18180	18240	15560	16950	16810	16470
a	28750	31480	33070	32450	29450	30580	25570	26160	22570	24430	24280	23430

CAL YR 1987 TOTAL 127070.00 MEAN 348 MAX 441 MIN 0 AC-FT 252000
WTR YR 1988 TOTAL 119485.00 MEAN 326 MAX 430 MIN 0 AC-FT 237000

a Discharge, in acre-feet, for Hat Creek No. 2 powerplant, provided by Pacific Gas & Electric Co.

SACRAMENTO RIVER BASIN

11359100 HAT 2 POWER CANAL DIVERSION TO HAT CREEK NEAR BURNEY, CA

LOCATION.--Lat 40°57'01", long 121°32'39", in SE 1/4 NW 1/4 sec.29, T.36 N., R.4 E., Shasta County, Hydrologic Unit 18020003, on right bank of Hat No. 2 power canal just downstream from Hat No. 2 diversion dam on Hat Creek, 7.9 mi northeast of Burney.

PERIOD OF RECORD.--Oct. 1 to Dec. 9, 1987 (fragmentary) and Dec. 10, 1987 to September 1988 (operated as a low-flow station only). Unpublished records for water years 1979-87 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder and parshall flume. Elevation of gage is 2,980 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Sept. 23-30. This station records fishwater release only. The release requirement is 8 ft³/s at all times; therefore flow is computed to 12 ft³/s.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	11	---	9.3	9.2	9.6	9.5	9.4	9.8	---	9.7	9.5
2	---	10	10	9.3	9.2	9.6	9.5	9.7	10	---	9.4	9.4
3	11	---	---	9.4	9.3	9.4	9.6	9.4	10	---	9.1	9.3
4	---	---	---	9.5	9.5	9.4	9.5	9.8	10	---	8.8	9.4
5	11	10	10	9.4	9.4	9.4	9.5	9.7	9.7	---	8.7	9.4
6	---	---	---	9.4	9.3	9.4	9.6	9.4	9.8	---	8.7	9.6
7	---	9.9	10	9.4	9.4	9.4	9.6	10	9.7	---	8.7	9.5
8	11	9.9	---	9.4	9.4	9.4	9.7	9.6	9.6	---	8.7	9.5
9	---	10	9.9	9.3	9.3	9.5	9.7	10	9.4	---	8.8	9.5
10	11	---	10	9.3	9.4	9.6	9.7	9.8	9.6	---	9.4	9.7
11	11	10	10	9.4	9.3	9.6	9.7	9.6	9.5	---	9.3	9.5
12	9.9	---	10	9.3	9.4	9.5	9.7	9.4	9.6	---	8.6	9.6
13	---	---	9.9	9.3	9.4	9.6	10	9.3	9.3	---	8.6	9.8
14	---	---	9.7	10	9.3	9.6	9.8	9.2	9.4	9.7	8.8	9.8
15	11	---	9.7	10	9.3	9.5	9.8	9.2	9.7	9.6	8.7	9.9
16	---	---	9.7	9.5	9.4	9.5	9.8	9.3	10	9.6	8.9	10
17	---	9.9	9.7	9.5	9.5	9.6	9.6	9.5	10	9.7	8.9	10
18	10	10	9.7	9.3	9.4	9.5	9.5	9.8	9.7	8.6	8.9	10
19	---	---	9.7	9.3	9.4	9.5	9.4	9.8	9.7	9.1	9.1	10
20	---	---	9.6	9.5	9.4	9.5	9.6	9.8	9.4	9.4	9.1	10
21	9.8	10	9.6	9.7	9.4	9.5	10	10	9.6	9.8	9.1	9.7
22	---	---	9.6	9.7	9.4	9.6	9.9	10	9.5	9.6	9.1	9.6
23	9.8	9.9	9.5	9.5	9.7	9.6	9.9	10	9.4	9.7	9.1	9.5
24	9.9	---	9.4	9.4	9.8	9.5	9.7	9.7	9.1	9.9	9.1	9.4
25	10	---	9.4	9.3	9.6	9.6	9.5	9.5	9.1	9.9	9.5	9.4
26	10	---	9.4	9.3	9.6	9.5	9.4	9.5	9.3	10	9.8	9.1
27	---	---	9.4	9.4	9.6	9.5	9.4	9.1	---	10	9.8	9.3
28	---	---	9.4	9.4	9.6	9.7	9.6	9.3	---	10	9.7	9.1
29	11	---	9.4	9.4	9.6	9.5	9.8	9.7	---	9.8	9.6	9.3
30	---	10	9.4	9.4	---	9.9	9.4	9.6	---	9.9	9.5	9.3
31	---	---	9.4	9.3	---	9.8	---	9.6	---	9.7	9.5	---
TOTAL	---	---	---	292.6	273.5	295.8	289.4	297.7	---	---	282.7	287.1
MEAN	---	---	---	9.44	9.43	9.54	9.65	9.60	---	---	9.12	9.57
MAX	---	---	---	10	9.8	9.9	10	10	---	---	9.8	10
MIN	---	---	---	9.3	9.2	9.4	9.4	9.1	---	---	8.6	9.1
AC-FT	---	---	---	580	542	587	574	590	---	---	561	569

NOTE: Oct. 1 to Dec. 9, discharges from ditch tender log. Recorder installed Dec. 10. Discharges above 12 ft³/s June 27 to July 13.

SACRAMENTO RIVER BASIN

RESERVOIRS IN PIT AND McCLOUD RIVER BASINS, CA

11361400 LAKE BRITTON NEAR BURNEY.--Lat 41°01'20", long 121°40'32", in SW 1/4 SW 1/4 sec.19, T.37 N., R.3 E., Shasta County, Hydrologic Unit 18020003, Shasta National Forest, at control house on right bank 200 ft upstream from dam on Pit River, 1.1 mi downstream from Clark Creek, 1.3 mi northwest of Burney Falls, and 9 mi north of Burney. DRAINAGE AREA, 4,607 mi². PERIOD OF RECORD, October 1965 to current year (month-end contents only). GAGE, remote telemark read once daily. Datum of gage is 19.53 ft above National Geodetic Vertical Datum of 1929 (levels by Pacific Gas & Electric Co.). Monthend contents based on capacity table dated Dec. 1, 1976, provided by Pacific Gas & Electric Co.

REMARKS.--Reservoir is formed by gravity-type concrete dam. Storage began July 15, 1925. Usable capacity, 41,877 acre-ft between elevations 2,665.0 ft, invert of sluice gate, and 2,758.0 ft, top of flash boards. Dead storage, 30 acre-ft. Normal operating pool is from elevation 2,744.0 ft, capacity, 26,183 acre-ft, to 2,757.0 ft, capacity, 40,626 acre-ft. Figures given herein represent total contents. Lake is used for power generation and recreation. See schematic diagram of Pit and McCloud River basins. Records prior to water year 1977 reported usable contents only.

COOPERATION.--Record of contents collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES (at 2400) FOR PERIOD OF RECORD.--Maximum total contents, 47,922 acre-ft, Feb. 20, 1986, elevation, 2,762.50 ft; minimum total contents, 26,755 acre-ft, Oct. 9, 1976, elevation, 2,744.60 ft.

EXTREMES (at 2400) FOR CURRENT YEAR.--Maximum contents, 39,994 acre-ft, June 12, elevation, 2,756.50 ft; minimum, 26,377 acre-ft, Aug. 12, elevation, 2,744.20 ft.

11363920 IRON CANYON RESERVOIR NEAR BIG BEND.--Lat 41°02'41", long 121°58'52", in SW 1/4 SE 1/4 sec.21, T.37 N., R.1 W., Shasta County, Hydrologic Unit 18020003, Shasta National Forest, in control house on left bank 500 ft upstream from Iron Canyon Dam on Iron Canyon Creek, 3.7 mi northwest of Big Bend. DRAINAGE AREA, 11.1 mi². PERIOD OF RECORD, December 1965 to current year (monthend contents only). GAGE, water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Pacific Gas & Electric Co.). Monthend contents based on capacity table dated May 17, 1965, provided by Pacific Gas & Electric Co.

REMARKS.--Reservoir is formed by a rockfill dam completed in 1965. Usable capacity is 24,197 acre-ft between elevations 2,525.00 ft, invert of sluice pipe, and 2,665.00 ft, crest of spillway. Dead storage, 44 acre-ft. Normal operating pool is from elevation 2,565.0 ft, capacity, 990 acre-ft, to 2,664.0 ft, capacity, 23,738 acre-ft. Water is diverted from Lake McCloud (station 11367740) through a tunnel to Iron Canyon Reservoir and then into the Pit River via James B. Black powerplant (station 11363910). Figures given herein represent total contents. Water is used for power generation and recreation. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Record of contents collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES (at 2400) FOR PERIOD OF RECORD.--Maximum contents, 23,539 acre-ft, May 16, 22, 1977, elevation, 2,663.60 ft; normal minimum since reservoir first filled, 2,860 acre-ft, May 23, 24, 29, June 2, 7, 9, 14, 23, 24, 1966, elevation, 2,590.00 ft. Contents reduced to 195 acre-ft, elevation, 2,540.00 ft, Feb. 10, 1971, when reservoir was drained for inspection.

EXTREMES (at 2400) FOR CURRENT YEAR.--Maximum contents, 21,609 acre-ft, May 29, elevation, 2,659.60 ft; minimum, 4,172 acre-ft, Dec. 8, elevation, 2,600.40 ft.

11367740 LAKE McCLOUD NEAR McCLOUD.--Lat 41°08'06", long 122°04'26", in SE 1/4 SW 1/4 sec.22, T.38 N., R.2 W., Shasta County, Hydrologic Unit 18020004, Shasta National Forest, on McCloud Dam near spillway on McCloud River, 200 ft downstream from Panther Creek, and 8.8 mi southeast of McCloud. DRAINAGE AREA, 403 mi². PERIOD OF RECORD, October 1965 to current year (monthend contents only). GAGE, water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Pacific Gas & Electric Co.). Monthend contents based on capacity table dated June 29, 1965, provided by Pacific Gas & Electric Co.

REMARKS.--Reservoir is formed by a rockfill dam completed in 1965. Usable capacity, 35,231 acre-ft between elevations 2,471.30 ft, invert of sluice pipe, and 2,680.00 ft, maximum operational water surface. Dead storage, 3 acre-ft. Normal operating pool is from elevation 2,635.00 ft, capacity, 16,425 acre-ft, to 2,680.00 ft, capacity, 35,234 acre-ft. Water is diverted from Lake McCloud (station 11367740) through a diversion tunnel to Iron Canyon Reservoir (station 11363920) and then into the Pit River via James B. Black powerplant (station 11363910). Figures given herein represent total contents. Water is used for power generation and recreation. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Record of contents collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES (at 2400) FOR PERIOD OF RECORD.--Maximum contents, 35,967 acre-ft, Jan. 15, 1974, elevation, 2,681.40 ft; minimum since reservoir first filled, 13,017 acre-ft, Oct. 14-22, 1981, elevation, 2,632.50 ft.

EXTREMES (at 2400) FOR CURRENT YEAR.--Maximum contents, 32,597 acre-ft, June 2, elevation, 2,674.80 ft; minimum, 16,619 acre-ft, Jan. 21, elevation, 2,635.60 ft.

SACRAMENTO RIVER BASIN

RESERVOIRS IN PIT AND McCLOUD RIVER BASINS, CA--Continued

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

Date	Elevation (feet)	Contents (acre- feet)	Change in contents (acre- feet)	Elevation (feet)	Contents (acre- feet)	Change in contents (acre- feet)	Elevation (feet)	Contents (acre- feet)	Change in contents (acre- feet)
	11361400	LAKE BRITTON		11363920	IRON CANYON RESERVOIR		11367740	LAKE McCLOUD	
Sept. 30.....	2,749.75	32,053	--	2,621.50	8,313	--	2,639.90	18,052	--
Oct. 31.....	2,746.35	28,479	-3,574	2,624.80	9,158	+845	2,636.10	16,782	-1,270
Nov. 30.....	2,745.90	28,028	-451	2,622.50	8,564	-594	2,636.20	16,814	+32
Dec. 31.....	2,744.80	26,948	-1,080	2,617.70	7,402	-1,162	2,635.80	16,684	-130
CAL YR 1987..	--	--	-2,863	--	--	+206	--	--	-526
Jan. 31.....	2,748.30	30,493	+3,545	2,616.30	7,084	-318	2,639.30	17,848	+1,164
Feb. 29.....	2,751.60	34,119	+3,626	2,624.40	9,053	+1,969	2,639.93	18,065	+217
Mar. 31.....	2,749.00	31,239	-2,880	2,634.20	11,834	+2,781	2,650.30	21,840	+3,775
Apr. 30.....	2,752.05	34,634	+3,395	2,652.10	18,282	+6,448	2,669.00	29,814	+7,974
May 31.....	2,755.10	38,257	+3,623	2,658.70	21,189	+2,907	2,674.50	32,449	+2,635
June 30.....	2,752.50	35,154	-3,103	2,653.50	18,874	-2,315	2,670.10	30,330	-2,119
July 31.....	2,756.00	39,368	+4,214	2,649.60	17,258	-1,616	2,658.70	25,237	-5,093
Aug. 31.....	2,746.20	28,328	-11,040	2,644.30	15,223	-2,035	2,656.30	24,235	-1,002
Sept. 30.....	2,745.95	28,078	-250	2,632.10	11,199	-4,024	2,645.50	20,035	-4,200
WTR YR 1988..	--	--	-3,975	--	--	+2,886	--	--	+1,983

SACRAMENTO RIVER BASIN

11362500 PIT RIVER BELOW PIT NO. 4 DAM, CA

LOCATION.--Lat 40°58'25", long 121°46'42", unsurveyed, T.36 N., R.2 E., Shasta County, Hydrologic Unit 18020003, Shasta National Forest, on right bank 0.6 mi downstream from Ruling Creek, 1.3 mi downstream from Pit No. 4 Dam, and 2.7 mi downstream from Pit No. 3 powerplant.

DRAINAGE AREA.--4,648 mi², excluding Goose Lake basin.

PERIOD OF RECORD.--May 1922 to current year. Monthly discharge only for some periods, published in WSP 1315-A. Published as "near Pecks Bridge" April to October 1922, and as "at Lindsay Flat" November 1922 to June 1927.

REVISED RECORDS.--WSP 843: 1935(M). WSP 1315-A: 1928(M). WDR CA-75-4: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 2,358 ft above National Geodetic Vertical Datum of 1929, from river-profile map. Prior to November 1922, water-stage recorder at site at Pecks Bridge 7.4 mi upstream at different datum. November 1922 to June 20, 1927, at site at Lindsay Flat 1.8 mi upstream at different datum.

REMARKS.--No estimated daily discharges. Low flow completely regulated by small reservoirs and powerplants, total usable reservoir capacity, 253,000 acre-ft. Many diversions above station; diversion to Pit No. 4 powerplant began June 9, 1955. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--32 years (water years 1923-54), 2,511 ft³/s, 1,819,000 acre-ft/yr, prior to diversion; 34 years (water years 1955-88), 3,042 ft³/s, 2,204,000 acre-ft/yr, adjusted for diversion to Pit No. 4 powerplant; unadjusted for same period, 505 ft³/s, 365,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,700 ft³/s, Feb. 20, 1986, gage height, 18.70 ft; minimum daily, prior to diversion to Pit No. 4 powerplant in 1955, 234 ft³/s, Sept. 13, 1953. Minimum daily, since diversion to Pit No. 4 powerplant, 22 ft³/s, Dec. 2-4, 1969.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,410 ft³/s, Feb. 7, gage height, 5.98 ft; minimum daily, 81 ft³/s, July 12-14, 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	169	170	174	174	180	174	178	176	181	167	170	165
2	170	171	176	173	180	171	179	174	178	167	170	163
3	173	168	166	168	180	172	179	174	177	168	169	161
4	174	168	166	166	179	173	178	173	179	168	170	161
5	172	173	166	169	179	175	179	173	184	169	170	162
6	168	170	170	168	181	178	172	170	176	168	169	164
7	169	173	168	170	276	178	169	172	172	168	169	166
8	173	170	170	172	193	174	167	174	169	167	168	164
9	171	173	173	172	183	172	166	171	170	171	168	164
10	173	169	177	174	172	171	169	170	169	172	169	164
11	176	168	170	170	176	173	169	171	168	92	169	163
12	175	168	170	171	178	173	168	173	168	81	170	163
13	173	169	176	171	176	173	170	171	170	81	170	166
14	171	167	169	173	175	174	172	172	170	81	170	166
15	172	166	168	172	175	172	170	170	167	115	168	166
16	169	168	168	172	175	171	170	171	169	167	168	162
17	169	170	172	170	176	172	170	170	168	170	168	163
18	170	170	177	169	178	165	170	170	168	167	168	166
19	169	170	185	168	178	180	167	171	167	87	168	167
20	169	171	190	170	178	178	170	171	167	81	166	166
21	171	168	178	171	178	178	179	174	166	99	167	165
22	171	167	172	170	178	178	182	175	165	173	165	166
23	170	188	170	169	176	177	173	175	167	169	164	163
24	172	198	170	168	177	177	173	183	169	170	167	163
25	178	185	170	173	177	176	170	181	168	168	163	163
26	175	167	172	175	175	181	172	182	166	170	165	162
27	170	171	173	175	175	179	173	183	167	172	165	165
28	168	170	171	177	177	182	173	184	168	176	166	166
29	169	170	172	179	177	180	177	181	170	170	165	165
30	170	173	172	179	---	178	178	180	168	170	164	162
31	167	---	170	178	---	178	---	180	---	171	166	---
TOTAL	5306	5149	5341	5326	5258	5433	5182	5415	5111	4615	5194	4922
MEAN	171	171	172	171	181	175	172	174	170	148	167	164
MAX	178	198	190	179	276	182	182	184	184	176	170	167
MIN	167	166	166	166	172	165	166	170	165	81	163	161
AC-FT	10520	10210	10590	10560	10430	10780	10280	10740	10140	9150	10300	9760
MEAN a	2261	2435	2714	2527	2720	2738	2364	2297	2088	1795	2090	1974
AC-FT a	139000	144900	166900	155400	156400	168400	140700	141200	124200	110400	128500	117500
b	122200	126100	145400	133200	135500	146200	122900	124100	107400	96390	111100	102000
c	128500	134700	156300	144800	146000	157600	130400	130500	114100	101200	118200	107700

CAL YR 1987 TOTAL 60626 MEAN 166 MAX 2300 MIN 57 AC-FT 120300 MEAN a 2509 AC-FT a 1816000
WTR YR 1988 TOTAL 62252 MEAN 170 MAX 276 MIN 81 AC-FT 123500 MEAN a 2333 AC-FT a 1693000

a Adjusted for diversions to Pit No. 4 powerplant.

b Discharge, in acre-feet, for Pit No. 3 powerplant, provided by Pacific Gas & Electric Co.

c Diversion, in acre-feet, to Pit No. 4 powerplant, provided by Pacific Gas & Electric Co.

SACRAMENTO RIVER BASIN

11363000 PIT RIVER AT BIG BEND, CA

LOCATION.--Lat 41°01'10", long 121°54'36", in NW 1/4 SW 1/4 sec.31, T.37 N., R.1 E., Shasta County, Hydrologic Unit 18020003, on left bank at Big Bend, 0.4 mi downstream from Nelson Creek, 1.5 mi upstream from Kosk Creek, and 3.1 mi downstream from Pit No. 5 Dam.

DRAINAGE AREA.--4,711 mi², excluding Goose Lake basin.

PERIOD OF RECORD.--October 1910 to current year. Monthly discharge only for some periods, published in WSP 1315-A. Published as "at Henderson" 1910-23.

REVISED RECORDS.--WSP 1345: 1911, 1914(M), 1916(M), 1917, 1928, 1935-36(M). WDR CA-75-4: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,674.47 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 28, 1912, nonrecording gage; Dec. 28, 1912, to June 21, 1924, water-stage recorder at same site, but at datum 7.69 ft higher.

REMARKS.--Estimated daily discharges: Dec. 18-21. Low flow completely regulated by many reservoirs and powerplants, total usable reservoir capacity, about 253,000 acre-ft. Many diversions above station; diversion to Pit No. 5 powerplant began May 1, 1944. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S.

Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--33 years (water years 1911-43) prior to diversion to Pit No. 5 powerplant, 2,931 ft³/s, 2,122,000 acre-ft/yr; 45 years (water years 1944-88), 573 ft³/s, 415,100 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,000 ft³/s, Jan. 25, 1970, gage height, 18.17 ft in gage well, 19.0 ft from floodmarks, from rating curve extended above 17,000 ft³/s; maximum gage height, 18.70 ft, Feb. 20, 1986; minimum daily, 692 ft³/s, July 9, 1925; since diversion to Pit No. 5 powerplant, minimum daily, 34 ft³/s, Mar. 29, 1955.

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)
Dec. 10	0530	*722	*6.63				

Minimum daily, 130 ft³/s, July 28, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	156	158	266	167	215	260	137	174	212	159	144	155
2	144	163	528	173	210	233	136	166	186	151	133	153
3	145	165	233	169	205	211	135	165	185	155	132	151
4	148	156	192	197	200	203	139	161	173	155	136	152
5	142	162	206	201	194	197	138	163	173	161	145	147
6	153	171	373	196	189	197	140	162	179	162	156	153
7	146	154	296	189	182	191	144	171	187	162	154	155
8	142	155	265	194	186	193	148	179	181	161	155	154
9	147	156	333	220	192	191	143	172	179	154	154	152
10	140	146	561	293	192	184	141	171	176	148	151	149
11	138	145	344	333	193	173	147	167	170	156	154	148
12	153	142	269	257	200	164	149	173	162	157	154	152
13	150	169	232	242	200	162	149	173	171	161	142	148
14	148	151	227	247	198	161	147	170	173	159	143	148
15	145	157	219	264	198	167	147	170	167	154	155	150
16	150	152	212	276	198	164	146	175	165	152	154	156
17	151	154	192	244	188	156	156	172	163	149	156	149
18	150	153	185	229	181	156	156	165	161	153	155	145
19	156	154	172	228	176	147	183	163	156	152	154	150
20	157	160	170	219	181	149	169	167	160	154	149	149
21	153	148	174	218	173	151	168	159	163	153	150	150
22	158	143	181	200	177	155	210	161	159	153	150	148
23	157	141	180	203	175	147	194	165	159	147	151	153
24	149	136	179	194	176	145	182	164	157	149	154	152
25	143	141	179	205	177	148	176	167	151	147	150	147
26	150	159	175	198	177	142	171	164	150	134	149	150
27	165	152	181	186	173	141	169	167	158	134	149	149
28	160	151	183	191	174	147	167	180	158	130	149	154
29	168	146	196	242	186	145	179	183	158	130	152	154
30	165	157	193	238	---	143	178	166	159	139	153	151
31	145	---	185	215	---	143	---	171	---	147	157	---
TOTAL	4674	4597	7481	6828	5466	5266	4744	5226	5051	4678	4640	4524
MEAN	150	153	241	220	188	169	158	168	168	150	149	150
MAX	168	171	561	333	215	260	210	183	212	162	157	156
MIN	138	136	170	167	173	141	135	159	150	130	132	145
AC-FT	9270	9120	14840	13540	10840	10450	9410	10370	10020	9280	9200	8970

CAL YR 1987 TOTAL 70305 MEAN 192 MAX 3250 MIN 72 AC-FT 139400
WTR YR 1988 TOTAL 63175 MEAN 172 MAX 561 MIN 130 AC-FT 125300

SACRAMENTO RIVER BASIN

11363910 JAMES B. BLACK POWERPLANT NEAR BIG BEND, CA

LOCATION.--Lat 40°59'12", long 121°58'35", in SW 1/4 SE 1/4 sec.9, T.36 N., R.1 W., Shasta County, Hydrologic Unit 18020003, at powerplant on right bank of Pit River, 5.8 mi downstream from Big Bend.

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

GAGE.--Discharge computed from powerplant output.

REMARKS.--No estimated daily discharges. Water is diverted from Lake McCloud (station 11367740) at SE 1/4 SW 1/4 sec.22, T.38 N., R.2 W., through McCloud-Iron Canyon diversion tunnel (station 11367720) to Iron Canyon Reservoir (station 11363920), then through the penstock for powerplant and into the Pit River. Records are combined flow of diversion from McCloud River at McCloud Dam plus Iron Canyon Creek.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--22 years (water years 1967-88), 958 ft³/s, 694,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 2,420 ft³/s, July 15, 1966; no flow several days most years.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	570	236	694	413	546	956	342	239	1100	865	678	610
2	910	1010	698	752	743	951	179	968	1470	503	768	794
3	367	550	1330	787	516	402	418	902	844	556	582	431
4	754	490	1390	730	849	770	970	939	1050	613	452	544
5	92	248	966	560	559	206	423	685	501	781	661	583
6	148	630	1300	681	1020	722	681	756	552	555	596	845
7	853	328	1440	703	834	978	705	721	783	691	197	741
8	574	392	1170	685	504	1130	508	331	854	1350	1130	878
9	808	571	1120	447	822	855	156	773	1030	1280	994	828
10	518	675	768	596	733	731	235	1010	804	665	653	681
11	754	640	853	1350	1180	780	756	1040	611	757	731	784
12	378	471	1660	987	687	233	619	919	562	1180	519	500
13	515	679	1090	768	589	789	596	729	821	995	326	626
14	497	502	760	982	893	597	507	321	702	935	457	555
15	967	269	1110	966	535	780	275	636	798	797	658	501
16	724	431	1170	895	636	701	178	881	757	491	621	621
17	300	544	1080	881	648	689	230	691	798	769	658	728
18	404	588	998	978	216	1050	701	834	830	677	647	569
19	610	455	679	968	1040	717	999	680	310	669	373	698
20	525	622	784	981	1130	519	665	931	740	793	589	733
21	490	449	594	365	678	818	1100	813	791	799	475	591
22	529	533	671	0	811	761	1060	555	914	857	999	800
23	417	825	700	572	771	545	593	1010	569	493	666	931
24	626	724	530	587	516	830	798	634	708	441	564	493
25	411	375	609	841	705	825	743	851	576	743	659	382
26	713	483	522	878	561	135	663	1030	538	748	712	863
27	536	687	637	639	187	329	843	675	847	461	466	588
28	659	590	561	437	885	1020	667	0	739	709	564	667
29	598	661	790	963	534	324	397	0	448	425	689	887
30	653	688	874	901	---	652	0	874	886	0	758	566
31	153	---	442	941	---	613	---	668	---	267	328	---
TOTAL	17053	16346	27990	23234	20328	21408	17007	22096	22933	21865	19170	20018
MEAN	550	544	902	749	700	690	566	712	764	705	618	667
MAX	967	1010	1660	1350	1180	1130	1100	1040	1470	1350	1130	931
MIN	92	236	442	0	187	135	0	0	310	0	197	382
AC-FT	33820	32420	55520	46080	40320	42460	33730	43830	45490	43370	38020	39710
a	141800	146500	172600	158900	160400	176400	148200	147100	132200	119000	132700	122800
CAL YR 1987	TOTAL	272275.60	MEAN	745	MAX	1940	MIN	0	AC-FT	540100		
WTR YR 1988	TOTAL	249448.00	MEAN	681	MAX	1660	MIN	0	AC-FT	494800		

a Discharge, in acre-feet, for Pit No. 5 powerplant, provided by Pacific Gas and Electric Co.

SACRAMENTO RIVER BASIN

11363930 IRON CANYON CREEK BELOW IRON CANYON DAM, NEAR BIG BEND, CA

LOCATION.--Lat 41°02'27", long 121°59'02", in NW 1/4 NW 1/4 sec.28, T.37 N., R.1 W., Shasta County, Hydrologic Unit 18020003, on left bank 0.2 mi downstream from Iron Canyon Dam and 4.2 mi west of Big Bend.

DRAINAGE AREA.--11.6 mi².

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

GAGE.--Water-stage recorder, 60° sharp-crested V-notch weir, and concrete control with flashboards in 2- x 10-ft opening. Datum of gage is 2,461.52 ft above National Geodetic Vertical Datum of 1929 (levels by Pacific Gas & Electric Co.).

REMARKS.--No estimated daily discharges. Flow is completely regulated by Iron Canyon Dam. There is interbasin diversion from Lake McCloud (station 11367740) to Iron Canyon Reservoir (station 11363920) and then into a tunnel to James B. Black powerplant on the Pit River (station 11363910). See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--22 years, 5.65 ft³/s, 4,090 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 650 ft³/s, Feb. 5, 1986, gage height unknown (flashboards removed from weir), from equation for a 4- x 4-ft slide gate. Flow was the result of full travel test of slide gate at Iron Canyon Dam; maximum gage height, 3.24 ft, Feb. 25, 1978 (flashboards in weir), was the result of failure of the James B. Black penstock; no flow, July 15-18, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6.3 ft³/s, Sept. 27, gage height, 1.53 ft; minimum daily, 0.36 ft³/s, Jan. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	3.7	3.7	.36	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
2	3.6	3.7	3.7	.37	3.8	3.7	3.7	3.7	3.7	3.7	3.7	3.7
3	3.6	3.7	3.7	.39	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
4	3.6	3.7	3.7	.39	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
5	3.8	3.7	3.7	.46	3.7	3.7	3.7	3.4	3.7	3.7	3.7	3.7
6	4.1	3.7	3.7	.43	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
7	4.0	3.7	3.7	.44	3.7	3.5	3.7	3.7	3.7	3.7	3.7	3.7
8	3.8	3.7	3.7	.45	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
9	3.5	3.7	3.7	2.4	3.7	3.6	3.7	3.7	3.7	3.7	3.7	3.7
10	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
11	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
12	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
13	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.8
14	3.9	3.7	3.7	3.7	3.6	3.4	3.7	3.7	3.7	3.7	3.7	3.8
15	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.8
16	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.8
17	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.8
18	3.7	3.7	3.7	3.6	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.9
19	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.9
20	3.7	3.7	3.7	3.7	3.6	3.7	3.7	3.7	3.7	3.7	3.7	3.9
21	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.9
22	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.9
23	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.9
24	3.8	3.7	3.7	3.7	3.6	3.7	3.7	3.7	3.7	3.7	3.7	3.9
25	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
26	3.7	3.7	3.6	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.9
27	3.7	3.7	.46	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.9
28	3.8	3.7	.38	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.9
29	3.8	3.7	.38	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.9
30	3.8	3.7	.37	3.7	---	3.7	3.7	3.7	3.7	3.7	3.7	3.9
31	3.8	---	.37	3.7	---	3.7	---	3.7	---	3.7	3.7	---
TOTAL	114.5	111.0	98.06	86.99	107.1	114.1	111.0	114.4	111.0	114.7	114.7	113.9
MEAN	3.69	3.70	3.16	2.81	3.69	3.68	3.70	3.69	3.70	3.70	3.70	3.80
MAX	4.1	3.7	3.7	3.7	3.8	3.7	3.7	3.7	3.7	3.7	3.7	3.9
MIN	3.2	3.7	.37	.36	3.6	3.4	3.7	3.4	3.7	3.7	3.7	3.7
AC-FT	227	220	195	173	212	226	220	227	220	228	228	226

CAL YR 1987 TOTAL 1245.46 MEAN 3.41 MAX 4.1 MIN .37 AC-FT 2470
WTR YR 1988 TOTAL 1311.45 MEAN 3.58 MAX 4.1 MIN .36 AC-FT 2600

SACRAMENTO RIVER BASIN

11364200 ROARING CREEK BELOW DIVERSION TO ROARING CREEK POWERPLANT, NEAR MONTGOMERY CREEK, CA

LOCATION.--Lat 40°53'29", long 121°56'54", in SW 1/4 NW 1/4 sec.14, T.35 N., R.1 W., Shasta County, Hydrologic Unit 18020003, on left bank 750 ft downstream from Cove Road, 0.3 mi downstream from Little Roaring Creek, and 3.6 mi northwest of Montgomery Creek.

DRAINAGE AREA.--34.8 mi².

PERIOD OF RECORD.--October 1987 to September 1988 (operated as a low-flow station only).

GAGE.--Water-stage recorder. Elevation of gage is 1,620 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. This station records regulated bypass flow or natural flow only. During times of powerplant operation the minimum bypass flow requirement is 15 ft³/s except March to May when the minimum bypass flow requirement is 40 ft³/s; therefore flow is computed to 58 ft³/s.

COOPERATION.--Records were collected by Mega Renewables Energy Developers, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.6	---	40	15	28	43	41	41	41	16	19	8.5
2	7.6	---	---	16	23	42	41	41	34	17	18	8.1
3	7.6	---	34	16	19	42	41	42	17	17	18	---
4	7.6	---	21	20	16	43	41	42	17	17	18	---
5	7.6	---	19	18	17	42	41	42	16	17	18	---
6	7.6	---	38	17	16	41	41	41	18	17	18	---
7	7.6	---	22	16	16	42	41	42	18	16	17	---
8	7.6	---	32	19	18	42	41	43	17	17	16	---
9	---	---	53	27	19	42	41	42	17	17	16	---
10	---	---	---	49	19	42	41	41	17	17	16	---
11	---	---	---	---	19	42	42	41	16	17	15	---
12	---	---	32	38	20	41	42	42	16	17	15	---
13	---	---	21	27	20	41	42	41	16	20	14	---
14	---	15	17	23	19	42	42	41	16	25	14	---
15	---	13	17	38	18	42	42	41	30	25	14	---
16	---	13	16	49	17	42	42	42	31	25	13	---
17	---	15	16	31	17	42	45	42	18	23	13	---
18	---	14	16	24	17	42	45	42	18	23	12	---
19	---	13	16	19	17	42	43	42	18	22	12	---
20	---	15	16	17	17	42	42	41	18	21	11	---
21	---	15	16	17	17	42	42	41	17	21	10	---
22	---	14	17	16	17	43	44	41	17	21	11	---
23	---	13	17	16	17	43	41	41	17	21	11	---
24	---	13	17	16	17	43	42	41	17	20	10	---
25	---	12	16	16	17	42	43	42	17	20	9.9	---
26	---	12	16	17	17	41	41	41	17	20	9.5	---
27	---	11	16	17	17	41	42	41	17	19	9.5	---
28	---	11	16	19	17	41	42	41	16	19	9.5	---
29	---	10	16	51	23	41	41	42	16	19	9.5	---
30	---	15	16	48	---	41	41	41	16	19	9.5	---
31	---	---	15	33	---	41	---	45	---	19	9.5	---
TOTAL	---	---	---	---	531	1298	1256	1289	576	604	415.9	---
MEAN	---	---	---	---	18.3	41.9	41.9	41.6	19.2	19.5	13.4	---
MAX	---	---	---	---	28	43	45	45	41	25	19	---
MIN	---	---	---	---	16	41	41	41	16	16	9.5	---
AC-FT	---	---	---	---	1050	2570	2490	2560	1140	1200	825	---

NOTE: Recorder was removed from Oct. 9 to Nov. 13. No power generation Oct. 1 to Nov. 29, Apr. 11-13, 16, 17, May 30 to June 3, June 15, 16, and July 14 to Sept. 30. Flows above 58 ft³/s Dec. 2, 10, 11, and Jan. 11.

SACRAMENTO RIVER BASIN

11364300 HATCHET CREEK BELOW DIVERSION TO HATCHET CREEK POWERPLANT, NEAR MONTGOMERY CREEK, CA

LOCATION.--Lat 40°52'39", long 121°51'55", in SE 1/4 NE 1/4 sec.21, T.35 N., R.1 E., Shasta County, Hydrologic Unit 18020003, on left bank 1,400 ft downstream from Buffom Creek and 3.8 mi northeast of Montgomery Creek.

DRAINAGE AREA.--29.6 mi².

PERIOD OF RECORD.--October 1987 to September 1988 (operated as a low-flow station only).

GAGE.--Water-stage recorder. Elevation of gage is 3,460 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. This station records regulated bypass flow or natural flow only. During times of powerplant operation the minimum bypass flow requirement is 15 ft³/s; therefore flow is computed to 40 ft³/s.

COOPERATION.--Records were collected by Mega Renewables Energy Developers, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	29	19	32	19	18	37	25	13	---
2	---	---	---	30	18	27	19	18	37	22	13	---
3	---	---	22	28	18	24	19	18	18	21	13	---
4	---	---	21	20	18	21	19	18	18	21	13	---
5	---	---	29	21	18	22	19	18	18	20	13	---
6	---	---	37	21	18	28	20	18	18	19	13	---
7	---	---	24	19	18	24	20	18	20	19	13	---
8	---	---	21	20	18	21	18	20	19	18	13	---
9	---	---	28	21	18	21	18	18	19	17	12	---
10	---	---	---	22	18	20	18	19	18	17	12	---
11	---	---	---	22	18	18	28	19	18	17	12	---
12	---	---	27	21	18	18	34	19	18	17	12	---
13	---	---	23	21	18	18	33	19	18	17	12	---
14	---	---	22	21	18	18	36	18	18	16	12	---
15	---	---	21	21	18	18	31	18	28	16	12	---
16	---	---	21	20	18	18	30	21	27	16	11	---
17	---	---	28	19	19	19	35	21	18	16	11	---
18	---	---	25	19	20	19	27	18	18	16	10	---
19	---	---	19	19	20	19	21	18	18	16	10	---
20	---	---	19	19	20	19	20	18	18	16	9.6	---
21	---	14	20	19	20	20	19	18	17	16	9.6	---
22	---	13	21	19	20	19	21	18	18	16	9.6	---
23	---	12	19	19	20	20	21	18	18	16	9.6	---
24	---	12	25	19	20	19	21	18	24	16	9.6	---
25	---	12	33	19	20	19	19	19	34	15	9.6	---
26	---	11	33	19	20	19	18	19	32	15	9.6	---
27	---	11	33	19	20	18	18	19	30	14	9.0	---
28	---	12	29	19	21	18	18	21	29	14	9.0	---
29	---	11	33	24	21	18	21	20	28	13	---	---
30	---	15	32	21	---	19	19	18	26	13	---	---
31	---	---	30	20	---	19	---	29	---	13	---	---
TOTAL	---	---	---	650	550	632	679	589	677	523	---	---
MEAN	---	---	---	21.0	19.0	20.4	22.6	19.0	22.6	16.9	---	---
MAX	---	---	---	30	21	32	36	29	37	25	---	---
MIN	---	---	---	19	18	18	18	18	17	13	---	---
AC-FT	---	---	---	1290	1090	1250	1350	1170	1340	1040	---	---

NOTE: Recorder not operating Oct. 1 to Nov. 20 and Aug. 29 to Sept. 30. No power generation Oct. 1 to Nov. 30, Dec. 24-27, Dec. 29 to Jan. 2, Apr. 11-17, May 31, June 1, 2, 15, 16 and July 25 to Sept. 30. Flows above 40 ft³/s Dec. 1, 2, 10, 11.

SACRAMENTO RIVER BASIN

11365000 PIT RIVER NEAR MONTGOMERY CREEK, CA

LOCATION (REVISED).--Lat 40°50'38", long 122°00'05", in NE 1/4 SW 1/4 sec.32, T.35 N., R.1 W., Shasta County, Hydrologic Unit 18020003, Shasta National Forest, on left bank 0.7 mi downstream from Pit No. 7 Dam and powerplant, 1.4 mi upstream from Potem Creek, and 4.1 mi west of town of Montgomery Creek.

DRAINAGE AREA.--4,952 mi², excluding Goose Lake basin.

PERIOD OF RECORD.--October 1944 to current year (monthly discharge only December 1964 to May 1965). Monthly discharge only for some periods, published in WSP 1315-A.

CHEMICAL DATA: Water years 1951, 1953, 1955-81.

WATER TEMPERATURE: Water years 1951, 1954-57, 1959.

REVISED RECORDS.--WSP 1931: Drainage area. WDR-CA-86-4: 1983 (M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,000.00 ft above National Geodetic Vertical Datum of 1929 (levels by Pacific Gas & Electric Co.). October 1944 to Feb. 17, 1963, at site 0.7 mi upstream at different datum. Feb. 17, 1963, to May 21, 1965, at site 1.5 mi upstream at different datum. May 21, 1965, to June 20, 1981, at site 0.9 mi downstream at datum 1,036.00 ft above NGVD of 1929.

REMARKS.--Estimated daily discharges: Oct. 16-21, Nov. 6 to Dec. 15, Jan. 28 to Feb. 3 and Feb. 11-17. Low flow completely regulated by many reservoirs and powerplants, total usable reservoir capacity, 337,000 acre-ft. Many diversions above station for irrigation. Diversion from McCloud River to Iron Canyon Reservoir (station 11363920) began December 1965. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--21 years (water years 1945-65) prior to diversion from McCloud River, 3,759 ft³/s, 2,721,000 acre-ft/yr; 23 years (water years 1966-88), 5,116 ft³/s, 3,707,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 73,000 ft³/s, Jan. 24, 1970, gage height, 32.36 ft, site and datum then in use; maximum gage height, 74.65 ft (present datum), Feb. 19, 1986; minimum daily, 30 ft³/s, July 12, 27, 1975, result of construction work below Pit No. 7 powerplant.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,820 ft³/s, Dec. 18, gage height, 63.34 ft; minimum daily, 409 ft³/s, Sept. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3390	2230	2340	3040	3890	6970	2640	4540	5540	3720	3180	2800
2	3040	4010	6570	4010	3260	4660	795	3770	3990	1840	3280	3420
3	1900	2920	5860	2730	3410	4390	1460	4000	4550	2190	3370	1760
4	1890	2660	6650	3540	3690	5560	3200	4460	3450	1440	3240	1900
5	2110	2830	3680	3590	3580	3120	3640	3960	1220	3570	4530	2240
6	3470	3280	4800	3910	3590	4080	3080	4040	3610	3380	2980	3080
7	3530	1820	7060	3560	3580	4810	3920	3870	4860	3370	2020	3220
8	3270	519	6300	4170	3220	5910	1990	4210	4150	4890	3560	3530
9	3690	2770	4730	3130	3680	4740	563	3240	3910	1930	3660	5350
10	2000	3780	7520	3790	4550	5330	420	5230	4510	1470	2960	6550
11	2260	3500	6640	7110	7850	4920	2940	4150	1870	3620	3580	2800
12	2970	3150	4280	6130	3820	2000	4460	3980	1490	3920	3140	2930
13	3100	4280	3210	4050	3580	2670	3350	4210	4270	3590	1160	409
14	3260	2870	4940	5960	3960	3370	3000	3350	3710	3800	1270	444
15	2700	3000	5660	5260	3950	5310	3300	3980	3660	3540	3560	603
16	3890	2740	6220	5460	3370	4810	2870	4170	4280	2310	3280	2160
17	690	2360	4870	3640	3160	3980	2640	5670	3270	1550	3260	2850
18	843	2800	4310	5230	4090	5400	3850	3250	2730	2960	2560	1920
19	2810	3030	2830	5230	4180	3470	4980	4750	1200	2510	2680	2700
20	3370	2870	2440	4200	4520	5360	3640	3590	3580	3560	1950	3680
21	2670	2260	4260	4220	3580	3530	4420	1070	3530	3530	2330	2890
22	3720	2870	3720	3340	3900	3780	5200	1240	3740	3520	2980	3280
23	3120	3180	4060	1970	4450	3960	3860	3680	4000	1210	3350	3290
24	2340	4950	3630	2270	4670	4000	5870	3160	3290	659	3060	2510
25	1860	1310	3540	4450	4670	3500	5440	3560	1500	3760	3290	968
26	2800	3010	2630	4380	4560	2000	3060	4330	1070	3260	2800	2980
27	3570	3220	2570	4680	1850	3030	3010	4110	3620	3050	1250	2810
28	3080	4270	3150	3670	2350	3920	3930	1020	3450	3560	1580	2610
29	4150	4160	4070	6350	4490	3780	5120	1540	3790	2750	3480	3950
30	4140	3870	4330	5890	---	3350	4270	2750	3450	741	3110	3870
31	2490	---	2950	5880	---	3880	---	3540	---	1260	2740	---
TOTAL	88123	90519	139820	134840	113450	129590	100918	112420	101290	86460	89190	83504
MEAN	2842	3017	4510	4349	3912	4180	3363	3626	3376	2789	2877	2783
MAX	4150	4950	7520	7110	7850	6970	5870	5670	5540	4890	4530	6550
MIN	690	519	2340	1970	1850	2000	420	1020	1070	659	1160	409
AC-FT	174800	179500	277300	267500	225000	257000	200200	223000	200900	171500	176900	165600
a	14760	10394	14914	8015	15069	15095	14734	15329	15121	15043	15199	14405
b	175400	180700	254300	254200	209200	247200	199800	209000	195200	171400	178600	165700
c	33353	33538	33630	33032	33492	24721	33353	33630	33677	33584	33723	33399

CAL YR 1987 TOTAL 1389869 MEAN 3807 MAX 12100 MIN 376 AC-FT 2757000
WTR YR 1988 TOTAL 1270124 MEAN 3470 MAX 7850 MIN 409 AC-FT 2519000

a Contents, in acre-feet, at end of month for Pit No. 6 Reservoir, provided by Pacific Gas & Electric Co.

b Discharge, in acre-feet, for Pit No. 6 powerplant, provided by Pacific Gas & Electric Co.

c Contents, in acre-feet, at end of month for Pit No. 7 Reservoir, provided by Pacific Gas & Electric Co.

SACRAMENTO RIVER BASIN

11367500 McCLOUD RIVER NEAR McCLOUD, CA

LOCATION.--Lat 41°11'18", long 122°03'52", in NW 1/4 NE 1/4 sec.34, T.39 N., R.2 W., Siskiyou County, Hydrologic Unit 18020004, on right bank 0.4 mi downstream from Angel Creek and 6 mi southeast of McCloud.

DRAINAGE AREA.--358 mi².

PERIOD OF RECORD.--April 1931 to current year.

REVISED RECORDS.--WSP 843: 1936(M). WSP 1445: 1940(M). WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,711.2 ft above National Geodetic Vertical Datum of 1929, from river-profile map.

REMARKS.--No estimated daily discharges. Two small diversions above station for irrigation, and one 22-in pipeline for town of McCloud. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--57 years, 929 ft³/s, 673,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,800 ft³/s, Dec. 21, 1955, gage heights, 9.42 ft, in gage well, 10.7 ft from floodmarks, from rating curve extended above 8,800 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 524 ft³/s, Nov. 23, 24, 1932.

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)
Dec. 10	1945	*1,350	*2.28				

Minimum daily, 616 ft³/s, several days in September.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	680	674	698	684	698	763	719	804	730	657	629	621
2	680	674	770	685	694	784	719	786	748	653	629	621
3	680	674	880	690	690	772	720	775	732	653	629	620
4	680	672	800	692	688	766	723	770	725	653	628	620
5	680	669	918	691	685	776	719	767	725	653	628	620
6	680	669	1160	686	685	787	719	764	730	647	628	619
7	680	669	1060	686	685	791	719	771	735	647	628	619
8	678	669	874	685	685	782	719	778	733	646	627	619
9	675	670	820	685	685	785	715	774	731	642	626	618
10	674	669	1100	702	685	779	713	766	728	642	626	618
11	674	669	1100	767	689	771	713	764	721	642	626	618
12	674	669	903	751	693	765	713	764	709	642	626	617
13	674	675	830	729	696	759	715	772	704	642	626	617
14	674	670	791	721	696	758	728	761	702	637	626	617
15	676	669	772	724	696	755	733	753	698	637	625	616
16	685	669	759	730	694	749	726	759	694	637	625	616
17	685	669	744	722	691	741	729	792	691	635	625	616
18	690	669	731	711	691	733	749	767	688	632	623	616
19	691	669	722	705	691	732	851	752	684	632	623	617
20	688	670	716	699	691	736	877	744	674	632	623	617
21	685	669	712	696	694	745	842	738	673	631	622	617
22	681	669	709	696	696	751	861	733	669	630	622	616
23	680	669	705	696	697	749	862	727	669	629	622	616
24	677	669	698	693	698	758	833	722	666	630	622	616
25	674	667	696	691	701	750	818	716	665	645	621	616
26	674	664	694	691	703	747	806	713	664	632	620	616
27	674	664	690	691	708	747	798	711	664	631	620	616
28	674	664	695	694	718	743	792	724	658	631	620	616
29	674	664	693	706	731	737	811	769	658	630	620	616
30	674	671	689	707	---	728	841	748	658	631	621	616
31	674	---	685	702	---	722	---	732	---	630	621	---
TOTAL	21039	20077	24814	21808	20154	23461	22983	23416	20926	19811	19357	18523
MEAN	679	669	800	703	695	757	766	755	698	639	624	617
MAX	691	675	1160	767	731	791	877	804	748	657	629	621
MIN	674	664	685	684	685	722	713	711	658	629	620	616
AC-FT	41730	39820	49220	43260	39980	46530	45590	46450	41510	39300	38390	36740
CAL YR 1987	TOTAL	279596	MEAN 766	MAX 2050	MIN 664	AC-FT 554600						
WTR YR 1988	TOTAL	256369	MEAN 700	MAX 1160	MIN 616	AC-FT 508500						

SACRAMENTO RIVER BASIN

11367720 McCLOUD-IRON CANYON DIVERSION TUNNEL NEAR McCLOUD, CA

LOCATION.--Lat 41°08'06", long 122°04'26", in SE 1/4 SW 1/4 sec.22, T.38 N., R.2 W., Shasta County, Hydrologic Unit 18020004, Shasta National Forest, on left bank of Lake McCloud, 8.8 mi southeast of McCloud.

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

REVISED RECORDS.--WDR CA-75-4: 1973.

GAGE.--None. Water-stage recorders on Lake McCloud and Iron Canyon Reservoir used to compute record.

REMARKS.--No estimated daily discharges. Water is diverted from Lake McCloud (station 11367740) via tunnel to Iron Canyon Reservoir (station 11363920) and then via penstock into James B. Black powerplant (station 11363910) on the Pit River. Diversion began Dec. 1, 1965. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--22 years (water years 1967-88), 936 ft³/s, 678,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 1,890 ft³/s several days during May and June 1967; no flow several days in 1965-68, 1971, 1978.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	605	436	567	586	677	663	551	573	619	612	455	495
2	636	539	609	615	675	705	499	616	685	588	455	521
3	621	532	783	636	636	741	497	636	687	576	491	493
4	597	523	876	647	654	672	560	660	704	571	476	488
5	499	470	892	625	628	629	638	651	676	582	488	485
6	436	500	976	619	693	646	554	653	655	567	493	526
7	511	470	1060	632	694	696	569	655	656	569	447	537
8	516	460	1070	640	651	750	556	621	664	633	528	563
9	552	485	1060	608	665	747	502	633	680	673	565	573
10	536	514	1010	601	663	729	473	658	680	659	559	569
11	562	532	1070	776	739	724	514	687	666	654	563	577
12	516	523	1080	801	704	646	530	697	646	689	546	543
13	509	547	1070	785	675	659	535	695	651	698	507	536
14	502	539	1010	803	698	646	528	658	642	703	493	518
15	579	483	999	817	663	657	498	651	644	696	503	502
16	588	475	1010	814	656	654	460	664	644	657	507	499
17	528	487	991	807	641	648	439	662	646	654	519	518
18	498	507	969	823	575	694	483	673	651	643	521	511
19	521	495	901	833	652	684	563	665	615	624	491	522
20	597	518	865	847	714	650	590	681	612	629	498	529
21	502	499	809	748	699	666	648	681	619	622	483	522
22	498	507	776	590	706	666	691	660	635	635	539	536
23	481	562	756	588	701	644	684	680	617	602	541	572
24	509	575	713	579	667	664	693	664	615	570	528	538
25	485	537	697	613	660	677	694	671	604	576	530	494
26	521	525	647	645	636	601	684	688	588	582	537	529
27	516	554	625	632	564	568	696	673	602	553	517	515
28	539	528	625	589	616	628	689	606	604	559	510	513
29	539	516	642	649	575	585	663	550	578	530	519	551
30	552	537	692	682	---	591	604	580	598	453	537	529
31	481	---	627	713	---	587	---	582	---	422	498	---
TOTAL	16532	15375	26477	21343	19177	20517	17285	20124	19183	18781	15844	15804
MEAN	533	512	854	688	661	661	576	649	639	605	511	526
MAX	636	575	1080	847	739	750	696	697	704	703	565	577
MIN	436	436	567	579	564	568	439	550	578	422	447	485
AC-FT	32790	30500	52520	42330	38040	40700	34280	39920	38050	37250	31430	31350
CAL YR 1987	TOTAL	256159	MEAN 701	MAX 1300	MIN 397	AC-FT 508100						
WTR YR 1988	TOTAL	226442	MEAN 618	MAX 1080	MIN 422	AC-FT 449100						

SACRAMENTO RIVER BASIN

11367760 McCloud River Below McCloud Dam, NEAR McCloud, CA

LOCATION.--Lat 41°07'44", long 122°04'08", in SW 1/4 NE 1/4 sec.27, T.38 N., R.2 W., Shasta County, Hydrologic Unit 18020004, Shasta National Forest, on left bank 0.1 mi downstream from Lizard Creek, 0.6 mi downstream from McCloud Dam, and 9 mi southeast of McCloud.

DRAINAGE AREA.--404 mi².

PERIOD OF RECORD.--April 1966 to current year (operated as a low-flow station only).

GAGE.--Water-stage recorder. Datum of gage is 2,398.76 ft above National Geodetic Vertical Datum of 1929 (levels by Pacific Gas & Electric Co.). Prior to April 7, 1972, at datum 3.00 ft higher.

REMARKS.--Low flow regulated by Lake McCloud (station 11367740) since November 1965. Most of McCloud River runoff is diverted from reservoir through tunnel to Iron Canyon Reservoir (station 11363920) in Pit River basin. This station records fishwater release. Prior to water year 1974, flow was computed up to 400 ft³/s. During water years 1975-81, because of channel changes, flow was computed up to 200 ft³/s. Currently, because of maximum required release, flow is computed to 210 ft³/s. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			202	161	75	85	146	114	134	145	155	174
2			113	151	86	81	146	116	133	145	155	174
3			88	149	95	90	146	122	134	146	155	174
4			128	150	100	96	147	125	134	146	155	174
5			79	152	111	100	148	121	133	146	155	174
6			61	146	113	100	150	121	133	146	155	173
7			55	133	116	102	150	121	133	146	155	173
8			84	134	118	107	150	119	133	147	155	173
9			94	134	118	110	150	115	133	150	155	173
10			55	122	117	113	150	115	133	150	155	173
11			52	62	111	121	151	115	133	150	155	173
12			71	60	110	121	153	114	133	150	155	174
13			121	79	108	127	153	110	134	150	155	174
14			141	86	103	127	152	111	136	150	155	174
15			149	87	99	130	152	114	138	149	155	174
16			113	76	99	136	152	116	139	149	154	173
17			120	88	101	136	152	117	140	149	153	173
18			134	94	108	136	153	119	139	152	153	173
19			139	108	108	136	109	125	141	153	155	176
20			147	113	108	140	115	137	142	153	152	177
21			152	123	108	138	117	129	142	153	152	177
22			152	125	108	136	117	126	142	152	152	177
23			152	125	108	136	112	127	142	152	152	177
24			153	125	108	136	112	129	142	152	152	177
25			154	126	108	137	113	132	143	152	152	177
26			156	126	108	137	116	132	143	152	152	177
27			158	126	108	137	117	132	143	152	152	176
28			159	126	102	140	121	133	143	155	152	176
29			160	84	96	142	120	132	145	155	152	174
30			161	51	---	144	124	133	144	154	152	174
31			161	60	---	146	---	135	---	155	157	---
TOTAL			3864	3482	3058	3823	4094	3807	4137	4656	4769	5238
MEAN			125	112	105	123	136	123	138	150	154	175
MAX			202	161	118	146	153	137	145	155	157	177
MIN			52	51	75	81	109	110	133	145	152	173
AC-FT			7660	6910	6070	7580	8120	7550	8210	9240	9460	10390

SACRAMENTO RIVER BASIN

11367800 McCloud River at Ah-Di-Na, Near McCloud, CA

LOCATION.--Lat 41°06'39", long 122°05'42", in NE 1/4 SW 1/4 sec.33, T.38 N., R.2 W., Shasta County, Hydrologic Unit 18020004, Shasta National Forest, on right bank at Ah-Di-Na, 1.8 mi downstream from Squirrel Creek, 3.9 mi downstream from McCloud Dam, and 9.6 mi south of McCloud.

DRAINAGE AREA.--427 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 2,160 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharge. Low flow completely regulated by Lake McCloud 3.9 mi upstream (station 11367740) since November 1965. Diversion to Iron Canyon Reservoir (station 11363920) through McCloud-Iron Canyon diversion tunnel (station 11367720) started Dec. 1, 1965. See schematic diagram of Pit and McCloud River basins. This station records fishwater release. The minimum release requirements vary from 160 ft³/s to 210 ft³/s per schedule outlined in Federal Energy Regulatory Commission License 2106.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--24 years (water years 1965-88), 336 ft³/s, 243,400 acre-ft/yr, unadjusted. 23 years (water years 1966-88), 1,221 ft³/s, 884,600 acre-ft/yr, adjusted for diversion to Iron Canyon Reservoir and change in contents in Lake McCloud.

EXTREMES FOR PERIOD OF RECORD.--Prior to completion of McCloud Dam in 1965, maximum discharge, 9,660 ft³/s, Dec. 22, 1964, gage height, 9.43 ft, from rating curve extended above 2,500 ft³/s; minimum daily, 86 ft³/s, Oct. 1-26, 1964. Since completion of McCloud Dam, maximum discharge, 26,400 ft³/s, Jan. 16, 1974, gage height, 13.68 ft in gage well, 15.38 ft from floodmarks, from rating curve extended above 8,000 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 41 ft³/s, Dec. 18-20, 1971 (caused by valve malfunction at McCloud Dam).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 21, 1955, reached a stage of 12.5 ft, discharge, 17,800 ft³/s, from rating curve extended above 2,500 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges 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)
Dec. 6	1330	*786	*2.86				

Minimum daily, 173 ft³/s, several days during May, June and July.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	228	231	267	198	182	204	187	176	182	173	178	196
2	229	231	280	188	180	193	186	175	180	173	178	196
3	235	230	256	188	178	190	186	178	178	175	178	195
4	235	230	243	192	176	188	186	182	176	174	178	195
5	233	230	303	197	182	191	186	174	176	174	178	195
6	233	230	532	194	181	191	188	175	178	173	178	195
7	233	230	323	180	181	188	187	191	181	173	178	195
8	233	231	240	179	182	187	186	196	181	174	178	195
9	233	234	264	186	184	187	186	195	180	177	178	194
10	233	230	435	234	188	186	186	193	178	177	178	194
11	233	230	314	304	187	190	186	189	176	176	178	193
12	233	230	239	212	194	186	187	185	175	176	178	195
13	233	237	247	193	196	189	188	176	173	176	178	195
14	233	231	243	186	191	187	189	173	175	175	178	195
15	233	230	238	203	184	187	185	173	176	175	178	195
16	233	230	196	186	180	191	186	179	175	174	178	195
17	233	230	190	182	179	189	190	176	175	173	177	195
18	233	230	197	177	183	188	193	175	175	175	177	195
19	233	230	198	181	180	188	215	176	175	177	179	195
20	232	232	201	181	178	191	202	189	175	177	176	197
21	232	233	205	186	178	191	196	179	173	177	176	199
22	232	230	206	186	180	187	210	173	174	177	175	200
23	231	230	201	183	181	188	209	173	174	176	176	200
24	231	230	200	183	181	186	202	174	174	176	175	200
25	230	230	200	183	182	186	193	175	175	176	175	200
26	230	230	200	184	184	186	190	175	175	176	174	200
27	230	230	200	187	190	185	185	174	173	176	174	200
28	230	230	203	196	191	185	186	188	173	178	174	197
29	230	230	202	203	188	186	190	187	174	178	174	195
30	231	236	200	193	---	186	188	179	174	178	174	195
31	230	---	200	183	---	188	---	179	---	178	178	---
TOTAL	7191	6926	7623	6008	5321	5845	5734	5582	5279	5443	5482	5886
MEAN	231	230	245	193	183	188	191	180	175	175	176	196
MAX	235	237	532	304	196	204	215	196	182	178	179	200
MIN	228	230	190	177	176	185	185	173	173	173	174	193
AC-FT	14260	13740	15120	11920	10550	11590	11370	11070	10470	10800	10870	11670
MEAN a	745	744	1098	901	849	912	901	872	780	699	672	652
AC-FT a	45780	44270	67510	55410	48810	56060	53620	53620	46400	42960	41300	38820

CAL YR 1987	TOTAL	79834	MEAN	218	MAX	742	MIN	159	AC-FT	158400	MEAN a	920	AC-FT a	665900
WTR YR 1988	TOTAL	72320	MEAN	197	MAX	532	MIN	173	AC-FT	143400	MEAN a	819	AC-FT a	574600

a Adjusted for diversion to Iron Canyon Reservoir and change in contents in Lake McCloud.

SACRAMENTO RIVER BASIN

11368000 McCloud River Above Shasta Lake, CA

LOCATION.--Lat 40°57'30", long 122°13'07", unsurveyed, T.36 N., R.3 W., Shasta County, Hydrologic Unit 18020004, on right bank just upstream from Shasta Lake, 0.2 mi downstream from Big Bollibokka Creek, and 11.3 mi east of Lamoine.

DRAINAGE AREA.--604 mi².

PERIOD OF RECORD.--October 1945 to current year. Prior to 1950, published as "above Shasta Reservoir."

REVISED RECORDS.--WSP 1445: 1953(M). WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,100.00 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation).

REMARKS.--No estimated daily discharges. Low flow completely regulated by Lake McCloud (station 11367740) 16.5 mi upstream since Nov. 3, 1965. Diversions to Iron Canyon Reservoir (station 11363920) began Dec. 1, 1965. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--20 years (water years 1946-65), 1,699 ft³/s, 1,230,000 acre-ft/yr prior to storage and interbasin diversion to Pit River; 23 years (water years 1966-88), 784 ft³/s, 568,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,500 ft³/s, Jan. 16, 1974, gage height, 28.26 ft, from rating curve extended above 15,000 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 109 ft³/s, Dec. 16-20, 1971. Minimum prior to regulation by Lake McCloud, 820 ft³/s, Jan. 3, 1950.

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)
Dec. 6	1315	*4,910	*14.96				

Minimum daily, 214 ft³/s, Aug. 30, 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	263	290	625	360	831	523	324	397	359	264	228	227
2	263	298	1380	353	735	488	320	386	349	261	228	232
3	271	289	1250	388	660	467	321	381	339	260	230	230
4	272	285	1040	476	610	451	318	379	335	258	228	229
5	272	284	1680	535	576	447	311	376	334	255	228	228
6	272	286	3310	553	550	440	311	383	339	251	230	227
7	272	289	1820	532	526	429	306	505	370	247	230	226
8	273	287	1200	572	513	420	302	570	361	247	229	228
9	272	316	1750	777	510	412	302	621	349	245	228	228
10	273	291	2850	1420	525	403	299	569	341	243	228	229
11	273	286	1790	2570	537	398	297	526	327	242	228	227
12	275	285	1130	1400	556	391	297	496	318	241	228	229
13	272	340	874	984	561	385	301	469	306	241	228	230
14	273	302	735	865	543	380	320	441	302	241	226	228
15	272	289	662	1210	527	373	308	425	297	241	226	228
16	273	288	588	1340	511	373	302	452	296	240	225	228
17	274	294	521	1190	489	367	318	429	298	236	225	228
18	276	290	492	947	484	361	356	405	292	236	225	228
19	277	288	471	787	471	357	691	391	286	239	225	232
20	279	299	451	691	464	356	616	391	286	233	223	239
21	280	313	441	631	460	361	528	378	284	233	221	237
22	280	293	445	595	455	349	557	363	283	232	221	236
23	285	289	426	572	451	346	571	356	283	232	221	237
24	286	290	409	572	447	339	523	347	283	232	221	238
25	283	289	399	574	442	335	483	341	291	232	218	239
26	280	286	392	573	442	337	452	337	294	230	217	240
27	280	284	385	579	450	333	429	333	280	228	217	236
28	281	284	400	608	466	330	418	381	272	229	217	236
29	284	284	394	898	467	331	458	398	268	228	217	234
30	295	337	376	1100	---	325	422	353	267	228	214	232
31	289	---	367	956	---	328	---	344	---	228	214	---
TOTAL	8570	8825	29053	25608	15259	11935	11761	12923	9289	7453	6944	6946
MEAN	276	294	937	826	526	385	392	416	309	240	224	231
MAX	295	340	3310	2570	831	523	691	621	370	264	230	240
MIN	263	284	367	353	442	325	297	333	267	228	214	226
AC-FT	17000	17500	57630	50790	30270	23670	23330	25630	18420	14780	13770	13780

CAL YR 1987	TOTAL	176078	MEAN 482	MAX 3900	MIN 247	AC-FT 349300
WTR YR 1988	TOTAL	154566	MEAN 422	MAX 3310	MIN 214	AC-FT 306600

SACRAMENTO RIVER BASIN

11370000 SHASTA LAKE NEAR REDDING, CA

LOCATION.--Lat 40°43'08", long 122°25'12", in SE 1/4 NW 1/4 sec.15, T.33 N., R.5 W., Shasta County, Hydrologic Unit 18020005, in Shasta Dam on Sacramento River near right bank, 2 mi downstream from Squaw Creek, and 9.5 mi north of Redding.

DRAINAGE AREA.--6,421 mi², excluding Goose Lake basin.

PERIOD OF RECORD.--November 1942 to current year. Prior to 1950, published as Shasta Reservoir near Redding.

CHEMICAL DATA: Water years 1978-80.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation). Prior to July 10, 1944, nonrecording gage at various sites near dam at same datum. Contents based on capacity table dated May 8, 1967 provided by U.S. Bureau of Reclamation.

REMARKS.--Lake is formed by concrete gravity-type dam completed in 1949; regulation began Dec. 30, 1943.

Usable capacity, 4,436,400 acre-ft between elevations 737.75 ft, invert of lowest set of river outlets, and 1,067.0 ft, top of flashboard gates on drum-type spillway gates. Operating pool elevation, 840.0 ft, capacity, 587,127 acre-ft to 1,067.0 ft, capacity, 4,552,090 acre-ft. Dead storage, 115,800 acre-ft. Installation of flashboard gates on top of drum gates completed Nov. 12, 1964. All water passes down the Sacramento River, most of which is through powerplant at dam. Figures given herein represent total contents at 2400 hours. Lake is used for flood control, power generation, irrigation, and recreation. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were provided by U.S. Bureau of Reclamation.

EXTREMES (at 2400) FOR PERIOD OF RECORD.--Maximum contents, 4,550,300 acre-ft, May 19, 1967, elevation, 1,066.94 ft; minimum since first filling, 562,600 acre-ft, Sept. 13, 1977, elevation, 836.68 ft.

EXTREMES (at 2400) FOR CURRENT YEAR.--Maximum contents, 3,649,037 acre-ft, Mar. 11, elevation, 1,034.52 ft; minimum, 1,585,923 acre-ft, Sept. 30, elevation, 931.34 ft.

Capacity table (elevation, in feet NGVD, and contents, in acre-feet)
(Based on table dated May 8, 1967, provided by U.S. Bureau of Reclamation)

830	515,543	870	843,589	910	1,291,854	950	1,876,996	990	2,616,622	1,030	3,533,478
840	587,127	880	943,929	920	1,424,780	960	2,046,829	1,000	2,828,544	1,050	4,063,108
850	665,511	890	1,051,713	930	1,566,238	970	2,226,093	1,010	3,051,750	1,067	4,552,090
860	751,027	900	1,167,888	940	1,717,255	980	2,416,019	1,020	3,286,929		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2110170	2233311	2356559	2917969	3411374	3594777	3566714	3229629	2960825	2571155	2013078	1649316
2	2111237	2240344	2396926	2924424	3419776	3600919	3549189	3219862	2953664	2549270	1993768	1645982
3	2111237	2244230	2421691	2932217	3421934	3606036	3532721	3209173	2947623	2525186	1974082	1640378
4	2109638	2247764	2457625	2950309	3435109	3613991	3520114	3198934	2938672	2498925	1956225	1633456
5	2108216	2249440	2489156	2964648	3441073	3617335	3507762	3188572	2924870	2477816	1942855	1627585
6	2110882	2253907	2547440	2977024	3447528	3622993	3491954	3178668	2915082	2458219	1925027	1622188
7	2114612	2256141	2582357	2988749	3453986	3627621	3478432	3173479	2912647	2437546	1906318	1619197
8	2117993	2257071	2613537	3001639	3459709	3636114	3459210	3170178	2905562	2424038	1889055	1616505
9	2122640	2259864	2651436	3018211	3466447	3639991	3435854	3155858	2900470	2406083	1874532	1617851
10	2124963	2265648	2704662	3045808	3474187	3645935	3410384	3144365	2894050	2388012	1859918	1624431
11	2128180	2271077	2735595	3088349	3487939	3649037	3389472	3129664	2881274	2372926	1845552	1622039
12	2131754	2275570	2751153	3114530	3494714	3646967	3370274	3118012	2866986	2359826	1830136	1619645
13	2134971	2283631	2762262	3132230	3500736	3643351	3353265	3113369	2588441	2344685	1812389	1612467
14	2140363	2286643	2774067	3153981	3506757	3641023	3335495	3105941	2849246	2329796	1793176	1606066
15	2147374	2290409	2788261	3176309	3513306	3642575	3317326	3099210	2840094	2314209	1777429	1600717
16	2154755	2293798	2802297	3208699	3518603	3642058	3299219	3095738	2830288	2296246	1763036	1597894
17	2156744	2295492	2813997	3230583	3522887	3639732	3279228	3092044	2819208	2278754	1749040	1598637
18	2158371	2298883	2824201	3248498	3528938	3639732	3262143	3084191	2805104	2262841	1734973	1595075
19	2163435	2302280	2829415	3264306	3535251	3636372	3258313	3077725	2786100	2245903	1725486	1594041
20	2169763	2305878	2833121	3275377	3541839	3636890	3252088	3071048	2771275	2232570	1717099	1596557
21	2175030	2307771	2841618	3288134	3547416	3636372	3248498	3058872	2754572	2215604	1709173	1596557
22	2180487	2310422	2850993	3297532	3552990	3634824	3247061	3046950	2740695	2200924	1701713	1596557
23	2186489	2312505	2859537	3303557	3559328	3634309	3241793	3041923	2726458	2181578	1695845	1596705
24	2191046	2320081	2860414	3308135	3565439	3633282	3238443	3032551	2711636	2161084	1688278	1596557
25	2194522	2320272	2861070	3318052	3571296	3625822	3234871	3027304	2691815	2145936	1684122	1591679
26	2199277	2321415	2865891	3328468	3576387	3613991	3228915	3018893	2668123	2130145	1679825	1589908
27	2205680	2324271	2870710	3337929	3576897	3605267	3224864	3011390	2649566	2114968	1673227	1588432
28	2211740	2327700	2891627	3347910	3577662	3599125	3226293	3000509	2629235	2097214	1666351	1587251
29	2219285	2331509	2901133	3368158	3582502	3593240	3230583	2987392	2611070	2078509	1662692	1586808
30	2226649	2339705	2909104	3385782	---	3584539	3232964	2976123	2590741	2055033	1657965	1585923
31	2230535	---	2915082	3401030	---	3576136	---	2965099	---	2032347	1654012	---
MAX	2230535	2339705	2915082	3401030	3582502	3649037	3566714	3229629	2960825	2571155	2013078	1649316
MIN	2108216	2233311	2356559	2917969	3411374	3576136	3224864	2965099	2588441	2032347	1654012	1585923
a	970.24	976.05	1003.84	1024.69	1031.93	1031.68	1017.75	1006.18	988.74	959.17	935.89	931.34
b	+122319	+109170	+575377	+485948	+181472	-6366	-343172	-267865	-374358	-558394	-378335	-68089
c	5675	1797	1929	3360	6176	7722	6633	9205	10898	14065	10447	8233

CAL YR 1987 b - 58116

WTR YR 1988 b - 522293

a Elevation, in feet NGVD, at end of month.

b Change in contents, in acre-feet.

c Evaporation, in acre-feet; not reviewed by U.S. Geological Survey.

*Called
a
change
connection*

SACRAMENTO RIVER BASIN

11370500 SACRAMENTO RIVER AT KESWICK, CA
(National stream-quality accounting network station)

LOCATION.--Lat 40°36'04", long 122°26'36", in SW 1/4 NW 1/4 sec.28, T.32 N., R.5 W., Shasta County, Hydrologic Unit 18020101, on right bank 0.4 mi upstream from Middle Creek, 0.8 mi downstream from Keswick Dam, 1.6 mi downstream from Keswick, and 10 mi downstream from Shasta Dam.
DRAINAGE AREA.--6,468 mi², excluding Goose Lake basin.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1315-A.
REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 479.81 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1939, at site 1.5 mi upstream at datum 20.2 ft higher and Oct. 1, 1939, to Apr. 30, 1942, at site 1.5 mi upstream at datum 15.2 ft higher. Aug. 20, 1960, to July 3, 1973, auxiliary water-stage recorder at city of Redding pumping plant 2.1 mi downstream.

REMARKS.--Estimated daily discharges: Dec. 29, 30. Records good. Flow completely regulated by Shasta Lake (station 11370000) beginning Dec. 30, 1943, and minor regulation by Keswick Reservoir, capacity, 4,170 acre-ft, since 1950. No diversion for irrigation between Shasta Dam and station at Keswick. Since December 1963, water is released from Whiskeytown Lake (station 11371700), through a tunnel to Spring Creek powerplant (station 11371600), and then into Keswick Reservoir. See schematic diagram of Pit and McCloud River basins.

AVERAGE DISCHARGE.--25 years (water years 1939-63), 8,376 ft³/s, 6,064,000 acre-ft/yr, adjusted for change in contents and evaporation from Shasta Lake prior to transbasin diversion to Keswick Reservoir; 25 years (water years 1964-88), 8,875 ft³/s, 6,430,000 acre-ft/yr, including adjustment for transbasin diversion; unadjusted flow for period of record, 9,384 ft³/s, 6,799,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 186,000 ft³/s, Feb. 23, 1940, gage height, 47.2 ft, site and datum then in use, from rating curve extended above 75,000 ft³/s on basis of peak discharge at Kennet plus 4,000 ft³/s estimated inflow; minimum observed, 2,730 ft³/s, Aug. 22, 1939. Since regulation by Shasta Dam in 1943, maximum discharge, 81,400 ft³/s, Apr. 1, 1974, gage height, 31.92 ft; maximum gage height, 32.22 ft, Jan. 24, 1970; minimum discharge, 154 ft³/s, May 15, 1948.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,700 ft³/s, July 30, gage height, 16.65 ft; minimum daily, 3,250 ft³/s, Dec. 29 and Jan. 1, 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5760	4250	3610	3250	3490	4390	9340	9370	9840	14500	15100	9380
2	5810	4120	3890	3250	3690	4400	11200	10600	9450	14500	15000	9400
3	5820	3880	3710	3310	3480	4400	11400	11300	9430	14600	14600	9350
4	5820	3870	3650	3610	3290	4020	11300	11300	9880	14600	14300	9390
5	5830	3900	3660	3510	3310	3940	11400	11300	9910	14700	14800	9380
6	5890	3820	3840	3380	3310	3950	12300	11300	9910	14600	15000	9410
7	5920	3580	3670	3340	3310	3800	12400	11400	9930	14600	15000	8820
8	5920	3560	3690	3370	3330	3760	13200	11300	9690	14500	14800	8390
9	5890	3560	4020	3520	3450	4910	14100	14400	9120	14600	15000	8380
10	5470	3580	3930	3680	3460	4530	14200	14700	9900	14500	14800	8380
11	5390	3580	3740	3830	3440	5220	14300	14200	9750	14600	14500	8410
12	5350	3590	3640	3590	3490	5940	14300	12500	9680	14600	14900	8440
13	5360	3590	3630	3450	3480	5980	14100	10500	9670	14800	14900	7900
14	5000	3620	3670	3460	3450	6090	14000	10100	10200	14800	15000	7780
15	4690	3620	3410	3390	3470	6010	14000	10200	10700	14700	14700	7420
16	4660	3620	3380	3560	3440	6920	14100	10300	10800	14600	14400	7440
17	4680	3670	3380	3550	3360	6920	14100	9880	11400	14500	14200	7430
18	4690	3730	3370	3470	3350	6950	14200	9800	11300	14700	12700	7310
19	4650	3710	3360	3440	3360	6950	13500	9840	12300	14700	11100	7340
20	4690	3590	3340	3420	3360	6800	10900	9410	12300	14900	10800	7450
21	4690	3560	3370	3380	3360	6010	9920	9420	12500	14900	10800	7480
22	4690	3550	3350	3340	3330	5970	10300	9420	12500	14900	10800	7490
23	4760	3560	3300	3400	3820	6030	10300	9300	12400	14200	10800	7490
24	4240	3550	3310	3410	3840	6260	10200	9370	12400	14900	10600	7490
25	4220	3520	3320	3420	4380	8600	10200	9830	12500	14900	9800	8010
26	4240	3570	3310	3420	4450	9050	10300	9720	13900	14700	9350	8030
27	4220	3540	3320	3320	4390	8960	9040	9760	14300	14500	9350	8050
28	4240	3500	3350	3310	4400	9010	8450	10100	14500	14800	9390	7970
29	4250	3520	3250	3320	4400	9260	8470	10300	14400	14600	9360	8510
30	4260	3550	3450	3310	---	9220	8460	10900	14300	15100	9370	8460
31	4250	---	3330	3310	---	9250	---	10700	---	14900	9390	---
TOTAL	155350	109860	109250	106320	104690	193500	353980	332520	338860	455000	394610	246180
MEAN	5011	3662	3524	3430	3610	6242	11800	10730	11300	14680	12730	8206
MAX	5920	4250	4020	3830	4450	9260	14300	14700	14500	15100	15100	9410
MIN	4220	3500	3250	3250	3290	3760	8450	9300	9120	14200	9350	7310
AC-FT	308100	217900	216700	210900	207700	383800	702100	659600	672100	902500	782700	488300
MEAN a	3416	3986	11550	10410	6675	6177	5784	6205	4918	3534	3511	3674
AC-FT a	210000	237200	710100	640000	383900	379800	344200	381500	292600	217300	215900	218600

CAL YR 1987 TOTAL 2748170 MEAN 7529 MAX 15000 MIN 3250 AC-FT 5451000 MEAN a 6279 AC-FT a 4546000
WTR YR 1988 TOTAL 2900120 MEAN 7924 MAX 15100 MIN 3250 AC-FT 5752000 MEAN a 5828 AC-FT a 4231000

a Adjusted for change in contents and evaporation from Shasta Lake and transbasin diversion into Keswick Reservoir. Adjustments provided by U.S. Bureau of Reclamation. Evaporation adjustments not reviewed by U.S. Geological Survey.

SACRAMENTO RIVER BASIN

11370500 SACRAMENTO RIVER AT KESWICK, CA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951 to current year.

CHEMICAL DATA: Water years 1951 to current year. Published as "near Keswick" in 1951 and 1953, and as "at Keswick Dam, near Keswick" in 1968-69.

BIOLOGICAL DATA: Water years 1979-81.

SPECIFIC CONDUCTANCE: Water years 1978 to current year.

WATER TEMPERATURE: Water years 1978 to current year.

SEDIMENT DATA: Water years 1978 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1980 to September 1983.

WATER TEMPERATURE: October 1980 to September 1983.

REMARKS.--Samples collected 2.4 mi downstream from gaging station. Fecal streptococci exceeded the historical maximum data of 120 colonies per 100 mL on Nov. 17 and Jan. 26. Beryllium dissolved exceeded the historical maximum data of 1 ug/L on Sept. 13.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (FTU)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, (PER- CENT DIS- SOLVED SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOC- CI, FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)
NOV												
17...	1015	3590	112	7.70	10.0	0.60	750	9.0	81	K15	420	47
JAN												
26...	0915	3330	123	7.50	8.5	1.7	750	10.5	91	<1	150	47
MAR												
22...	0840	5910	128	7.60	8.0	1.8	755	12.0	102	<1	110	48
MAY												
17...	0935	9740	120	7.90	9.0	0.80	750	10.6	93	K1	<1	52
JUL												
19...	0910	14700	117	7.70	12.0	1.0	745	9.4	89	K1	K1	48
SEP												
13...	0930	7960	109	7.40	14.5	1.2	745	9.0	90	K2	K1	49

DATE	HARD- NESS NONCARB WH WAT TOT FLD 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)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WAT WH IT FIELD MG/L AS HCO3	ALKA- LINITY WAT WH TOT IT FIELD MG/L AS CACO3	ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
NOV												
17...	0	8.3	6.3	5.6	20	0.4	2.3	64	53	53	3.9	1.7
JAN												
26...	0	9.9	5.5	6.5	22	0.4	1.4	61	50	51	9.1	2.1
MAR												
22...	0	11	5.1	7.2	24	0.5	1.3	65	53	54	8.7	2.4
MAY												
17...	0	12	5.3	7.2	23	0.4	0.30	65	56	57	5.4	2.3
JUL												
19...	0	10	5.7	6.7	23	0.4	1.2	68	55	56	4.4	2.3
SEP												
13...	0	8.9	6.5	5.5	19	0.4	0.90	62	51	52	3.9	2.0

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	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 AC-FT)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)
NOV											
17...	0.10	21	79	81	0.11	<0.010	<0.100	<0.010	<0.010	<0.20	0.020
JAN											
26...	0.10	23	83	89	0.11	0.010	0.110	<0.010	<0.010	<0.20	0.030
MAR											
22...	0.10	25	90	93	0.12	<0.010	<0.100	<0.010	<0.010	<0.20	0.020
MAY											
17...	0.30	24	83	91	0.11	<0.010	<0.100	<0.010	0.020	<0.20	0.020
JUL											
19...	0.10	23	87	87	0.12	<0.010	<0.100	<0.010	<0.010	0.30	0.030
SEP											
13...	<0.10	20	72	79	0.10	<0.010	<0.100	<0.010	0.050	<0.20	0.020

See footnotes at end of table

SACRAMENTO RIVER BASIN

11370500 SACRAMENTO RIVER AT KESWICK, CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)	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)
NOV 17...	0.020	<0.020	30	<1	10	<0.5	<1	<1	<3	<3	29
JAN 26...	0.020	<0.010	30	1	12	<0.5	2	<1	<3	9	20
MAR 22...	0.020	0.010	--	--	--	--	--	--	--	--	--
MAY 17...	0.020	<0.010	20	2	14	<0.5	<1	<1	<3	6	23
JUL 19...	0.020	<0.010	--	--	--	--	--	--	--	--	--
SEP 13...	0.020	<0.010	20	<1	11	2	<1	<1	<3	3	34

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	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)
NOV 17...	<5	<4	3	<0.1	<10	<1	<1	<1.0	43	<6	<4
JAN 26...	<5	<4	9	0.1	<10	7	<1	1.0	50	<6	86
MAR 22...	--	--	--	--	--	--	--	--	--	--	--
MAY 17...	<5	<4	3	<0.1	<10	<1	<1	<1.0	56	<6	38
JUL 19...	--	--	--	--	--	--	--	--	--	--	--
SEP 13...	<5	<4	3	<0.1	<10	4	<1	1.0	43	<6	73

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

< Actual value is known to be less than the value shown.

CROSS-SECTIONAL DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	SEDI- MENT, SUS- PENDED (MG/L)
MAR									
18...	0905	40.0	127	7.60	8.0	755	11.7	100	4
18...	0910	95.0	126	7.60	8.0	755	11.7	100	4
18...	0915	180	127	7.50	8.0	755	11.7	100	2
18...	0920	255	126	7.50	8.0	755	11.7	100	2
18...	0925	355	126	7.50	8.0	755	11.7	100	5
MAY									
17...	0835	48.0	123	7.60	9.0	750	10.6	93	6
17...	0840	128	122	7.80	9.0	750	10.6	93	6
17...	0845	218	123	7.80	9.0	750	10.6	93	3
17...	0850	303	122	7.80	9.0	750	10.6	93	3
17...	0855	413	121	7.80	9.0	750	10.6	93	3

* Instantaneous streamflow at the time of the cross-sectional measurement:

Mar. 18, 6,900 ft³/s; May 17, 9,740 ft³/s.

SACRAMENTO RIVER BASIN

11370500 SACRAMENTO RIVER AT KESWICK, CA--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE WATER (DEG C)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)
NOV					
17...	1010	3620	10.0	2	20
JAN					
26...	0910	3410	8.5	2	18
MAR					
18...	0900	6900	8.0	3	56
22...	0835	5910	8.0	2	32
MAY					
17...	0900	9740	9.0	4	105
JUL					
19...	0905	14700	12.0	6	238
SEP					
13...	0915	7960	14.5	3	64

SACRAMENTO RIVER BASIN

11371000 CLEAR CREEK AT FRENCH GULCH, CA

LOCATION.--Lat 40°41'42", long 122°38'08", unsurveyed, Shasta County, Hydrologic Unit 18020112, on right bank 1,200 ft downstream from French Gulch, 0.3 mi south of town of French Gulch, and 15 mi northwest of Redding.

DRAINAGE AREA.--115 mi².

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

SEDIMENT DATA: Water years 1966-67.

REVISED RECORDS.--WSP 1285: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,320.60 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 28, 1959, at datum 3.0 ft higher.

REMARKS.--No estimated daily discharges. Records good. No large diversion above station. See schematic diagram of Pit and McCloud River basins.

AVERAGE DISCHARGE.--38 years, 217 ft³/s, 157,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,600 ft³/s, Jan. 16, 1974, gage height, 14.99 ft, from rating curve extended above 5,200 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 1.5 ft³/s, July 19-22, 1977.

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)
Dec. 6	1115	*2,440	*7.45				

Minimum daily, 5.2 ft³/s, Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	13	95	98	307	153	67	132	86	43	17	8.1
2	5.3	14	340	97	269	136	66	124	82	40	18	8.1
3	5.3	14	308	132	238	127	68	118	80	38	18	7.9
4	5.3	13	655	317	216	122	65	114	83	37	17	7.8
5	5.3	13	685	342	200	119	65	115	88	38	16	7.6
6	5.3	13	1660	287	189	117	63	112	104	37	16	7.2
7	5.3	14	772	255	178	112	61	277	118	36	16	7.3
8	5.4	15	572	256	173	107	59	320	122	33	16	7.7
9	5.6	22	808	490	173	103	59	334	116	31	15	7.9
10	6.7	18	1090	670	180	100	58	295	112	29	14	8.2
11	7.4	15	726	1000	189	97	57	249	100	29	13	8.3
12	7.1	15	473	676	199	95	56	221	94	29	14	8.3
13	6.3	19	346	505	203	92	56	200	86	29	14	8.4
14	6.4	21	271	521	195	89	60	176	81	28	15	8.3
15	6.4	17	233	657	187	88	59	164	77	28	15	8.3
16	6.5	16	212	671	175	85	56	169	74	27	14	8.5
17	6.7	20	188	611	167	83	57	156	72	25	13	8.8
18	7.3	22	172	495	158	81	56	144	68	24	12	8.6
19	7.3	19	160	399	151	81	189	131	64	22	11	8.9
20	6.8	25	148	335	146	80	273	124	62	21	10	9.5
21	7.1	39	141	290	145	80	192	117	60	20	10	9.7
22	8.4	23	139	267	146	79	211	110	58	19	10	9.6
23	10	19	132	260	145	79	272	107	56	19	9.8	9.5
24	12	18	124	273	144	77	272	102	54	19	9.7	9.5
25	12	18	120	274	138	76	235	100	52	20	9.9	9.7
26	9.9	18	115	279	135	75	203	94	51	21	9.7	10
27	9.3	17	110	290	141	74	179	90	48	31	8.8	10
28	9.4	17	113	302	154	72	159	97	47	23	8.5	10
29	11	18	110	375	160	72	160	94	45	20	8.3	9.5
30	15	30	105	411	---	70	141	86	44	19	8.1	9.0
31	14	---	102	356	---	69	---	83	---	18	8.1	---
TOTAL	241.0	555	11225	12191	5201	2890	3574	4755	2284	853	394.9	260.2
MEAN	7.77	18.5	362	393	179	93.2	119	153	76.1	27.5	12.7	8.67
MAX	15	39	1660	1000	307	153	273	334	122	43	18	10
MIN	5.2	13	95	97	135	69	56	83	44	18	8.1	7.2
AC-FT	478	1100	22260	24180	10320	5730	7090	9430	4530	1690	783	516

CAL YR 1987	TOTAL	39128.2	MEAN 107	MAX 1660	MIN 5.0	AC-FT 77610
WTR YR 1988	TOTAL	44424.1	MEAN 121	MAX 1660	MIN 5.2	AC-FT 88120

KLAMATH RIVER BASIN

11525430 JUDGE FRANCIS CARR POWERPLANT NEAR FRENCH GULCH, CA

LOCATION.--Lat 40°38'49", long 122°37'34", Shasta County, Hydrologic Unit 18010212, at powerplant 1.6 mi downstream from Mill Creek and 3.8 mi south of French Gulch.

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

GAGE.--Recorded powerplant output.

REMARKS.--Water is diverted from Trinity River at NW 1/4 SE 1/4 sec.8, T.33 N., R.8 W., through a tunnel to powerplant and then into Whiskeytown Lake (station 11371700). See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were provided by U.S. Bureau of Reclamation. Discharge not rounded to U.S. Geological Survey standards.

AVERAGE DISCHARGE.--25 years, 1,506 ft³/s, 1,091,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 4,000 ft³/s, Oct. 18, 1987; no flow for many days most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3154	2514	594	172	10		.0	5	.0	599	1916	3509
2	3084	2495	459	172	.0		.0	.0	.0	707	1815	3438
3	3084	2560	.0	6	.0		.0	.0	.0	.0	1916	3452
4	3084	2522	.0	223	.0		.0	.0	.0	.0	1916	3474
5	3154	1684	.0	62	.0		.0	.0	.0	588	2251	3520
6	3530	1330	.0	229	.0		.0	.0	.0	587	3374	3654
7	3530	1473	.0	344	.0		.0	.0	.0	.0	3376	3540
8	3517	1504	.0	324	.0		.0	.0	.0	2079	3434	2909
9	3505	1401	.0	213	.0		.0	.0	.0	3026	3427	2720
10	3505	1498	.0	210	.0		.0	65	.0	3139	3414	3564
11	3625	1596	.0	213	.0	763		58	.0	3342	3515	3588
12	3625	3033	.0	216	.0	781		.0	.0	3420	3508	3541
13	3505	1763	.0	162	.0	693		.0	.0	3272	3534	3600
14	3480	1673	.0	590	.0	782		.0	506	3245	3526	3596
15	3600	1247	904	590	.0	829		.0	500	3302	2780	3597
16	2352	1829	921	574	.0	830		.0	.0	3229	3487	3515
17	3480	1840	1463	.0	.0	.0		.0	759	3328	3497	3522
18	4000	1075	1477	605	.0	821		.0	.0	3172	3534	3638
19	3886	877	735	605	.0	719		.0	.0	3308	3493	3487
20	3995	1026	756	589	.0	724		.0	469	3100	3515	3541
21	3455	918	1486	590	.0	406		.0	.0	3078	3515	3660
22	3510	1046	1509	586	.0	817		.0	773	3377	3493	3569
23	3510	1174	1494	586	.0	780	1021		.0	3389	3535	3608
24	3510	1113	1498	.0	.0	.0	591	643		3342	3518	3564
25	3510	1057	1255	590	.0	815	863		.0	3352	3512	3562
26	3510	939	1255	590	.0	1171	566		.0	3327	3598	3562
27	3114	1067	1120	590	.0	1763	.0	645		3377	3500	3562
28	3114	479	1135	994	.0	2620	121	.0	1451		3525	3569
29	3080	552	1574	1006	.0	2541	.0	816		1916	3515	3529
30	2964	594	1622	.0	---	2622	.0	.0	.0	1653	3597	3530
31	2350	---	1539	.0	---	---	152	---	---	1901	3584	---
TOTAL	104322	43879	22796.0	11631.0	10.0	0.0	20477.0	3442.0	5111.0	73606.0	100120	105120
MEAN	3365	1463	735	375	.34	.00	683	111	170	2374	3230	3504
MAX	4000	3030	1620	1010	10	.00	2620	1020	816	3420	3600	3660
MIN	2350	479	.00	.00	.00	.00	.00	.00	.00	.00	1810	2720
AC-FT	206900	87030	45220	23070	20	.0	40620	6830	10140	146000	198600	208500

CAL YR 1987 TOTAL 419089.00 MEAN 1148 MAX 4000 MIN .00 AC-FT 831300
WTR YR 1988 TOTAL 490514.0 MEAN 1340 MAX 4000 MIN .00 AC-FT 972900

SACRAMENTO RIVER BASIN

11371600 SPRING CREEK POWERPLANT AT KESWICK, CA

LOCATION.--Lat 40°37'41", long 122°27'59", in NE 1/4 SE 1/4 sec.18, T.32 N., R.5 W., Shasta County, Hydrologic Unit 18020112, at powerplant on Spring Creek, 0.4 mi northwest of Keswick, and 4.9 mi northwest of Redding.

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

GAGE.--Discharge computed from powerplant output.

REMARKS.--Water is released from Whiskeytown Lake (station 11371700) through a tunnel to powerplant and then into Keswick Reservoir. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were provided by U.S. Bureau of Reclamation. Discharge not rounded to U.S. Geological Survey standards.

AVERAGE DISCHARGE.--24 years (water years 1965-88), 1,875 ft³/s, 1,358,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 4,800 ft³/s, May 2, 1983; no flow many days most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3237	2554	511	197	545	196	.0	4	778	421	1862	3559
2	3287	2625	628	341	505	274	.0	.0	.0	650	1880	3520
3	3222	2529	835	363	320	251	.0	.0	.0	.0	1812	3498
4	3188	2152	1410	918	325	243	.0	.0	.0	.0	1886	3530
5	3318	1254	1499	1263	131	149	.0	.0	.0	372	2237	3529
6	3765	1981	2134	946	143	167	.0	.0	.0	484	3000	3464
7	4127	2033	2879	664	157	.0	.0	439	700	208	3376	3533
8	4095	2007	1110	494	142	.0	.0	638	483	2240	3246	2911
9	4127	2007	1814	648	159	169	.0	528	401	2896	3630	3459
10	4127	2015	2247	907	165	151	.0	420	.0	3198	3965	3359
11	4175	2193	1421	1607	147	157	.0	727	.0	2702	3448	3420
12	4095	1989	497	1279	189	.0	.0	525	.0	3197	3530	3465
13	4151	1763	798	1600	157	.0	.0	524	.0	3208	3630	3529
14	4152	1763	241	1499	281	142	.0	482	504	3259	3563	3529
15	4151	1763	862	1185	187	.0	.0	459	500	2146	3596	3539
16	4152	1801	993	1792	214	125	.0	514	.0	3087	3426	3440
17	4024	1243	1902	1468	141	113	.0	198	1026	3366	3179	3657
18	4055	1489	1866	1288	212	130	.0	.0	.0	3076	3281	3680
19	4024	1186	881	1023	199	114	.0	.0	.0	3466	3376	3453
20	4024	1211	692	594	188	112	.0	62	718	2833	3680	3629
21	4045	1027	1537	942	191	100	.0	.0	.0	3362	3502	3680
22	3365	1038	1505	1255	171	.0	.0	.0	727	3295	3502	3680
23	3434	990	1523	1034	149	.0	.0	1166	.0	3181	3486	3731
24	3434	1019	1514	403	136	.0	.0	.0	775	3277	3503	3781
25	3411	1032	1367	403	.0	.0	100	2040	.0	3147	3478	3529
26	3470	1022	1367	951	119	.0	1486	.0	.0	2944	3700	3510
27	3239	1009	1390	900	120	.0	1406	.0	633	3479	3529	3529
28	3239	492	1906	1463	137	.0	2558	563	.0	1901	3541	3569
29	3228	517	2127	1617	222	93	2685	.0	833	1871	3557	3540
30	3008	517	1430	655	---	.0	2540	500	.0	1866	3372	3530
31	2604	---	1434	664	---	.0	---	.0	---	1890	3510	---
TOTAL	113973	46221	42320	30363	5752.0	2686.0	10775.0	9789.0	8078.0	71022.0	100283	105782
MEAN	3677	1541	1365	979	198	86.6	359	316	269	2291	3235	3526
MAX	4175	2625	2879	1792	545	274	2685	2040	1026	3479	3965	3781
MIN	2604	492	241	197	.00	.00	.00	.00	.00	.00	1812	2911
AC-FT	226100	91680	83940	60230	11410	5330	21370	19420	16020	140900	198900	209800
CAL YR 1987	TOTAL	471831.00	MEAN	1293	MAX	4190	MIN	.00	AC-FT	935900		
WTR YR 1988	TOTAL	547044.0	MEAN	1495	MAX	4175	MIN	.00	AC-FT	1085000		

SACRAMENTO RIVER BASIN

11371700 WHISKEYTOWN LAKE NEAR IGO, CA

LOCATION.--Lat 40°37'03", long 122°31'31", unsurveyed, Shasta County, Hydrologic Unit 18010112, Whiskeytown-Shasta-Trinity National Recreation Area, at outlet works to Spring Creek powerplant on Clear Creek, 1.8 mi downstream from Whiskey Creek, and 7.8 mi northeast of Igo.

DRAINAGE AREA.--200 mi².

PERIOD OF RECORD.--May 1963 to current year. Prior to October 1964 published as Whiskeytown Reservoir near Igo.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation). Contents based on capacity table dated April 1962 provided by U.S. Bureau of Reclamation.

REMARKS.--Lake is formed by earth and rockfill dam. Storage began in May 1963. Usable capacity, 241,088 acre-ft between elevations 972.0 ft, invert of sluice pipe, and 1,210.00 ft, crest of Glory Hole spillway. Dead storage 8 acre-ft. Normal operating pool is from elevation 1,197.0 ft, capacity, 201,288 acre-ft, to 1,210.0 ft, capacity, 241,086 acre-ft. Transbasin water enters the reservoir through Judge Francis Carr powerplant (station 11525430) and is released through Spring Creek tunnel to Spring Creek powerplant (station 11371600) and Keswick Reservoir. Figures given herein represent total contents at 2400 hours. Lake is used for power generation and recreation. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were provided by U.S. Bureau of Reclamation.

EXTREMES (at 2400) FOR PERIOD OF RECORD.--Maximum contents, 258,600 acre-ft, Mar. 2, 1983, elevation, 1,215.34 ft; minimum since first filling, 159,000 acre-ft, Oct. 25, 1970, elevation, 1,181.48 ft.

EXTREMES (at 2400) FOR CURRENT YEAR.--Maximum contents, 239,816 acre-ft, Aug. 8, elevation, 1,209.60 ft; minimum, 204,180 acre-ft, Dec. 13, elevation, 1,197.99 ft.

Capacity table (elevation, in feet NGVD, and contents, in acre-feet)
(Based on survey by U.S. Bureau of Reclamation in 1962)

1,015	714	1,040	3,055	1,080	15,076	1,140	73,960
1,020	994	1,050	4,898	1,100	27,542	1,180	155,276
1,030	1,797	1,060	7,418	1,120	46,701	1,220	274,389

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	229840	209769	206330	205741	205122	205446	205800	236242	237577	237704	238087	238215
2	229558	209679	207333	205741	204769	205329	205888	236497	237800	237800	237863	238119
3	229433	209442	207155	205947	204651	205093	205947	236719	238055	237704	237959	238023
4	229370	210066	206949	206448	204504	205004	206036	236878	238183	237577	237831	237863
5	229214	211592	206507	205299	204739	205004	206036	237196	238599	237959	237545	237895
6	228619	210694	210066	204739	204857	205004	206094	237768	238951	238087	238279	238183
7	227374	209709	206684	204946	204916	205240	206094	238823	238119	237545	238951	238279
8	226131	208937	207096	205594	205004	205535	206124	238791	237577	237432	239816	238695
9	224860	208046	206654	206389	205004	205446	206124	238951	237164	237927	239592	237037
10	223626	207067	205535	207214	205063	205329	206153	239047	237450	237800	238407	237418
11	222546	207244	204710	207126	205211	205270	208016	238535	237736	237863	238215	237800
12	221595	207541	204916	206860	205240	205446	209442	238311	237959	238311	238375	237863
13	220370	207214	204180	205240	205358	205623	210963	237959	238119	238471	238151	237959
14	219053	207037	204386	204887	205240	205505	212760	237450	238343	238503	237991	238087
15	217838	205152	205063	205653	205240	205653	214446	236941	238535	237959	237991	238279
16	215683	205977	205888	205564	205181	205594	216197	236592	238599	238119	237132	238503
17	214567	207274	205505	204504	205240	205505	216288	236624	238343	237736	237831	238183
18	213451	206271	205093	204651	205181	205387	218111	236941	238407	237768	238183	238151
19	212371	205358	205152	204975	205358	205270	220860	237228	238439	238023	238375	238215
20	211203	205329	205270	205859	205004	204887	223441	237482	238023	237545	237959	238343
21	210006	205181	205505	205947	204916	205063	224829	237736	238023	237005	238023	238407
22	210185	205152	205800	205358	204887	205181	227437	237991	238279	237101	237991	238279
23	210394	205387	206036	205181	204857	205299	229871	237863	238215	237514	238055	238055
24	210424	205505	206242	204975	204857	205387	230591	239240	237959	237831	238119	237673
25	210574	205446	206153	206036	205152	205505	232698	237323	237895	238215	238087	237704
26	210574	205299	205977	205977	205211	205594	232887	238599	237863	238855	237959	237800
27	210424	205329	206242	205947	205270	205623	234212	238759	237831	238855	237959	238055
28	210394	205211	205240	205918	205446	205741	235003	238631	237641	237959	237959	238087
29	210364	205063	204563	206094	205446	205594	235321	238823	237545	238183	237959	238151
30	210364	205535	205152	205770	---	205653	235861	238055	237450	238023	238215	238279
31	210006	---	205564	205446	---	205741	---	238535	---	238119	238311	---
MAX	229840	211592	210066	207214	205446	205741	235861	239240	238951	238855	239816	238695
MIN	210006	205063	204180	204504	204504	204887	205800	236242	237164	237005	237132	237037
a	1199.96	1198.46	1198.46	1198.42	1198.42	1198.52	1208.36	1209.20	1208.86	1209.07	1209.13	1209.12
b	-19991	-4471	+29	-118	0	+295	+30120	+2674	-1085	+669	+192	-32
c	706	128	77	101	355	575	565	917	1152	1688	1501	1183
CAL YR 1987	b +1589											
WTR YR 1988	b +8282											

a Elevation, in feet NGVD, at end of month.

b Change in contents, in acre-feet.

c Evaporation, in acre-feet; not reviewed by U.S. Geological Survey.

SACRAMENTO RIVER BASIN

11372000 CLEAR CREEK NEAR IGO, CA

LOCATION.--Lat 40°30'48", long 122°31'23", unsurveyed, Shasta County, Hydrologic Unit 18020112, on left bank at old highway bridge on Redding-Igo Road 1.0 mi northeast of Igo, 7.0 mi downstream from Whiskeytown Dam, 8.3 mi southwest of Redding, and 10.4 mi upstream from mouth.

DRAINAGE AREA.--228 mi².

PERIOD OF RECORD.--October 1940 to current year.

CHEMICAL DATA: Water years 1958-79.

WATER TEMPERATURE: Water years 1965-79.

REVISED RECORDS.--WSP 1345: Drainage area. WSP 1395: 1941(M).

GAGE.--Water-stage recorder. Datum of gage is 672.99 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Low flow completely regulated by Whiskeytown Lake (station 11371700) since May 1963. Transbasin diversion from Trinity River through Judge Francis Carr powerplant (station 11525430) to Whiskeytown Lake began in April 1963. Diversions from Whiskeytown Lake to Spring Creek powerplant (station 11371600) began in December 1963. See schematic diagram of Pit and McCloud River basins.

AVERAGE DISCHARGE.--22 years (water years 1941-62) prior to storage and diversions, 413 ft³/s, 299,200 acre-ft/yr; 26 years (water years 1963-88), 524 ft³/s, 379,600 acre-ft/yr, adjusted for change in contents, evaporation, and transbasin diversions to and from Whiskeytown Lake; unadjusted flow for same period, 177 ft³/s, 128,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,500 ft³/s, Dec. 21, 1955, gage height, 13.75 ft; minimum daily, 8.6 ft³/s, Sept. 4, 6, 7, 1950. Since completion of Whiskeytown Dam in 1963, maximum discharge, 19,200 ft³/s, Mar. 3, 1983, gage height, 12.73 ft, from rating curve extended above 12,000 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 30 ft³/s, Oct. 10, 11, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,260 ft³/s, Dec. 6, gage height, 5.57 ft; minimum daily, 45 ft³/s, Oct. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	99	176	78	95	68	59	64	68	57	51	51
2	54	100	469	78	91	66	59	64	68	56	51	51
3	54	99	212	149	87	65	59	64	66	57	51	51
4	54	99	223	368	85	66	59	64	67	56	51	51
5	54	99	280	198	83	66	58	64	67	56	51	51
6	54	99	573	140	81	65	58	65	69	56	51	51
7	54	99	215	128	80	65	58	218	77	56	51	51
8	58	100	257	163	78	64	58	148	74	55	51	51
9	54	100	622	389	77	64	58	131	71	55	53	51
10	54	99	468	426	77	63	58	106	69	56	51	50
11	49	99	242	443	76	63	57	91	67	58	51	51
12	46	99	179	223	75	63	57	84	67	56	51	51
13	46	102	157	168	74	63	58	81	65	55	51	51
14	45	99	145	158	72	63	59	76	63	55	51	51
15	46	99	141	171	72	63	60	72	63	55	51	51
16	47	99	151	423	71	61	59	78	62	55	51	51
17	53	99	145	262	70	61	60	75	61	55	51	51
18	54	99	139	182	70	61	60	71	62	54	51	51
19	53	96	134	150	70	61	89	70	60	54	51	52
20	53	114	130	132	69	61	105	68	60	53	51	55
21	53	113	129	121	69	61	77	66	59	53	51	55
22	53	109	127	113	68	61	84	66	60	52	51	55
23	54	108	125	108	66	61	89	66	59	52	51	55
24	54	108	123	102	67	60	75	66	59	52	51	55
25	54	108	122	98	66	60	71	64	58	52	51	55
26	54	108	120	95	66	60	69	64	58	52	51	55
27	54	108	120	93	66	60	68	65	58	53	51	56
28	54	108	127	92	66	60	66	88	62	52	51	55
29	54	108	129	114	67	60	67	82	59	52	51	55
30	73	128	128	106	---	59	66	72	57	52	51	54
31	97	---	104	99	---	59	---	68	---	51	51	---
TOTAL	1689	3104	6412	5570	2154	1933	1980	2521	1915	1683	1583	1574
MEAN	54.5	103	207	180	74.3	62.4	66.0	81.3	63.8	54.3	51.1	52.5
MAX	97	128	622	443	95	68	105	218	77	58	53	56
MIN	45	96	104	78	66	59	57	64	57	51	51	50
AC-FT	3350	6160	12720	11050	4270	3830	3930	5000	3800	3340	3140	3120
MEAN a	52.3	109	838	784	278	163	258	344	164	9.22	83.8	93.8
AC-FT a	3220	6470	51550	48190	16020	10030	15360	21180	9750	567	5150	5580

CAL YR 1987 TOTAL 31775 MEAN 87.1 MAX 746 MIN 45 AC-FT 63030 MEAN a 247 AC-FT a 178600
WTR YR 1988 TOTAL 32118 MEAN 87.8 MAX 622 MIN 45 AC-FT 63710 MEAN a 266 AC-FT a 193100

a Adjusted for change in contents in and evaporation from Whiskeytown Lake, diversion from Trinity River through Judge Francis Carr powerplant, and diversion to Spring Creek powerplant. Adjustments provided by U.S. Bureau of Reclamation; evaporation adjustments not reviewed by U.S. Geological Survey.

SACRAMENTO RIVER BASIN

11372080 SOUTH COW CREEK CANAL DIVERSION TO SOUTH COW CREEK, NEAR WHITMORE, CA

LOCATION.--Lat 40°35'35", long 121°58'53", in NE 1/4 NW 1/4 sec.33, T.32 N., R.1 W., Shasta County, Hydrologic Unit 18020118, on left bank 2.5 mi northeast of Cow Creek Powerplant and 4.3 mi southwest of Whitmore.

PERIOD OF RECORD.--October 1986 to current year (operated as a low-flow station only). Unpublished records for water years 1984-86 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder. Elevation of gage is 1,560 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharge: Oct. 1. This station records fishwater release only. The release requirements are 2 ft³/s during dry years and 4 ft³/s during normal years; therefore flow is computed to 5 ft³/s.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	3.8	4.4	3.8	4.8	4.7	3.8	4.5	3.7	3.8	3.8	3.9
2	3.7	3.8	4.3	3.8	4.7	4.5	3.8	4.4	3.7	3.8	3.8	3.9
3	3.6	3.8	3.8	---	4.4	4.3	3.8	4.4	3.7	3.7	3.8	3.9
4	3.6	3.8	3.8	---	4.2	4.2	3.8	4.5	3.7	3.8	3.8	3.9
5	---	3.8	3.8	---	3.7	4.4	3.8	4.5	3.7	3.7	3.8	3.9
6	---	3.8	4.2	4.8	3.8	4.9	3.8	4.4	3.8	3.7	3.8	---
7	---	3.7	3.8	4.9	3.8	4.8	3.8	4.7	4.1	3.7	3.8	---
8	---	3.8	4.4	---	3.8	4.5	3.8	---	4.7	3.8	3.8	---
9	---	3.8	---	---	3.8	4.8	3.8	4.8	4.4	3.7	3.8	---
10	---	3.8	---	---	3.8	4.6	3.8	4.6	4.2	3.7	3.9	---
11	---	3.8	4.3	---	3.8	4.4	3.8	4.5	3.8	3.8	3.9	---
12	---	3.8	4.2	---	3.8	4.2	3.8	4.5	3.7	4.0	3.8	---
13	---	3.8	3.8	4.6	3.8	4.0	3.8	4.6	3.7	---	3.8	---
14	---	3.8	3.7	4.4	3.7	3.9	3.8	4.4	3.8	3.7	3.9	---
15	---	3.8	3.7	---	3.8	3.8	3.8	4.4	3.7	3.7	3.8	---
16	---	3.8	3.9	---	3.8	3.8	3.8	---	3.7	3.7	3.9	---
17	---	3.8	3.7	---	3.8	3.8	4.0	---	3.7	4.1	3.9	---
18	---	3.8	3.8	5.0	3.8	3.8	3.8	4.6	3.7	---	3.9	---
19	---	3.8	3.8	4.5	3.8	3.8	---	4.4	3.7	3.8	3.9	---
20	---	3.8	3.8	---	3.8	3.8	---	4.4	3.7	3.8	3.9	3.8
21	---	3.8	4.1	4.0	3.8	3.8	---	4.5	3.7	3.9	3.9	3.8
22	---	3.8	4.4	3.8	3.8	3.8	---	4.5	3.7	3.9	3.9	3.8
23	---	3.8	3.8	3.8	3.8	3.8	5.0	4.4	3.7	3.9	3.9	3.8
24	---	3.8	4.1	3.8	3.8	3.8	4.6	4.0	3.7	3.9	3.9	3.8
25	---	3.8	4.4	3.8	3.8	3.8	4.4	3.7	3.7	3.8	3.9	3.8
26	---	3.8	4.5	3.9	3.8	3.8	4.3	3.7	3.7	3.9	3.9	3.8
27	3.3	3.8	4.1	3.8	3.8	3.8	4.4	3.7	3.7	3.8	3.9	3.9
28	---	3.8	4.4	3.8	3.8	3.8	4.6	4.5	3.7	3.8	3.9	3.8
29	---	3.8	---	4.8	3.9	3.8	4.6	4.7	3.7	3.8	3.9	3.9
30	3.7	3.8	4.4	4.8	---	3.8	4.7	3.9	3.7	3.8	3.9	3.9
31	3.8	---	3.8	4.8	---	3.8	---	3.7	---	3.8	3.9	---
TOTAL	---	113.9	---	---	113.0	126.8	---	---	113.9	---	119.7	---
MEAN	---	3.80	---	---	3.90	4.09	---	---	3.80	---	3.86	---
MAX	---	3.8	---	---	4.8	4.9	---	---	4.7	---	3.9	---
MIN	---	3.7	---	---	3.7	3.8	---	---	3.7	---	3.8	---
AC-FT	---	226	---	---	224	252	---	---	226	---	237	---

NOTE: Sept. 6-19, the canal was out of service, and all flow remained in the natural channel.

SACRAMENTO RIVER BASIN

11372325 KILARC CANAL DIVERSION TO OLD COW CREEK, NEAR WHITMORE, CA

LOCATION.--Lat 40°41'13", long 121°48'27", in SW 1/4 NE 1/4 sec.25, T.32 N., R.1 E., Shasta County, Hydrologic Unit 18020118, on left bank 3.6 mi upstream of Kilarc Powerplant and 6.9 mi northeast of Whitmore.

PERIOD OF RECORD.--October 1986 to current year (operated as a low-flow station only). Unpublished records for water years 1983-86 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder. Elevation of gage is 3,840 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 14-17 and Jan. 15-18. This station records fishwater release only. The release requirement is 2 ft³/s during dry or normal years. Flow is computed to 5 ft³/s.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	2.7	3.1	2.4	2.6	3.2	2.6	3.0	3.6	2.6	2.6	2.5
2	---	2.6	2.7	2.5	2.5	2.9	2.7	2.8	3.5	2.7	---	2.5
3	2.4	2.1	2.3	2.8	2.7	2.6	2.9	2.7	3.1	2.6	---	2.5
4	2.4	2.4	2.4	2.7	2.8	2.7	2.8	2.8	2.8	2.6	---	2.5
5	2.5	2.6	2.8	2.8	2.8	2.9	2.7	2.8	2.9	2.6	---	2.5
6	2.5	2.6	3.2	2.6	2.8	3.2	2.7	2.8	3.0	2.5	---	2.5
7	2.4	2.4	2.6	2.5	2.8	3.1	2.5	2.8	3.1	2.5	---	2.5
8	2.4	2.4	2.5	2.6	2.7	2.9	2.5	3.0	3.3	2.6	---	2.5
9	2.4	2.5	3.0	3.1	2.6	2.9	2.5	2.9	3.2	2.6	---	2.5
10	2.4	2.3	3.1	3.3	2.6	2.7	2.5	2.9	3.1	2.6	---	2.5
11	2.4	2.4	3.1	3.0	2.7	2.6	2.5	2.7	2.9	2.6	---	2.5
12	2.4	2.4	2.7	2.6	2.7	2.6	2.6	2.5	2.8	2.5	---	2.5
13	2.4	2.6	2.2	2.6	2.7	2.6	2.7	2.6	2.7	2.6	---	2.5
14	2.4	2.4	2.4	3.0	2.7	2.7	2.8	2.5	2.6	2.6	---	2.5
15	2.4	2.7	2.6	2.8	2.8	2.7	2.5	2.4	2.5	2.6	---	2.5
16	2.4	2.6	2.6	2.8	2.8	2.6	2.6	2.6	2.5	2.5	---	2.5
17	2.4	2.5	2.8	2.8	2.7	2.7	3.0	2.8	2.5	2.5	---	2.5
18	2.4	2.4	2.8	2.6	2.7	2.7	2.8	2.8	2.4	2.5	---	2.3
19	2.4	2.4	2.8	2.6	2.7	2.8	3.1	2.8	2.4	2.6	---	---
20	2.4	2.6	2.7	2.6	2.9	2.9	3.2	2.9	2.4	2.5	---	---
21	2.4	2.5	2.8	2.6	3.0	2.8	3.1	2.9	2.5	2.6	---	---
22	2.4	2.4	3.0	2.6	2.8	2.6	3.2	2.8	2.5	3.0	---	---
23	2.5	2.4	2.9	2.7	2.8	2.7	3.2	2.7	2.5	3.0	---	---
24	2.4	2.4	2.9	2.7	2.8	2.6	3.2	2.6	2.5	2.9	---	2.4
25	2.3	2.5	3.1	2.7	2.9	2.7	3.2	2.5	2.5	2.7	---	2.4
26	2.4	2.6	2.8	2.7	3.0	2.8	3.2	2.5	2.5	2.5	2.7	2.3
27	2.5	2.6	2.5	2.7	3.1	2.8	3.1	2.8	2.5	2.5	2.6	2.3
28	2.4	2.6	2.6	2.7	3.2	2.6	3.1	3.2	2.6	2.5	2.6	2.3
29	2.3	2.5	2.6	2.9	3.0	2.6	3.1	3.5	2.6	2.6	2.6	2.3
30	2.4	2.8	2.5	2.8	---	2.6	3.1	3.2	2.6	2.7	2.6	2.3
31	2.4	---	2.4	2.6	---	2.5	---	3.0	---	2.7	2.6	---
TOTAL	---	74.9	84.5	84.4	80.9	85.3	85.7	86.8	82.6	81.1	---	---
MEAN	---	2.50	2.73	2.72	2.79	2.75	2.86	2.80	2.75	2.62	---	---
MAX	---	2.8	3.2	3.3	3.2	3.2	3.2	3.5	3.6	3.0	---	---
MIN	---	2.1	2.2	2.4	2.5	2.5	2.5	2.4	2.4	2.5	---	---
AC-FT	---	149	168	167	160	169	170	172	164	161	---	---

NOTE: Oct. 1, 2, Aug. 2-25 and Sept. 19-23, the canal was out of service, and all flow remained in the natural channel.

SACRAMENTO RIVER BASIN

11374000 COW CREEK NEAR MILLVILLE, CA

LOCATION.--Lat 40°30'19", long 122°13'56", in NE 1/4 NW 1/4 sec.32, T.31 N., R.3 W., Shasta County, Hydrologic Unit 18020101, on right bank 2.9 mi upstream from mouth, 4.2 mi southwest of Millville, and 4.3 mi downstream from Little Cow Creek.

DRAINAGE AREA.--425 mi².

PERIOD OF RECORD.--October 1949 to current year.

CHEMICAL DATA: Water years 1959-66.

WATER TEMPERATURE: Water years 1966-71, 1973-76, 1978-79.

SEDIMENT DATA: Water year 1978.

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 385.7 ft above National Geodetic Vertical Datum of 1929. Prior to June 11, 1987, at datum 3.00 ft higher.

REMARKS.--No estimated daily discharges. Records fair. Numerous small diversions above station for irrigation.

AVERAGE DISCHARGE.--39 years, 692 ft³/s, 501,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,700 ft³/s, Nov. 16, 1981, gage height, 24.22 ft, present datum; maximum gage height, 24.55 ft, Dec. 27, 1951, present datum; minimum daily, 0.02 ft³/s, July 29, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1937 or 1940 reached a stage of 26.8 ft from floodmarks, present datum; probable backwater effect from high flows on the Sacramento River.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 13,900 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 4	0700	*11,200	*13.09				
Minimum daily, 9.2 ft ³ /s, Sept. 11.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	60	2360	342	530	784	124	306	199	52	14	15
2	17	89	3490	300	447	486	121	269	246	44	11	17
3	20	90	1170	3170	389	335	126	253	201	36	11	14
4	19	76	526	7960	348	297	138	235	182	34	11	12
5	19	74	614	3170	319	287	122	245	176	34	14	13
6	27	74	1780	2200	294	354	119	250	207	36	16	12
7	26	78	1070	2080	281	348	124	410	306	34	17	12
8	20	83	1140	3410	265	303	123	1130	390	32	13	11
9	20	105	6010	4220	255	288	118	840	285	30	12	11
10	21	110	6290	3100	245	275	116	509	252	27	12	11
11	24	89	1750	2800	236	254	108	402	223	26	14	9.2
12	28	83	843	1320	234	241	102	353	202	25	16	11
13	32	112	554	956	231	231	105	348	185	27	16	12
14	31	207	425	797	227	223	153	313	155	26	15	12
15	30	123	353	1840	224	220	185	283	155	26	16	14
16	34	102	554	2500	216	211	155	333	134	23	18	14
17	34	107	474	1580	209	200	155	711	117	24	18	11
18	33	113	328	959	202	193	216	417	108	20	18	13
19	28	98	276	707	196	190	491	330	98	20	20	12
20	30	103	243	566	193	188	683	287	89	18	17	13
21	30	165	227	482	190	190	546	260	82	17	17	13
22	32	131	247	421	187	196	1260	237	84	15	18	13
23	40	110	255	381	186	193	1050	219	71	12	17	14
24	49	104	210	356	183	191	558	212	67	12	17	15
25	47	94	192	329	181	180	430	189	64	13	17	17
26	44	96	185	308	179	179	364	172	64	16	18	18
27	37	94	177	292	182	170	327	164	58	18	16	22
28	43	97	253	283	190	164	301	178	52	17	13	23
29	54	93	1060	673	195	147	287	346	46	17	12	23
30	54	158	641	1240	---	143	357	237	49	16	15	22
31	61	---	403	647	---	128	---	198	---	13	15	---
TOTAL	1001	3118	34100	49389	7214	7789	9064	10636	4547	760	474	429.2
MEAN	32.3	104	1100	1593	249	251	302	343	152	24.5	15.3	14.3
MAX	61	207	6290	7960	530	784	1260	1130	390	52	20	23
MIN	17	60	177	283	179	128	102	164	46	12	11	9.2
AC-FT	1990	6180	67640	97960	14310	15450	17980	21100	9020	1510	940	851

CAL YR 1987	TOTAL	167707.6	MEAN	459	MAX	11700	MIN	7.8	AC-FT	332600
WTR YR 1988	TOTAL	128521.2	MEAN	351	MAX	7960	MIN	9.2	AC-FT	254900

SACRAMENTO RIVER BASIN

11376000 COTTONWOOD CREEK NEAR COTTONWOOD, CA

LOCATION.--Lat 40°23'14", long 122°14'15", in NE 1/4 NE 1/4 sec.7, T.29 N., R.3 W., Shasta County, Hydrologic Unit 18020102, on left bank 2.2 mi east of Cottonwood and 2.5 mi upstream from mouth.
DRAINAGE AREA.--927 mi².

PERIOD OF RECORD.--October 1940 to current year.

CHEMICAL DATA: Water years 1982-85.

WATER TEMPERATURE: Water years 1963-67, 1977-85.

SEDIMENT DATA: Water years 1957-67, 1977-85.

REVISED RECORDS.--WSP 1345: 1943, 1944(M), 1946-47, 1949(M), 1951-52. WSP 1931: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 363.80 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to July 26, 1963, on right bank at datum 3.59 ft higher. July 26, 1963, to Sept. 13, 1972, at site 250 ft downstream on right bank at present datum. Sept. 21, 1967, to Jan. 14, 1968, supplementary gage at a site 1,450 ft downstream on right bank at datum 2.35 ft higher.

REMARKS.--No estimated daily discharges. Records good. Small diversions for irrigation above station. At times during irrigation season, Cottonwood Creek receives water above station from Sacramento River by way of Anderson-Cottonwood Irrigation District Canal.

AVERAGE DISCHARGE.--48 years, 877 ft³/s, 635,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 86,000 ft³/s, Mar. 1, 1983, gage height, 21.59 ft from rating curve extended above 34,000 ft³/s on basis of runoff comparisons with upstream stations then in use; minimum, 15 ft³/s several days during September 1945.

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)
Jan. 4	0630	*10,500	*11.37				

Minimum daily, 31 ft³/s, Sept. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	53	79	542	1100	509	207	282	286	89	40	47
2	37	55	854	502	966	536	205	260	331	86	41	41
3	43	54	1770	2030	862	516	205	246	346	88	40	37
4	57	48	1010	7340	780	494	207	240	303	85	38	38
5	77	44	1560	2870	727	479	218	236	280	78	38	34
6	55	47	2720	1680	678	448	217	266	290	93	38	31
7	58	51	2920	1180	649	419	210	818	391	94	38	39
8	58	46	1910	1260	617	390	199	1210	443	84	38	49
9	46	46	3410	4120	599	375	193	1030	341	78	38	46
10	43	46	4340	2710	612	364	192	866	290	76	38	38
11	52	46	3360	3050	636	352	187	777	258	65	37	47
12	72	46	1940	2120	636	338	182	720	221	72	38	47
13	95	46	1350	1600	636	328	181	710	192	81	40	38
14	101	46	1040	1380	621	320	185	658	201	65	40	35
15	101	46	844	1970	591	304	211	470	195	63	41	36
16	81	46	977	2400	572	289	225	429	166	59	51	39
17	56	46	1290	2160	547	281	223	507	159	59	55	37
18	72	46	1060	1660	515	270	218	418	174	54	43	38
19	79	46	837	1310	499	265	291	376	155	50	40	41
20	67	50	702	1100	481	255	643	351	142	53	48	57
21	63	64	632	977	464	248	636	359	133	50	49	54
22	62	73	629	909	450	246	476	335	127	42	41	54
23	81	73	636	889	448	235	908	301	130	42	40	68
24	116	73	614	986	448	232	658	285	128	41	40	59
25	124	72	544	1060	439	229	529	260	112	47	37	47
26	122	65	494	1060	432	236	437	230	105	48	35	44
27	123	62	456	1060	432	236	382	225	104	43	36	40
28	78	60	498	1060	454	218	346	235	101	42	40	44
29	57	59	643	1200	495	218	322	297	106	44	43	42
30	49	59	691	1480	---	215	315	291	95	43	43	42
31	51	---	612	1300	---	212	---	294	---	42	39	---
TOTAL	2215	1614	40422	54965	17386	10057	9608	13982	6305	1956	1263	1309
MEAN	71.5	53.8	1304	1773	600	324	320	451	210	63.1	40.7	43.6
MAX	124	73	4340	7340	1100	536	908	1210	443	94	55	68
MIN	37	44	79	502	432	212	181	225	95	41	35	31
AC-FT	4390	3200	80180	109000	34490	19950	19060	27730	12510	3880	2510	2600
CAL YR 1987	TOTAL	144591	MEAN 396	MAX 5220	MIN 25	AC-FT 286800						
WTR YR 1988	TOTAL	161082	MEAN 440	MAX 7340	MIN 31	AC-FT 319500						

SACRAMENTO RIVER BASIN

11376015 NORTH FORK BATTLE CREEK BELOW NORTH BATTLE CREEK DAM, NEAR MANZANITA LAKE, CA

LOCATION.--Lat 40°36'10", long 121°39'17", in SE 1/4 SE 1/4 sec.20, T.32 N., R.3 E., Shasta County, Hydrologic Unit 18020118, Lassen National Forest, on left bank 300 ft downstream from North Battle Creek Dam and 6.7 mi northwest of Manzanita Lake.

DRAINAGE AREA.--6.40 mi².

PERIOD OF RECORD.--October 1987 to September 1988 (operated as a low-flow station only). Unpublished records for water years 1978-87 available in files of the U.S. Geological Survey. Fragmentary records for water years 1920-77 in files of the Pacific Gas & Electric Co.

GAGE.--Water-stage recorder and Cipolletti weir. Elevation of gage is 5,560 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. This station records fishwater release only. The release requirement is 0.3 ft³/s Oct. 1-31 and Apr. 1 to Sept. 30; records not computed Nov. 1 to Mar. 31. Each fall, North Battle Creek Reservoir is drafted and flows may exceed the rated limits of the Cipolletti weir; therefore flow is computed to 32 ft³/s.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---						.93	.77	1.2	.80	9.5	2.8
2	---						.85	.74	1.2	.84	.90	2.8
3	---						.84	.79	1.2	.84	.84	2.9
4	---						.76	.75	1.2	.84	.84	2.9
5	---						.76	.83	1.2	.78	.84	3.0
6	1.1						.74	.84	1.2	.74	.84	3.0
7	---						.74	.84	1.2	.74	.83	2.8
8	.95						.74	.84	1.1	.73	.74	2.8
9	---						.66	.84	1.1	.74	.78	2.7
10	---						.63	.84	1.1	.65	.78	2.7
11	---						.61	.90	1.1	.71	.84	2.7
12	---						.92	.95	1.2	.74	.84	2.7
13	3.7						1.0	.89	1.2	.74	.84	5.8
14	8.7						.84	.84	1.2	.74	.84	12
15	13						.84	.79	1.1	.73	.84	---
16	---						.84	.76	1.1	.64	.84	---
17	---						.84	.74	1.1	.64	.84	---
18	---						.84	.74	1.1	.64	.84	---
19	---						.84	.74	1.1	.64	.84	---
20	14						.84	.74	1.1	.64	.84	2.8
21	---						.84	.74	1.1	.64	.84	2.6
22	---						.86	.74	1.1	1.7	.83	3.0
23	---						.90	.74	1.1	3.0	.74	3.4
24	---						.87	1.1	1.1	3.0	.74	3.3
25	---						.84	1.3	1.1	3.0	.74	3.2
26	---						.84	1.3	1.1	3.0	1.3	3.2
27	13						.84	1.3	1.1	3.0	3.0	3.2
28	14						.84	1.3	.96	8.0	3.0	3.2
29	11						.84	1.3	.95	18	2.9	3.1
30	9.0						.84	1.2	.74	18	2.9	3.0
31	---						---	1.2	---	18	2.9	---
TOTAL	---						24.57	28.39	33.35	93.90	45.18	---
MEAN	---						.82	.92	1.11	3.03	1.46	---
MAX	---						1.0	1.3	1.2	18	9.5	---
MIN	---						.61	.74	.74	.64	.74	2.6
AC-FT	---						49	56	66	186	90	---

NOTE: Discharges from ditch tender log, Oct. 1-31. Recorder installed Nov. 17. Discharges above 32 ft³/s Sept. 15-19. No license requirement Nov. 1 to Mar. 31, record not computed.

SACRAMENTO RIVER BASIN

11376025 NORTH FORK BATTLE CREEK BELOW MCCUMBER DAM, NEAR MANZANITA LAKE, CA

LOCATION.--Lat 40°32'15", long 121°43'53", in SW 1/4 SE 1/4 sec.15, T.31 N., R.2 E., Shasta County, Hydrologic Unit 18020118, on right bank 300 ft downstream from McCumber Dam, 3.0 mi northwest of Viola, and 9.0 mi west of Manzanita Lake.

DRAINAGE AREA.--27.6 mi².

PERIOD OF RECORD.--October 1987 to September 1988 (operated as a low-flow station only). Unpublished records for water years 1978-87 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder and V-notch weir. Elevation of gage is 4,080 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. This station records fishwater release only. The release requirement is 0.3 ft³/s at all times.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.9	11	4.7	6.7	1.6	26	1.4	1.7	1.7	1.4	.93	.49
2	6.3	8.8	5.6	6.7	1.6	26	1.4	2.0	1.6	1.4	.93	.64
3	5.9	12	6.1	6.7	1.6	26	1.4	2.0	1.6	1.4	.93	.60
4	5.4	15	6.9	6.7	1.6	26	1.4	2.0	1.6	1.5	.93	.57
5	5.9	13	7.1	5.4	1.6	20	1.4	2.0	1.6	1.8	.93	.71
6	6.3	13	7.1	3.7	1.6	20	1.4	1.7	1.8	2.0	.93	.71
7	5.9	15	6.9	3.7	1.6	18	1.4	1.6	2.0	1.7	.93	.62
8	6.2	16	17	3.7	2.0	14	1.1	1.6	2.0	1.6	.93	.62
9	6.3	16	8.8	4.1	2.0	2.7	1.2	1.6	1.8	1.6	.93	.41
10	6.3	9.9	17	4.1	1.6	1.1	1.5	1.6	1.6	1.6	.93	.67
11	6.3	3.1	19	4.1	2.0	1.4	1.6	1.6	1.6	1.4	.93	.56
12	6.3	4.2	10	3.1	1.6	1.5	1.6	1.6	1.6	1.6	.92	.58
13	5.4	4.5	7.1	2.0	1.6	1.7	1.6	1.6	1.6	1.8	.81	.54
14	5.9	6.6	7.0	1.6	1.6	1.8	1.5	1.8	1.7	2.0	.74	.61
15	6.3	8.8	6.8	1.6	1.6	1.6	1.4	1.7	2.0	2.3	.70	.82
16	8.6	7.5	6.7	1.6	1.6	1.6	1.4	1.6	2.0	2.5	.65	.77
17	11	2.7	6.7	1.6	7.7	1.6	1.4	1.6	1.8	2.5	.51	5.4
18	14	.94	6.7	1.6	17	1.6	1.4	1.6	1.8	2.2	.66	7.3
19	16	1.0	6.5	2.0	18	1.6	1.8	1.6	1.6	2.1	.86	3.1
20	16	.93	6.6	2.0	16	1.6	2.2	1.7	1.4	2.0	.87	.74
21	17	1.2	6.6	2.0	11	1.6	2.2	1.8	1.7	2.0	.85	2.7
22	17	3.0	6.6	2.0	10	1.6	2.2	1.6	2.0	2.0	.79	3.8
23	16	2.9	6.7	2.0	10	1.3	2.1	1.7	1.6	2.0	.77	3.7
24	16	3.7	6.7	2.0	10	1.1	2.0	2.0	1.5	1.7	.59	3.5
25	16	4.5	6.7	2.0	11	1.1	2.0	1.7	1.4	1.8	.61	3.4
26	16	4.5	6.7	2.0	18	1.2	1.8	1.6	1.4	1.4	.41	3.4
27	16	4.5	6.7	2.0	22	1.3	1.6	1.4	1.6	.85	.45	3.4
28	16	4.5	6.7	2.0	23	1.6	1.6	1.5	1.9	.68	.53	3.1
29	16	4.8	6.7	2.0	25	1.6	1.6	1.5	1.7	.87	.42	3.1
30	16	4.5	6.7	1.6	---	1.3	1.6	1.6	1.5	.98	.49	3.1
31	14	---	6.7	1.6	---	1.4	---	2.0	---	.95	.53	---
TOTAL	332.2	208.07	243.8	93.9	225.5	210.9	48.2	52.6	50.7	51.63	23.39	59.66
MEAN	10.7	6.94	7.86	3.03	7.78	6.80	1.61	1.70	1.69	1.67	.75	1.99
MAX	17	16	19	6.7	25	26	2.2	2.0	2.0	2.5	.93	7.3
MIN	5.4	.93	4.7	1.6	1.6	1.1	1.1	1.4	1.4	.68	.41	.41
AC-FT	659	413	484	186	447	418	96	104	101	102	46	118
a	107	152	253	299	186	299	313	286	247	147	92	110

WTR YR 1988 TOTAL 1600.55 MEAN 4.37 MAX 26 MIN .41 AC-FT 3170

a Contents, in acre-feet, at end of month for McCumber Reservoir, provided by Pacific Gas & Electric Co.

NOTE: Discharges from ditch-tender log Oct. 1 to Nov. 15. Recorder installed Nov. 16.

SACRAMENTO RIVER BASIN

POWERPLANTS IN BATTLE CREEK BASIN

- 11376043 VOLTA NO. 1 POWERPLANT NEAR MANTON, CA, in NW 1/4 NE 1/4 sec.16, T.30 N., R.1 E., Shasta County, Hydrologic Unit 18020118, 1.7 mi north of Manton. Powerplant consists of one unit with a total of 8,550 KW normal operating capacity.
- 11376046 VOLTA NO. 2 POWERPLANT NEAR MANTON, CA, in NE 1/4 SW 1/4 sec.16, T.30 N., R.1 E., Shasta County, Hydrologic Unit 18020118, 1.2 mi northeast of Manton. Powerplant consists of one unit with a total of 956 KW normal operating capacity.
- 11376410 SOUTH POWERPLANT NEAR MANTON, CA, in NE 1/4 SE 1/4 sec.5, T.29 N., R.1 E., Tehama County, Hydrologic Unit 18020118, 2.7 mi south of Manton. Powerplant consists of one unit with a total of 6,750 KW normal operating capacity.
- 11376430 INSKIP POWERPLANT NEAR MANTON, CA, in NE 1/4 NW 1/4 sec.3, T.29 N., R.1 W., Tehama County, Hydrologic Unit 18020118, 5.5 mi southwest of Manton. Powerplant consists of one unit with a total of 7,650 KW normal operating capacity.
- 11376458 COLEMAN POWERPLANT NEAR COTTONWOOD, CA, in SW 1/4 SW 1/4 sec.32, T.30 N., R.2 W., Shasta County, Hydrologic Unit 18020006, 8.5 mi east of Cottonwood. Powerplant consists of one unit with a total of 12,150 KW normal operating capacity.

MONTHLY DISCHARGE, IN ACRE-FEET, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

Date	Volta No. 1	Volta No. 2	South	Inskip	Coleman
Oct. 31.....	4,040	4,200	3,790	11,030	13,290
Nov. 30.....	3,690	3,640	8,160	11,200	13,259
Dec. 31.....	5,360	5,690	11,830	15,010	19,380
Jan. 31.....	5,520	6,120	12,270	15,840	20,880
Feb. 29.....	5,340	5,980	11,480	14,360	18,660
Mar. 31.....	5,440	5,870	12,410	15,010	19,380
Apr. 30.....	4,920	5,350	11,690	14,310	18,300
May 31.....	5,130	5,520	12,390	15,220	19,040
June 30.....	4,670	5,000	10,880	14,330	17,680
July 31.....	3,970	4,210	8,840	11,360	13,370
Aug. 31.....	2,280	2,550	7,200	10,000	12,520
Sept. 30.....	2,270	3,060	6,890	9,230	7,130

NOTE.--Records were provided by Pacific Gas & Electric Co., in connection with a Federal Energy Regulatory Commission project. Unpublished records for water years 1979-86 available in files of U.S. Geological Survey. Fragmentary records prior to water year 1979 available in files of Pacific Gas & Electric Co.

SACRAMENTO RIVER BASIN

11376050 NORTH FORK BATTLE CREEK BELOW DIVERSION TO KESWICK DITCH, NEAR MANTON, CA

LOCATION.--Lat 40°30'00", long 121°48'29", in NW 1/4 NE 1/4 sec.36, T.31 N., R.1 E., Shasta County, Hydrologic Unit 18020118, on right bank 4.2 mi east of Shingletown and 5.5 mi northeast of Manton.

PERIOD OF RECORD.--October 1986 to current year (operated as a low-flow station only). Unpublished records for water years 1978-86 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder and parshall flume. Elevation of gage is 3,600 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 11 to Dec. 14, Dec. 24-30, Jan. 3 to Feb. 18 and May 6 to July 14. This station records fishwater release only. The release requirement is 3 ft³/s at all times; therefore flow is computed to 4 ft³/s.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	3.4	3.5	3.5	3.5	3.6	3.4	3.4	3.5	3.4	3.5	---
2	3.5	3.3	---	3.5	3.5	3.6	3.4	3.4	3.5	3.2	3.5	3.4
3	3.5	3.5	4.0	3.5	3.5	3.6	3.5	3.4	3.4	3.2	3.5	3.4
4	3.4	3.5	3.5	3.5	3.5	3.6	3.5	3.4	3.4	3.4	3.5	3.5
5	3.4	3.7	3.5	3.4	3.3	3.6	3.4	3.4	3.4	---	3.1	3.5
6	3.5	3.7	3.5	3.3	3.3	3.6	3.5	3.4	3.4	3.4	2.8	3.5
7	3.5	3.5	3.5	3.3	3.3	3.5	3.5	3.4	3.4	3.5	3.5	3.4
8	3.5	3.5	3.9	3.3	3.3	3.5	3.5	3.4	3.4	3.4	3.4	3.5
9	3.5	3.5	---	3.4	3.5	3.5	3.5	3.4	3.4	3.4	3.4	3.5
10	3.5	3.5	---	3.5	3.5	3.4	3.4	3.4	3.4	3.4	3.5	3.5
11	3.5	3.2	---	3.5	3.6	3.5	3.4	3.5	3.4	3.4	3.5	3.4
12	3.5	3.4	---	3.5	3.6	3.5	3.5	3.5	3.5	3.4	3.5	3.4
13	3.5	3.6	---	3.4	3.5	3.5	3.5	3.4	3.5	3.4	3.5	3.5
14	3.5	3.4	3.5	3.4	3.5	3.5	3.6	3.4	3.5	3.3	3.4	3.4
15	3.5	3.6	3.6	3.5	3.5	3.5	3.5	3.4	3.6	3.3	3.4	3.5
16	3.5	3.5	3.6	3.5	3.5	3.5	3.4	3.4	3.6	3.2	3.4	3.5
17	3.6	3.6	3.5	3.5	3.5	3.5	3.4	3.4	3.6	3.2	3.4	3.6
18	3.6	3.3	3.5	3.5	3.4	3.4	3.5	3.4	3.6	3.3	3.4	3.6
19	3.6	3.4	3.4	3.4	3.5	3.5	3.8	3.3	3.5	3.4	3.5	3.4
20	3.5	3.3	3.3	3.4	3.4	3.5	3.9	3.3	3.4	3.3	3.5	3.4
21	3.5	3.4	3.3	3.4	3.4	3.5	3.9	3.3	3.4	3.3	3.5	3.5
22	3.5	3.3	3.3	3.4	3.4	3.5	3.8	3.4	3.4	3.3	---	3.5
23	3.5	3.4	3.3	3.4	3.4	3.5	3.7	3.4	3.4	3.3	---	3.4
24	3.5	3.6	3.4	3.4	3.5	3.5	3.6	3.3	3.4	3.3	---	3.4
25	3.5	3.5	3.4	3.4	3.4	3.5	3.5	3.3	3.4	3.3	---	3.4
26	3.4	3.4	3.4	3.4	3.5	3.5	3.4	3.3	3.5	3.3	---	3.4
27	3.4	3.4	3.4	3.4	3.5	3.3	3.4	3.4	3.6	3.3	---	3.4
28	3.4	3.4	3.4	3.5	3.4	3.3	3.4	3.4	3.6	2.8	---	3.4
29	3.4	3.4	3.2	3.5	3.5	3.4	3.4	3.6	3.6	2.7	---	3.4
30	3.5	3.6	3.2	3.5	---	3.5	3.4	3.6	3.6	3.6	---	3.4
31	3.5	---	3.2	3.5	---	3.4	---	3.4	---	3.5	---	---
TOTAL	108.2	103.8	---	106.6	100.2	108.3	105.6	105.4	104.3	---	---	---
MEAN	3.49	3.46	---	3.44	3.46	3.49	3.52	3.40	3.48	---	---	---
MAX	3.6	3.7	---	3.5	3.6	3.6	3.9	3.6	3.6	---	---	---
MIN	3.4	3.2	---	3.3	3.3	3.3	3.4	3.3	3.4	---	---	---
AC-FT	215	206	---	211	199	215	209	209	207	---	---	---

NOTE: The canal was out of service July 5, Aug. 22 to Sept. 1, and all flow stayed in the natural channel. Discharge was above 4 ft³/s Dec. 2, 9-13.

SACRAMENTO RIVER BASIN

11376140 NORTH FORK BATTLE CREEK BELOW DIVERSION TO CROSS COUNTRY CANAL, NEAR MANTON, CA

LOCATION.--Lat 40°27'16", long 121°51'35", in SW 1/4 NW 1/4 sec.15, T.30 N., R.1 E., Shasta County, Hydrologic Unit 18020118, on left bank at diversion dam 800 ft upstream from Volta No. 2 Powerplant and 1.4 mi northeast of Manton.

DRAINAGE AREA.--133 mi².

PERIOD OF RECORD.--October 1987 to September 1988 (operated as a low-flow station only). Unpublished records for water years 1978-87 available in files of the U.S. Geological Survey. Fragmentary records for water year 1977 in files of Pacific Gas & Electric Co.

GAGE.--Water-stage recorder and metal Alaskan fishladder. Elevation of gage is 2,240 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 29 to Apr. 4, May 2 to June 15, Sept. 22-28. This station records fishwater release only. The release requirement is 3 ft³/s at all times; therefore flow is computed to 6 ft³/s.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	5.4	5.8	5.3	---	5.8	5.4	5.5	4.8	4.8	---	4.9
2	5.5	5.2	---	5.6	5.4	5.4	5.5	5.3	---	4.8	4.8	4.8
3	5.6	5.4	---	5.4	5.3	5.3	5.7	5.6	---	4.8	4.8	4.8
4	5.2	5.6	5.4	---	5.4	5.6	5.8	5.6	---	4.9	4.8	4.8
5	5.4	5.1	5.5	---	5.3	5.5	5.5	5.6	---	5.0	4.8	4.9
6	5.4	5.7	5.8	---	5.3	5.3	5.5	5.0	---	---	4.9	4.9
7	5.7	5.2	5.6	---	5.2	5.4	5.7	5.0	---	4.6	4.9	5.0
8	5.7	5.2	5.8	---	5.2	5.6	5.7	4.8	---	4.6	4.8	5.0
9	5.6	5.2	5.8	---	5.4	5.2	5.7	5.0	5.0	4.6	---	5.0
10	5.6	5.7	---	---	5.7	5.4	5.7	5.0	5.0	4.5	4.9	5.0
11	5.6	5.4	---	---	---	5.6	5.6	5.0	5.0	4.6	4.8	5.0
12	4.9	5.6	---	---	---	5.4	5.6	5.0	5.0	4.6	4.9	---
13	5.1	5.5	---	---	5.2	5.3	5.6	5.1	4.9	4.6	4.9	5.1
14	5.6	5.1	5.5	---	5.3	5.4	5.6	4.8	4.8	4.6	4.9	5.1
15	5.6	5.4	5.5	---	5.8	5.6	---	4.7	---	4.6	4.9	5.1
16	5.4	5.6	5.5	---	5.2	5.3	5.7	4.7	---	4.5	4.9	5.1
17	5.7	5.8	5.2	---	5.3	5.7	---	---	---	4.5	4.9	5.1
18	5.5	---	5.2	---	5.5	5.6	5.7	5.2	---	4.6	4.8	5.1
19	5.4	---	5.3	5.8	5.2	5.6	---	5.4	---	4.7	4.8	5.2
20	5.2	5.8	5.4	---	5.2	5.3	---	5.4	---	4.7	4.8	5.1
21	5.2	5.2	5.5	5.0	5.2	5.7	---	5.4	---	4.7	4.8	5.2
22	5.2	5.5	---	5.5	5.6	5.8	5.6	5.7	---	4.6	---	5.4
23	5.2	5.4	5.4	5.4	5.3	5.7	5.6	---	---	4.7	---	5.3
24	5.1	5.7	5.4	5.0	5.3	5.6	---	---	---	4.7	---	5.3
25	5.2	5.8	5.5	5.4	5.5	5.6	5.5	---	---	4.7	---	5.4
26	5.3	5.7	5.4	5.5	5.5	5.6	5.6	---	---	4.7	---	5.4
27	4.8	5.5	5.3	5.4	5.7	5.5	5.6	---	---	4.9	---	5.4
28	5.5	5.5	---	5.3	5.4	5.5	5.4	---	---	4.9	---	5.3
29	5.6	5.4	5.2	---	5.6	5.4	5.6	---	5.0	4.9	---	5.0
30	5.4	5.8	5.6	---	---	5.5	5.6	---	4.8	4.9	---	5.0
31	5.2	---	5.4	---	---	5.6	---	---	---	4.7	4.9	---
TOTAL	166.7	---	---	---	---	170.8	---	---	---	---	---	---
MEAN	5.38	---	---	---	---	5.51	---	---	---	---	---	---
MAX	5.7	---	---	---	---	5.8	---	---	---	---	---	---
MIN	4.8	---	---	---	---	5.2	---	---	---	---	---	---
AC-FT	331	---	---	---	---	339	---	---	---	---	---	---

NOTE: Discharges from ditch-tender log Oct. 1 to Dec. 9. Recorder installed Dec. 10. Discharge was above 6 ft³/s many days during the year.

SACRAMENTO RIVER BASIN

11376150 NORTH FORK BATTLE CREEK BELOW DIVERSION TO EAGLE CANYON CANAL, NEAR MANTON, CA

LOCATION.--Lat 40°25'26", long 121°55'09", in NW 1/4 SE 1/4 sec.25, T.30 N., R.1 W., Shasta County, Hydrologic Unit 18020118, on left bank at diversion dam to Eagle Canyon Canal and 2.8 mi southwest of Manton.

DRAINAGE AREA.--186 mi².

PERIOD OF RECORD.--October 1987 to September 1988 (operated as a low-flow station only). Unpublished records for water years 1978-87 available in files of the U.S. Geological Survey. Fragmentary records for water year 1977 available in files of Pacific Gas & Electric Co.

GAGE.--Water-stage recorder and metal Alaskan fishladder. Elevation of gage is 1,400 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. This station records fishwater release only. The release requirement is 3.0 ft³/s at all times; therefore flow is computed to 4.5 ft³/s.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	4.3	4.2	4.3	---	---	4.5	4.5	4.5	3.9	3.9	3.9
2	4.3	4.1	---	4.2	---	---	4.5	4.5	---	3.9	3.9	3.9
3	4.3	4.3	---	---	---	---	4.5	---	---	3.9	3.8	3.9
4	4.3	4.3	4.3	---	---	---	4.5	---	3.9	3.9	3.9	3.9
5	4.3	4.3	---	---	---	---	4.5	---	3.9	3.8	3.9	3.9
6	4.5	4.2	---	---	---	---	4.5	---	4.3	3.8	3.9	3.9
7	4.3	4.2	4.2	---	---	---	4.5	4.5	3.9	3.8	3.9	3.9
8	4.3	4.3	4.4	---	---	4.5	4.5	---	3.9	3.8	3.9	3.9
9	4.3	4.1	4.4	---	---	---	4.5	---	3.8	3.9	3.9	3.9
10	4.4	4.3	4.4	---	4.2	---	4.5	4.5	3.9	3.9	3.9	3.9
11	4.3	4.2	---	---	4.2	---	4.5	4.5	3.9	3.8	3.9	3.9
12	4.3	4.3	---	---	---	---	4.5	4.5	3.9	3.8	3.8	3.9
13	4.3	4.3	---	---	---	---	4.5	4.5	3.9	4.1	3.9	3.9
14	4.3	4.2	4.2	---	4.3	---	4.5	4.5	3.9	4.0	3.8	3.9
15	4.3	4.1	4.4	---	4.3	---	4.5	4.5	3.9	3.9	3.9	3.9
16	---	4.1	4.5	---	4.4	---	4.5	---	3.9	3.9	3.9	3.9
17	4.4	4.4	4.2	---	4.5	---	4.5	---	3.8	3.9	3.9	3.9
18	4.3	---	4.2	---	4.5	---	4.5	4.5	3.9	3.9	3.9	3.9
19	4.3	---	4.2	---	4.5	---	---	---	3.9	3.9	3.9	3.9
20	4.3	---	4.3	---	4.5	---	---	---	3.9	3.9	3.9	3.9
21	4.2	4.2	4.3	4.3	4.5	---	---	---	4.1	3.9	3.9	3.9
22	4.4	4.2	4.3	4.1	4.5	---	---	---	---	3.9	3.9	3.9
23	4.2	4.2	4.2	4.0	4.5	---	4.5	4.5	---	3.9	3.9	3.9
24	4.4	4.3	4.2	4.4	4.5	---	4.5	3.9	4.2	3.9	3.9	3.9
25	4.3	4.3	4.3	4.4	4.5	---	4.5	3.9	4.0	3.9	3.9	3.9
26	4.3	4.3	4.3	4.4	4.5	---	4.5	3.9	3.8	3.9	3.9	3.9
27	4.3	4.2	4.3	---	4.5	---	4.5	3.9	3.8	3.9	3.9	3.9
28	4.3	4.3	4.3	4.4	---	---	4.5	---	3.8	3.9	3.9	3.9
29	4.2	4.4	4.3	---	---	4.5	4.5	---	3.8	3.9	4.1	3.9
30	4.3	4.4	4.3	---	---	4.5	4.5	---	3.8	3.9	3.9	3.9
31	4.1	---	4.3	---	---	4.5	---	3.9	---	3.9	3.9	---
TOTAL	---	---	---	---	---	---	---	---	---	120.6	120.8	117.0
MEAN	---	---	---	---	---	---	---	---	---	3.89	3.90	3.90
MAX	---	---	---	---	---	---	---	---	---	4.1	4.1	3.9
MIN	---	---	---	---	---	---	---	---	---	3.8	3.8	3.9
AC-FT	---	---	---	---	---	---	---	---	---	239	240	232

NOTE: Discharges from ditch-tender log Oct. 1 to Dec. 17. Recorder installed Dec. 18. Discharge was above 4.5 ft³/s many days during October through June.

11376160 NORTH FORK BATTLE CREEK BELOW DIVERSION TO WILDCAT CANAL, NEAR MANTON, CA

LOCATION.--Lat 40°25'14", long 121°57'36", in SE 1/4 SW 1/4 sec.27, T.30 N., R.1 W., Shasta County, Hydrologic Unit 18020118, on right bank at diversion dam to Wildcat Canal and 4.9 mi west of Manton.

DRAINAGE AREA.--189 mi².

PERIOD OF RECORD.--October 1987 to September 1988 (operated as a low-flow station only). Unpublished records for water years 1978-87 available in files of the U.S. Geological Survey. Fragmentary records for water year 1977 available in files of Pacific Gas & Electric Co.

GAGE.--Water-stage recorder and metal Alaskan fishladder. Elevation of gage is 1,080 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. This station records fishwater release only. The release requirement is 3.0 ft³/s at all times; therefore flow is computed to 5.3 ft³/s.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	---	---	5.2	3.6	---	4.8	4.3	4.7	4.6	4.4	4.3
2	5.0	---	---	5.1	5.2	---	4.8	4.3	4.4	4.5	4.5	4.3
3	5.3	---	---	---	---	---	4.8	4.3	4.4	4.5	4.5	4.3
4	5.3	---	---	---	4.9	5.0	4.9	4.3	4.5	4.6	4.5	4.3
5	5.3	---	5.3	---	---	---	4.6	4.4	4.6	4.6	4.5	4.3
6	4.9	---	4.8	---	---	---	4.6	4.4	4.6	4.6	4.6	4.4
7	5.2	---	---	4.9	---	5.0	4.6	4.4	4.5	4.5	4.7	4.2
8	5.2	---	---	---	---	4.0	4.5	4.3	4.4	4.5	4.5	4.0
9	5.3	---	---	---	---	---	4.5	4.2	4.3	4.4	4.5	4.1
10	5.2	---	---	---	---	5.3	4.5	4.1	4.2	4.4	4.6	4.1
11	5.1	---	---	---	---	---	4.5	4.0	4.1	4.5	4.5	4.1
12	5.3	---	---	---	---	---	4.5	4.1	4.1	4.6	4.6	4.1
13	5.3	---	---	---	5.3	---	4.5	4.2	4.0	4.5	4.5	4.1
14	5.3	---	5.1	5.1	---	---	4.9	4.1	4.2	4.5	4.6	4.2
15	5.3	---	5.2	4.3	---	---	4.5	4.0	4.5	4.5	4.6	4.1
16	5.3	---	---	---	---	---	4.5	4.1	4.5	4.5	4.5	4.1
17	5.1	---	5.3	---	5.1	---	4.5	4.1	4.5	4.4	4.5	4.2
18	---	---	5.0	---	5.3	---	4.5	4.0	4.5	4.4	4.4	4.3
19	5.3	---	---	---	5.2	---	---	3.9	4.4	4.3	4.4	4.2
20	4.7	---	---	5.1	5.3	---	---	3.9	4.4	4.4	4.4	4.1
21	---	5.3	5.2	---	5.0	---	---	4.1	4.4	4.4	4.4	4.2
22	---	5.1	5.3	---	5.1	---	---	4.5	4.5	4.4	4.4	4.2
23	---	5.1	5.2	---	5.0	---	4.9	4.6	4.4	4.4	4.4	4.3
24	---	5.2	5.0	---	5.1	---	4.5	4.5	4.4	4.4	4.4	4.2
25	---	5.3	5.2	---	5.1	---	4.1	4.5	4.5	4.4	4.4	4.3
26	---	---	5.1	4.9	5.1	---	4.2	4.6	4.5	4.3	4.4	4.3
27	---	5.3	5.1	---	5.2	---	4.1	4.6	4.6	4.4	4.3	4.1
28	---	---	---	---	5.1	---	4.2	---	4.6	4.4	4.3	4.2
29	---	---	---	5.2	---	---	4.2	---	4.6	4.4	4.3	4.1
30	---	---	5.3	---	---	4.4	4.4	4.8	4.6	4.3	4.3	4.1
31	---	---	5.2	---	---	4.9	---	4.8	---	4.4	4.4	---
TOTAL	---	---	---	---	---	---	---	---	132.9	138.0	138.3	125.8
MEAN	---	---	---	---	---	---	---	---	4.43	4.45	4.46	4.19
MAX	---	---	---	---	---	---	---	---	4.7	4.6	4.7	4.4
MIN	---	---	---	---	---	---	---	---	4.0	4.3	4.3	4.0
AC-FT	---	---	---	---	---	---	---	---	264	274	274	250

NOTE: Discharges from ditch-tender log Oct. 1 to Apr. 14. Recorder installed Apr. 15. Discharge was above 5.3 ft³/s many days during October through May.

SACRAMENTO RIVER BASIN

11376420 SOUTH FORK BATTLE CREEK BELOW DIVERSION TO SOUTH BATTLE CREEK CANAL, NEAR MANTON, CA

LOCATION.--Lat 40°22'08", long 121°47'48", in SW 1/4 NW 1/4 sec.18, T.29 N., R.2 E., Tehama County, Hydrologic Unit 18020118, on right bank at diversion dam to South Battle Creek Canal and 5.9 mi southeast of Manton.

DRAINAGE AREA.--66.7 mi².

PERIOD OF RECORD.--October 1987 to September 1988 (operated as a low-flow station only). Unpublished records for water years 1978-87 available in files of the U.S. Geological Survey. Fragmentary records for water years 1976-77 in files of Pacific Gas & Electric Co.

GAGE.--Water-stage recorder and metal Alaskan fishladder. Elevation of gage is 2,040 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Jan. 8-11 and Sept. 8-30. This station records fishwater release only. The release requirement is 5 ft³/s at all times; therefore flow is computed to 9 ft³/s.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.1	7.4	7.9	7.8	7.8	---	7.8	---	---	6.9	6.6	6.1
2	8.0	6.5	---	7.7	---	---	7.9	8.1	---	6.9	6.6	6.1
3	7.9	6.9	---	7.8	---	---	7.9	8.2	6.9	6.9	6.6	6.1
4	6.7	6.8	7.6	---	---	---	7.9	8.3	7.1	7.0	6.6	6.1
5	7.5	7.8	7.9	---	---	---	8.0	---	---	6.9	6.7	6.1
6	7.9	7.9	---	8.8	---	---	8.1	8.2	7.2	6.7	6.7	6.2
7	8.1	7.4	---	7.7	---	---	8.1	---	---	6.6	6.8	6.2
8	8.3	7.0	---	---	7.7	---	8.1	---	7.3	6.6	6.6	6.4
9	8.0	6.4	8.1	---	7.7	---	8.1	---	7.1	6.6	6.6	6.4
10	7.9	7.5	---	---	7.7	---	8.2	---	7.0	6.6	6.6	6.5
11	7.9	7.1	---	---	7.8	7.9	8.3	8.2	6.9	6.7	6.6	6.4
12	---	7.9	---	---	7.8	7.8	8.1	---	6.9	6.7	6.7	6.4
13	---	8.1	7.6	7.6	7.7	7.8	8.3	---	6.8	6.6	6.7	6.5
14	---	5.7	7.5	8.0	7.8	7.8	8.3	---	6.9	6.7	6.6	6.5
15	---	5.6	7.3	---	7.8	7.8	8.1	---	6.9	6.7	6.7	6.5
16	---	---	7.5	8.0	7.8	7.8	8.1	---	7.0	6.6	6.6	6.4
17	---	---	7.7	7.7	8.0	7.8	---	---	7.0	6.6	6.5	6.3
18	---	---	8.2	7.9	7.9	7.8	---	8.0	6.9	6.5	6.5	6.3
19	---	---	7.6	---	---	7.8	---	8.2	6.9	6.5	6.4	6.4
20	---	7.7	---	7.8	7.8	7.8	---	8.2	6.9	6.5	6.4	6.5
21	---	7.5	7.7	7.8	7.8	8.1	---	8.2	7.0	6.5	6.4	6.6
22	---	7.7	7.7	7.8	7.8	7.7	---	8.2	6.9	6.5	6.4	6.7
23	---	7.5	7.8	7.7	7.8	7.8	---	8.2	6.9	6.5	6.4	6.5
24	---	7.9	7.8	---	7.8	7.7	---	8.2	6.8	6.5	6.4	6.4
25	---	7.9	7.7	7.8	7.8	7.8	---	8.2	6.9	6.6	6.3	6.7
26	---	7.5	7.7	7.8	8.0	7.8	---	---	7.0	6.5	6.3	6.7
27	---	7.7	7.7	7.7	8.2	7.8	---	8.2	6.9	6.5	6.2	6.4
28	---	7.7	7.7	7.7	---	7.7	---	---	7.0	6.5	6.2	6.7
29	---	7.7	7.7	---	---	7.7	---	---	7.1	6.5	6.3	6.3
30	7.9	7.9	7.8	---	---	7.8	---	---	7.0	6.5	6.2	6.6
31	7.4	---	7.7	7.7	---	7.8	---	7.3	---	6.6	6.2	---
TOTAL	---	---	---	---	---	---	---	---	---	205.5	201.4	192.0
MEAN	---	---	---	---	---	---	---	---	---	6.63	6.50	6.40
MAX	---	---	---	---	---	---	---	---	---	7.0	6.8	6.7
MIN	---	---	---	---	---	---	---	---	---	6.5	6.2	6.1
AC-FT	---	---	---	---	---	---	---	---	---	408	399	381

NOTE: Discharges from ditch-tender log Oct. 1 to Dec. 18. Recorder installed Dec. 19. Discharge was above 9 ft³/s many days October through June.

SACRAMENTO RIVER BASIN

97

11376440 SOUTH FORK BATTLE CREEK BELOW DIVERSION TO INSKIP CANAL, NEAR MANTON, CA

LOCATION.--Lat 40°23'43", long 121°52'57", in NW 1/4 SE 1/4 sec.5, T.29 N., R.1 E., Tehama County, Hydrologic Unit 18020118, on left bank at diversion dam to Inskip Canal and 2.8 mi south of Manton.

DRAINAGE AREA.--88.3 mi².

PERIOD OF RECORD.--October 1987 to September 1988 (operated as a low-flow station only). Unpublished records for water years 1978-87 available in files of the U.S. Geological Survey. Fragmentary records for water year 1977 available in files of Pacific Gas & Electric Co.

GAGE.--Water-stage recorder and metal Alaskan fishladder. Elevation of gage is 1,440 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Sept. 22-30. This station records fishwater release only. The release requirement is 5.0 ft³/s at all times; therefore flow is computed to 11 ft³/s.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.5	7.4	8.4	8.2		---	8.5	---	---	7.4	6.0	7.0
2	---	8.4	---	8.8		---	8.1	---	---	7.3	5.9	7.0
3	10	8.2	---	---		---	10	---	---	7.3	6.0	6.9
4	---	8.5	---	---		---	---	---	---	7.6	6.0	6.9
5	8.2	8.4	10	---		---	8.8	---	---	6.8	6.1	7.0
6	8.2	8.5	---	---		---	---	---	---	6.2	6.1	7.1
7	7.9	7.5	---	---		---	---	---	---	6.1	6.3	7.2
8	7.8	8.7	---	---		---	---	---	---	6.1	6.0	7.4
9	7.8	7.9	---	---		---	10	---	---	6.0	6.1	7.3
10	8.1	8.7	---	---		---	---	---	---	6.0	6.3	7.4
11	8.1	8.5	---	---		---	11	---	10	6.2	6.3	7.2
12	8.1	8.5	---	---		---	---	---	8.4	6.3	6.3	7.3
13	8.7	9.1	---	---		---	9.5	---	7.8	6.2	6.3	7.3
14	7.5	7.8	---	---		---	---	---	7.1	6.2	6.4	7.5
15	7.5	7.8	---	---		---	---	---	7.2	6.1	6.2	7.5
16	8.7	8.7	---	---		---	11	---	6.7	6.0	6.1	7.4
17	8.1	8.5	---	---		9.8	---	---	6.7	5.9	6.0	7.6
18	7.8	6.6	8.5	---		---	---	---	6.5	6.0	5.9	7.6
19	7.7	5.5	7.8	---		---	---	---	6.3	5.9	6.0	7.7
20	7.8	5.6	7.3	---		---	---	---	6.4	6.1	5.9	7.5
21	8.4	8.5	7.8	---		---	---	---	6.5	6.1	6.0	7.6
22	8.5	7.3	---	---		---	---	---	6.8	6.2	6.2	8.7
23	8.7	8.5	7.7	---		---	---	---	7.1	6.2	6.7	8.4
24	8.1	8.8	8.5	---		---	---	9.2	7.1	6.2	7.1	7.8
25	8.8	7.8	7.5	---		---	---	8.5	7.3	6.3	7.1	7.9
26	7.5	8.5	7.8	---		---	---	8.4	7.3	6.1	7.1	7.8
27	7.5	8.8	7.5	---		---	---	8.3	7.5	6.0	7.1	9.1
28	8.5	8.5	8.4	---		9.8	---	11	7.6	5.8	7.0	7.8
29	8.7	8.2	---	---		---	---	---	7.8	5.8	7.1	8.2
30	7.9	7.8	7.9	---		9.3	---	---	7.6	5.8	7.1	7.8
31	8.2	---	7.7	---		8.2	---	9.1	---	6.0	7.1	---
TOTAL	---	241.5	---	---		---	---	---	---	194.2	197.8	226.9
MEAN	---	8.05	---	---		---	---	---	---	6.26	6.38	7.56
MAX	---	9.1	---	---		---	---	---	---	7.6	7.1	9.1
MIN	---	5.5	---	---		---	---	---	---	5.8	5.9	6.9
AC-FT	---	479	---	---		---	---	---	---	385	392	450

NOTE: Discharges from ditch-tender log Oct. 1 to May 24. Recorder installed May 25. Discharge was above 11 ft³/s many days during October through June.

SACRAMENTO RIVER BASIN

11376460 SOUTH FORK BATTLE CREEK BELOW DIVERSION TO COLEMAN DITCH, NEAR MANTON, CA

LOCATION.--Lat 40°24'10", Long 121°58'02", in NW 1/4 NW 1/4 sec.3, T.29 N., R.1 W., Tehama County, Hydrologic Unit 18020118, on right bank 7.5 mi southwest of Shingletown and 5.7 mi southwest of Manton.

DRAINAGE AREA.--102 mi².

PERIOD OF RECORD.--October 1987 to September 1988 (operated as a low-flow station only). Unpublished records for water years 1978-86 available in files of the U.S. Geological Survey. Fragmentary records for water year 1977 available in files of Pacific Gas & Electric Co.

GAGE.--Water-stage recorder and metal Alaskan fishladder. Elevation of gage is 980 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. This station records fishwater release only. The release requirement is 5.0 ft³/s at all times; therefore flow is computed to 9.5 ft³/s.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.2	8.6	8.6	8.5	8.2	---	8.5	7.7	7.7	8.1	8.1	8.0
2	8.0	8.8	---	8.5	8.4	---	8.6	7.6	8.9	8.1	8.2	8.0
3	8.5	8.8	5.2	---	8.5	8.8	8.7	7.0	7.1	8.1	8.2	8.1
4	9.0	8.7	8.5	---	8.5	9.3	8.4	7.2	7.3	8.3	8.1	7.6
5	8.5	8.6	9.2	---	8.4	---	8.3	7.6	7.4	8.3	8.0	7.5
6	9.3	9.1	---	---	8.5	---	9.0	7.2	7.4	8.2	8.3	7.9
7	---	9.1	---	---	8.4	9.3	8.5	7.6	7.6	8.1	8.2	8.3
8	8.9	9.1	---	---	8.5	8.3	8.8	8.4	7.8	8.1	8.3	8.3
9	8.5	8.7	9.4	---	8.8	---	8.9	7.4	7.2	7.9	8.3	8.3
10	8.3	9.0	---	---	8.9	---	8.5	7.1	7.1	8.0	8.2	8.3
11	8.0	9.0	---	---	8.5	8.7	8.3	7.0	7.0	8.2	8.2	7.5
12	8.3	8.2	---	---	8.8	8.5	7.5	7.1	7.0	8.2	8.3	7.2
13	8.4	9.0	8.2	9.2	8.7	8.5	---	7.2	6.9	8.1	8.4	6.9
14	8.5	8.9	8.9	8.5	8.4	8.7	---	7.0	6.4	8.1	8.4	6.9
15	8.6	9.2	7.7	---	8.9	8.6	7.2	7.0	7.1	8.2	8.3	6.9
16	8.5	8.6	8.7	---	8.8	8.7	8.2	7.3	7.4	8.0	8.2	6.8
17	8.6	9.0	8.2	---	8.6	8.7	7.9	---	7.4	8.0	8.2	6.7
18	8.9	8.9	8.6	---	8.6	8.5	7.3	6.7	7.3	8.0	8.1	7.5
19	8.6	8.3	8.0	8.5	8.8	8.5	7.9	7.0	7.2	7.8	8.1	---
20	9.1	9.1	8.6	8.7	8.7	8.6	---	6.9	7.3	7.8	8.2	---
21	8.5	8.7	8.8	8.5	8.8	8.7	---	6.9	7.4	7.9	8.2	---
22	8.7	8.8	8.9	8.5	8.7	8.8	---	6.9	7.3	7.8	8.1	---
23	8.3	9.0	8.3	8.9	8.4	8.7	---	6.9	7.5	7.9	8.0	---
24	9.0	8.8	8.3	8.7	8.7	8.7	---	6.9	8.0	8.0	8.0	---
25	8.6	9.1	8.8	8.3	8.2	8.9	7.9	7.0	8.0	7.9	8.1	---
26	9.1	8.5	8.4	8.4	8.9	8.7	7.9	7.0	8.1	8.0	8.1	---
27	8.7	9.0	8.1	8.9	8.7	8.9	7.6	7.0	8.2	8.0	8.1	---
28	8.7	8.6	8.6	8.2	---	8.2	7.6	7.2	8.3	7.9	8.1	---
29	9.1	8.5	---	9.1	8.9	8.9	7.6	---	8.3	7.8	8.1	---
30	9.3	8.6	8.1	---	---	8.9	7.9	7.2	8.2	8.0	8.0	9.1
31	8.9	---	8.3	---	---	9.0	---	7.2	---	8.0	8.1	---
TOTAL	---	264.3	---	---	---	---	---	---	225.8	248.8	253.2	---
MEAN	---	8.81	---	---	---	---	---	---	7.53	8.03	8.17	---
MAX	---	9.2	---	---	---	---	---	---	8.9	8.3	8.4	---
MIN	---	8.2	---	---	---	---	---	---	6.4	7.8	8.0	---
AC-FT	---	524	---	---	---	---	---	---	448	493	502	---

NOTE: Discharge above 9.5 ft³/s many days during the year. During the period Sept. 19-29, the canal was out of service and all flow stayed in the natural channel.

SACRAMENTO RIVER BASIN

11376550 BATTLE CREEK BELOW COLEMAN FISH HATCHERY, NEAR COTTONWOOD, CA

LOCATION.--Lat 40°23'54", long 122°08'43", in SW 1/4 NE 1/4 sec.1, T.29 N., R.3 W., Shasta County, Hydrologic Unit 18020101, U.S. Fish and Wildlife Service land, on right bank 3.7 mi downstream from Spring Branch, 5.7 mi upstream from mouth, and 7.0 mi east of Cottonwood.

DRAINAGE AREA.--357 mi².

PERIOD OF RECORD.--October 1961 to current year. October 1940 to September 1961 at site 0.6 mi upstream published as "near Cottonwood"; low-flow records not equivalent owing to Coleman Fish Hatchery diversion, maximum flows considered equivalent.

CHEMICAL DATA: Water years 1962-66.

WATER TEMPERATURE: Water years 1966-79.

SEDIMENT DATA: Water years 1962-70.

GAGE.--Water-stage recorder. Elevation of gage is 415 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Some regulation at low flows by five small powerplants, several small reservoirs, and Coleman Fish Hatchery. Coleman Fish Hatchery diverts from 50 to 90 ft³/s and pumps ground water for temperature control which is returned above the station. At times, 10 ft³/s diverted above station for irrigation.

AVERAGE DISCHARGE.--27 years, 519 ft³/s, 376,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,300 ft³/s, Jan. 24, 1970, gage height, 14.75 ft, from rating curve extended above 4,200 ft³/s on basis of slope-area measurement of peak flow; minimum since 1961, 52 ft³/s, Aug. 8, 1962. Prior to 1961, minimum not determined; minimum gage height, 1.20 ft, June 25, 1949, site and datum then in use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 15.8 ft, Dec. 11, 1937, from floodmarks, site and datum then in use, discharge, 35,000 ft³/s by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,100 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 4	0500	*3,220	*5.19				

Minimum daily, 183 ft³/s, Sept. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	224	264	328	344	466	448	288	341	328	235	210	199
2	220	269	847	337	439	450	287	324	380	224	210	198
3	222	250	659	1170	418	406	290	318	353	224	211	197
4	221	250	404	2260	406	395	299	321	333	221	209	199
5	222	249	355	980	396	399	293	321	329	225	210	202
6	224	260	727	715	390	420	296	323	361	233	212	203
7	222	256	606	550	383	413	296	338	355	233	206	200
8	223	259	596	902	378	384	293	389	368	237	205	200
9	223	276	646	993	372	395	291	365	331	248	209	206
10	222	267	1110	814	379	364	289	336	318	241	208	200
11	223	254	846	830	380	342	287	333	307	228	209	198
12	220	251	548	580	378	333	288	320	298	225	205	199
13	223	269	429	518	381	324	285	340	292	227	207	198
14	218	289	385	480	373	322	316	331	283	227	205	198
15	221	267	366	703	375	319	316	317	290	226	204	196
16	223	262	441	778	371	310	297	326	291	221	209	202
17	226	283	415	651	366	307	300	386	301	217	202	199
18	231	259	364	534	372	305	304	350	306	218	204	183
19	238	256	351	477	370	306	376	324	306	215	203	210
20	234	280	335	447	375	307	489	311	305	213	201	206
21	229	289	334	424	376	311	480	306	300	213	200	206
22	240	265	397	409	370	321	432	305	288	211	194	206
23	252	262	366	397	367	313	407	306	278	208	205	205
24	247	258	335	393	370	312	372	306	259	212	205	208
25	244	258	326	385	369	313	359	302	242	213	201	218
26	243	262	324	382	370	316	350	297	240	213	204	225
27	240	251	319	380	383	335	351	293	233	228	203	220
28	247	246	411	374	392	321	349	319	250	210	203	212
29	251	248	773	521	409	300	343	430	239	209	204	199
30	252	269	464	763	---	295	356	349	235	208	196	209
31	251	---	375	510	---	294	---	327	---	209	198	---
TOTAL	7176	7878	15182	20001	11174	10680	9979	10254	8999	6872	6352	6101
MEAN	231	263	490	645	385	345	333	331	300	222	205	203
MAX	252	289	1110	2260	466	450	489	430	380	248	212	225
MIN	218	246	319	337	366	294	285	293	233	208	194	183
AC-FT	14230	15630	30110	39670	22160	21180	19790	20340	17850	13630	12600	12100
CAL YR 1987 TOTAL	135678			MEAN 372	MAX 2760	MIN 207	AC-FT 269100					
WTR YR 1988 TOTAL	120648			MEAN 330	MAX 2260	MIN 183	AC-FT 239300					

SACRAMENTO RIVER BASIN

11377100 SACRAMENTO RIVER ABOVE BEND BRIDGE, NEAR RED BLUFF, CA

LOCATION.--Lat 40°17'19", long 122°11'08", in NW 1/4 NE 1/4 sec.15, T.28 N., R.3 W., Tehama County, Hydrologic Unit 18020103, on left bank 2.7 mi upstream from Bend Bridge, and 8.1 mi northeast of Red Bluff.

DRAINAGE AREA.--8,900 mi², excluding Goose Lake basin.

PERIOD OF RECORD.--1879-88 annual observed maximums only, published in WSP 1315-A. January 1892 to current year. Monthly discharges only for some periods and yearly estimates for some incomplete years, published in WSP 1315-A. Published as "at Red Bluff" 1894-96, as "at Jellys Ferry" 1895-1902, and as "near Red Bluff" 1903-68.

CHEMICAL DATA: Water years 1955-80.

SPECIFIC CONDUCTANCE: Water years 1955-63.

WATER TEMPERATURE: Water years 1955-80.

SEDIMENT DATA: Water years 1958-70, 1977-83.

REVISED RECORDS.--WSP 861: 1904, 1907, 1909, 1914-15, 1927-28. WSP 1315-A: 1916(M), 1918(M), 1941(M). WSP 1931: Drainage area. WDR CA-69-2: 1965.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 285.77 ft above National Geodetic Vertical Datum of 1929. See WSP 2131 for history of changes prior to September 1968.

REMARKS.--Estimated daily discharges: Sept. 26-30. Records good. Flow completely regulated by Shasta Lake (station 11370000), 52 mi upstream, since Dec. 30, 1943. Diversions, in addition to those on tributaries, for irrigation of about 22,000 acres between stations at Keswick and above Bend Bridge. Transbasin diversion from Trinity River to Whiskeytown Lake (station 11371700) via Judge Francis Carr powerplant (station 11525430) started in April 1963.

AVERAGE DISCHARGE.--71 years (water years 1892-1962), prior to transbasin diversion from Trinity River, 11,400 ft³/s, 8,259,000 acre-ft/yr; 26 years (water years 1963-88), 13,480 ft³/s, 9,766,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 291,000 ft³/s, Feb. 28, 1940, gage height, 38.9 ft, site and datum then in use, from rating curve extended above 170,000 ft³/s on basis of velocity-area studies; minimum (water years 1892-1988), 2,000 ft³/s, Mar. 29, 1944. Since regulation by Shasta Dam in 1943, maximum discharge, 157,000 ft³/s, Jan. 24, 1970, gage height, 36.60 ft; minimum, 2,000 ft³/s, Mar. 29, 1944.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 41,000 ft³/s, Jan. 4, gage height, 16.07 ft; minimum daily, 4,140 ft³/s, Nov. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6040	4590	6420	5230	5900	5920	9030	9380	10500	14500	15000	8820
2	6000	4700	11900	5050	5870	5960	10400	10700	10000	14600	14800	8820
3	6060	4700	9520	11100	5630	5840	11400	11600	9690	14600	14700	8820
4	6080	4540	6290	33400	5110	5400	11400	11600	9920	14700	13800	8820
5	6050	4540	7100	15900	5000	5110	11300	11700	10100	14700	13600	8820
6	6070	4480	10700	9890	4890	5130	12000	11700	10300	14700	13600	8820
7	6090	4400	10700	7490	4830	5110	12400	12500	10800	14600	13600	8490
8	6100	4260	8630	11800	4760	4850	13000	14500	11100	14600	13600	8010
9	6090	4320	18200	18700	4800	5310	14000	16200	10100	14700	13600	7790
10	5850	4320	21300	14600	4850	5710	14500	16700	10300	14700	13600	7700
11	5700	4300	13000	15600	4820	5700	14600	16300	10200	14600	13600	7700
12	5670	4260	8200	9800	4800	6260	14600	14600	10200	14700	13600	7700
13	5650	4340	6810	7810	4850	6610	14500	12300	9820	14700	13600	7500
14	5500	4390	6240	7030	4780	6690	14300	11300	9930	15000	13600	7180
15	5200	4350	5800	9430	4750	6660	14500	11000	10500	14900	13600	7020
16	5030	4310	6220	11800	4710	7050	14500	11100	10800	14600	13600	6830
17	5030	4330	6650	10500	4610	7450	14500	11700	11100	14500	13600	6830
18	5020	4370	5920	7900	4540	7420	14700	10900	11400	14800	12800	6770
19	5030	4390	5550	6790	4510	7430	14900	10700	11900	14800	11500	6700
20	4950	4350	5310	6190	4490	7410	14000	10200	12200	14900	10400	6700
21	5010	4420	5190	5820	4470	6840	12000	9680	12500	15000	10400	6700
22	5020	4310	5230	5550	4430	6520	12200	9660	12500	15100	10400	6700
23	5120	4260	5250	5370	4620	6530	13100	9530	12500	14500	10400	6700
24	4800	4230	5070	5420	4810	6380	11900	9330	12500	14600	10400	6700
25	4470	4180	5020	5440	5060	7720	11500	9850	12500	15000	9620	7110
26	4470	4160	4950	5410	5340	9020	11300	9720	13400	15100	9030	7340
27	4440	4200	4920	5290	5310	9040	10500	9750	14600	14600	8820	7340
28	4460	4160	5400	5250	5340	8880	9160	10100	14600	14700	8820	7340
29	4530	4140	7380	6070	5420	8970	9020	11000	14600	14600	8820	7790
30	4510	4350	6430	8550	---	9030	9060	11300	14400	15100	8820	7710
31	4530	---	5550	6380	---	9060	---	11400	---	15100	8820	---
TOTAL	164570	130650	240850	290560	143300	210810	374270	358000	344960	457300	374150	227270
MEAN	5309	4355	7769	9373	4941	6800	12480	11550	11500	14750	12070	7576
MAX	6100	4700	21300	33400	5900	9060	14900	16700	14600	15100	15000	8820
MIN	4440	4140	4920	5050	4430	4850	9020	9330	9690	14500	8820	6700
AC-FT	326400	259100	477700	576300	284200	418100	742400	710100	684200	907100	742100	450800
CAL YR 1987	TOTAL	3294570	MEAN	9026	MAX	31700	MIN	4140	AC-FT	6535000		
WTR YR 1988	TOTAL	3316690	MEAN	9062	MAX	33400	MIN	4140	AC-FT	6579000		

SACRAMENTO RIVER BASIN

11379500 ELDER CREEK NEAR PASKENTA, CA

LOCATION.--Lat 40°01'29", long 122°30'31", in SE 1/4 NW 1/4 sec.14, T.25 N., R.6 W., Tehama County, Hydrologic Unit 18020103, on left bank 2.5 mi downstream from South Fork Elder Creek, 8.2 mi northwest of Flournoy, and 10 mi north of Paskenta.

DRAINAGE AREA.--92.4 mi².

PERIOD OF RECORD.--October 1948 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

CHEMICAL DATA: Water years 1959-66.

WATER TEMPERATURE: Water year 1963.

SEDIMENT DATA: Water years 1963-70.

REVISED RECORDS.--WSP 1515: 1956. WDR CA-70-2: 1967(P). WDR CA-75-4: 1966-67(P), 1969-71(P), 1973(P).

WDR CA-78-4: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 718.1 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 13, 1965, water-stage recorder at site 300 ft downstream at elevation 5.13 ft lower.

REMARKS.--No estimated daily discharges. Records good. No regulation or large diversion above station.

AVERAGE DISCHARGE.--40 years, 103 ft³/s, 74,620 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,700 ft³/s, Feb. 28, 1983, gage height, 12.10 ft, present site and datum, from rating curve extended above 5,200 ft³/s on basis of slope-area measurements at gage height 11.34 ft and of peak flow; maximum gage height, 13.90 ft, Feb. 24, 1958, site and datum then in use; no flow at times some years.

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)
Dec. 6	0930	*3,710	*7.70	Apr. 22	2030	1,560	5.75
Jan. 4	0015	1,600	5.80				

Minimum daily, 0.18 ft³/s, Oct. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.28	3.9	66	55	135	97	36	53	29	9.9	1.8	.44
2	.29	5.2	365	54	118	86	35	50	28	9.6	1.8	.37
3	.31	4.1	163	709	104	79	35	47	26	9.3	1.8	.24
4	.31	3.6	173	920	94	77	36	45	26	9.0	1.6	.30
5	.18	3.4	215	287	87	76	34	49	30	9.1	1.5	.28
6	.22	3.4	1170	179	82	74	34	48	47	8.7	1.7	.24
7	.29	3.6	375	145	78	70	34	299	91	8.2	1.9	.30
8	.37	3.8	374	129	75	66	33	167	64	7.6	1.8	.30
9	.43	5.4	482	169	79	65	31	114	41	6.9	1.6	.40
10	.50	6.0	545	205	81	61	30	88	35	6.0	1.4	.46
11	.60	5.1	296	301	83	59	30	75	31	5.9	1.2	.30
12	.73	4.7	182	191	85	55	30	67	28	6.1	1.3	.32
13	.88	8.2	131	153	86	52	31	61	25	6.2	1.7	.45
14	.70	11	103	145	81	49	35	55	23	6.2	1.8	.46
15	.67	7.3	92	235	79	47	33	51	22	5.9	2.0	.49
16	.64	6.2	192	236	77	45	31	54	21	5.1	1.8	.56
17	.65	12	168	201	73	43	32	65	21	4.1	1.5	.54
18	.52	17	121	161	69	42	31	46	20	3.7	1.3	.44
19	.51	10	100	136	65	42	44	42	18	3.4	1.0	.50
20	.58	19	83	119	63	43	478	38	17	2.8	.82	.59
21	.62	26	81	109	61	43	136	36	16	2.6	.79	.59
22	.79	13	90	107	61	43	346	34	16	2.4	.75	.67
23	2.5	10	79	123	62	43	286	33	15	2.2	.83	.68
24	3.6	8.6	69	143	62	43	132	32	14	2.0	.82	.81
25	3.5	7.6	62	142	62	43	99	31	13	2.5	.73	.78
26	2.4	7.0	57	143	65	44	85	30	13	2.6	.60	1.0
27	2.0	6.7	55	145	75	46	77	29	12	2.4	.45	1.2
28	3.3	6.7	65	148	102	44	70	32	11	2.0	.51	1.2
29	6.5	6.5	85	212	105	43	66	30	11	1.6	.49	1.0
30	5.2	15	74	185	---	40	58	28	10	1.5	.42	.92
31	4.1	---	62	154	---	37	---	27	---	1.7	.48	---
TOTAL	44.17	250.0	6175	6341	2349	1697	2468	1856	774	157.2	38.19	16.83
MEAN	1.42	8.33	199	205	81.0	54.7	82.3	59.9	25.8	5.07	1.23	.56
MAX	6.5	26	1170	920	135	97	478	299	91	9.9	2.0	1.2
MIN	.18	3.4	55	54	61	37	30	27	10	1.5	.42	.24
AC-FT	88	496	12250	12580	4660	3370	4900	3680	1540	312	76	33

CAL YR 1987	TOTAL	14939.31	MEAN	40.9	MAX	1170	MIN	0	AC-FT	29630
WTR YR 1988	TOTAL	22166.39	MEAN	60.6	MAX	1170	MIN	.18	AC-FT	43970

SACRAMENTO RIVER BASIN

11381500 MILL CREEK NEAR LOS MOLINOS, CA

LOCATION.--Lat 40°03'17", long 122°01'23", in NE 1/4 NW 1/4 sec.6, T.25 N., R.1 W., Tehama County, Hydrologic Unit 18020103, on right bank 4.5 mi northeast of Los Molinos and 5.5 mi upstream from mouth.

DRAINAGE AREA.--131 mi².

PERIOD OF RECORD.--September 1909 to August 1913 (fragmentary), October 1928 to current year.

REVISED RECORDS.--WSP 1315-A: 1929(M). WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 385 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to September 1913, nonrecording gage at site 0.3 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Records good. No storage or large diversion above station.

AVERAGE DISCHARGE.--60 years (water years 1929-88), 305 ft³/s, 221,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD (water years 1929-88): Maximum discharge, 36,400 ft³/s, Dec. 11, 1937, gage height, 23.4 ft, from floodmarks, from rating curve extended above 14,000 ft³/s on basis of step-backwater computation and slope-area measurement of peak flow; minimum, 49 ft³/s, Dec. 13, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,400 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 4	0415	*1,980	*6.47				

Minimum daily, 79 ft³/s, Sept. 5-8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85	93	225	156	225	275	178	224	244	135	95	81
2	85	101	1050	148	212	274	186	209	283	131	95	81
3	84	95	567	679	192	248	191	200	248	130	93	81
4	84	91	250	1390	179	237	192	200	228	129	92	80
5	84	91	227	707	169	238	186	202	222	128	91	79
6	84	91	625	403	164	241	192	192	229	125	90	79
7	84	91	447	296	159	237	206	204	220	123	91	79
8	85	90	427	456	156	221	201	233	217	121	91	79
9	85	97	420	377	156	239	190	220	203	120	90	80
10	85	94	953	363	157	218	189	203	192	118	91	81
11	86	91	709	438	166	201	198	210	187	116	93	80
12	88	91	360	326	174	190	209	219	181	116	91	80
13	88	99	260	264	180	185	214	247	181	115	89	80
14	86	128	215	237	177	183	233	231	184	111	89	81
15	86	98	194	371	176	184	216	235	190	109	90	83
16	86	95	207	621	177	178	206	258	193	106	90	83
17	86	103	199	459	172	174	212	287	201	103	89	83
18	86	108	172	317	167	177	227	242	195	101	88	82
19	85	98	160	259	162	184	395	233	193	100	87	83
20	85	101	149	225	161	193	408	233	190	99	86	85
21	85	113	147	206	164	198	389	239	190	99	85	84
22	86	100	213	193	167	196	303	254	188	99	85	84
23	92	97	178	184	170	189	292	246	184	99	85	84
24	95	95	151	179	174	191	269	243	177	101	84	84
25	91	95	144	174	176	192	246	240	170	101	84	85
26	88	93	137	170	179	201	240	234	167	101	83	87
27	87	93	135	169	191	217	242	225	159	104	83	87
28	88	93	192	170	203	197	241	232	150	99	82	86
29	92	93	389	206	216	189	244	271	145	97	82	85
30	92	107	226	313	---	185	250	222	141	97	82	84
31	91	---	180	242	---	178	---	204	---	95	82	---
TOTAL	2694	2925	9908	10698	5121	6410	7145	7092	5852	3428	2728	2470
MEAN	86.9	97.5	320	345	177	207	238	229	195	111	88.0	82.3
MAX	95	128	1050	1390	225	275	408	287	283	135	95	87
MIN	84	90	135	148	156	174	178	192	141	95	82	79
AC-FT	5340	5800	19650	21220	10160	12710	14170	14070	11610	6800	5410	4900

CAL YR 1987 TOTAL 78612 MEAN 215 MAX 3010 MIN 84 AC-FT 155900
WTR YR 1988 TOTAL 66471 MEAN 182 MAX 1390 MIN 79 AC-FT 131800

SACRAMENTO RIVER BASIN

11382000 THOMES CREEK AT PASKENTA, CA

LOCATION.--Lat 39°53'16", long 122°31'41", in SE 1/4 SW 1/4 sec.34, T.24 N., R.6 W., Tehama County, Hydrologic Unit 18020103, on left bank 1.2 mi downstream from Digger Creek and 1.0 mi downstream from highway bridge at Paskenta.

DRAINAGE AREA.--203 mi².

PERIOD OF RECORD.--October 1920 to current year. Monthly discharge only for some periods, published in

WSP 1315-A. Prior to 1943, published as Thomas Creek at Paskenta.

CHEMICAL DATA: Water years 1959-81.

WATER TEMPERATURE: Water years 1962-79, 1981-83.

SEDIMENT DATA: Water years 1963-73, 81-83.

REVISED RECORDS.--WSP 1345: 1923, 1924-28(M), 1938, 1940(M). WDR CA-78-4: Drainage area. WDR CA-79-4(M).

WDR CA-81-4(M). WDR CA-86-4.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 720 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to June 20, 1942, nonrecording gage and water-stage recorder at several sites about 1.5 mi upstream at different datums; June 21, 1942, to Sept. 30, 1959, water-stage recorder at site 1.4 mi upstream at datum 732.85 ft; and Oct. 1, 1959, to Oct. 9, 1974, at datum 731.10 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Aug. 25 to Sept. 1. Records poor. No storage or large diversions above station.

AVERAGE DISCHARGE.--68 years, 295 ft³/s, 213,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,800 ft³/s, Dec. 22, 1964, gage height, 12.7 ft, from floodmarks, present site and datum, from rating curve extended above 6,000 ft³/s on basis of slope-area measurements at gage height 10.10 ft and of peak flow; no flow at times some years.

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)
Dec. 2	1600	3,940	6.98	Dec. 10	1000	*6,430	*7.92
Dec. 6	1315	3,520	6.78				

Minimum daily, 0.10 ft³/s, Oct. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.27	6.6	339	144	578	462	139	124	75	19	3.2	.35
2	.39	6.7	2910	142	504	396	143	110	129	17	2.6	.31
3	.16	6.3	1260	506	441	361	145	109	86	15	2.8	.30
4	.68	5.7	890	608	366	356	155	108	72	14	2.6	.26
5	.68	5.8	799	270	304	354	149	114	71	14	3.2	.20
6	.12	5.8	1920	193	286	330	148	115	86	14	3.5	.19
7	.10	5.8	1100	174	271	307	158	282	117	15	3.3	.18
8	.40	6.5	651	158	294	287	163	218	108	15	3.1	.18
9	.18	7.4	1250	318	376	305	151	171	90	12	2.7	.18
10	.69	11	3760	576	434	285	141	150	90	12	2.4	.18
11	1.2	14	1590	888	463	254	140	138	82	9.9	2.3	.18
12	1.3	10	950	489	498	233	148	131	75	9.6	2.1	.18
13	1.3	11	681	361	497	216	154	141	68	8.9	2.0	.19
14	1.6	72	542	463	437	201	174	125	65	8.2	1.9	.19
15	1.8	33	454	750	438	190	156	121	61	8.6	2.0	.19
16	1.9	19	478	620	423	181	142	125	60	8.6	1.9	.19
17	2.0	32	389	490	367	165	138	142	61	8.3	1.9	.20
18	2.2	86	319	381	349	168	130	115	58	7.4	1.8	.25
19	2.8	50	285	318	308	178	150	102	56	6.9	1.5	.25
20	2.5	52	253	284	302	182	471	93	51	6.4	1.5	.28
21	3.0	64	266	267	311	181	218	87	49	6.0	1.4	.37
22	3.0	42	347	276	335	180	236	87	47	6.1	1.3	.37
23	8.6	24	300	384	350	188	244	86	41	5.5	1.3	.91
24	13	19	256	594	359	181	171	82	35	5.4	1.0	1.6
25	8.9	17	234	703	345	172	144	75	32	4.8	.90	1.6
26	6.3	15	221	778	350	179	129	73	31	4.8	.80	1.1
27	6.1	14	211	810	410	197	125	73	29	4.8	.65	1.4
28	5.8	13	219	805	482	180	124	69	26	3.9	.60	1.5
29	9.2	12	226	1130	496	161	131	82	24	4.0	.60	1.5
30	6.1	17	194	1100	---	151	137	73	21	3.6	.50	1.5
31	6.7	---	169	721	---	145	---	62	---	3.4	.45	---
TOTAL	98.97	683.6	23463	15701	11374	7326	4954	3583	1896	282.1	57.80	16.28
MEAN	3.19	22.8	757	506	392	236	165	116	63.2	9.10	1.86	.54
MAX	13	86	3760	1130	578	462	471	282	129	19	3.5	1.6
MIN	.10	5.7	169	142	271	145	124	62	21	3.4	.45	.18
AC-FT	196	1360	46540	31140	22560	14530	9830	7110	3760	560	115	32

CAL YR 1987	TOTAL	73256.73	MEAN 201	MAX 3760	MIN .05	AC-FT 145300
WTR YR 1988	TOTAL	69435.75	MEAN 190	MAX 3760	MIN .10	AC-FT 137700

SACRAMENTO RIVER BASIN

11383500 DEER CREEK NEAR VINA, CA

LOCATION.--Lat 40°00'51", long 121°56'50", in NW 1/4 NE 1/4 sec.23, T.25 N., R.1 W., Tehama County, Hydrologic Unit 18020103, on left bank 0.5 mi upstream from diversion dam and 7.9 mi northeast of Vina.

DRAINAGE AREA.--208 mi².

PERIOD OF RECORD.--October 1911 to December 1915, March 1920 to December 1937, January 1939 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

REVISED RECORDS.--WSP 1315-A: 1940-42(M). WSP 1931: Drainage area. WDR CA-82-4: Datum.

GAGE.--Water-stage recorder. Datum of gage is 479.2 ft above National Geodetic Vertical Datum of 1929, from river-profile survey. Prior to Oct. 9, 1928, nonrecording gage at site 0.8 mi downstream at different datum Oct. 9, 1928, to Jan. 19, 1939, water-stage recorder at present site at datum 2.64 ft higher.

REMARKS.--Estimated daily discharges: Mar. 13 to May 5. Records fair. No storage or large diversions above station.

AVERAGE DISCHARGE.--70 years (water years 1912-15, 1921-37, 1940-88), 321 ft³/s, 232,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,800 ft³/s, Dec. 10, 1937, gage height, 19.2 ft, present datum, from floodmarks, from rating curve extended above 9,200 ft³/s on basis of velocity-area studies; minimum, 43 ft³/s, Dec. 13, 1932.

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)
Jan. 4	0515	*1,800	*6.08				
Minimum daily, 67 ft ³ /s, Sept. 4-9, 11-13.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	77	88	184	157	216	250	131	155	115	82	72	68
2	77	95	796	148	201	276	137	146	128	82	71	68
3	77	88	459	517	185	243	140	141	116	81	71	68
4	77	86	206	1380	174	229	140	140	110	80	71	67
5	77	84	195	713	165	228	136	139	113	80	71	67
6	77	85	705	454	158	229	148	139	124	80	71	67
7	77	86	530	329	153	225	148	145	126	79	71	67
8	78	86	391	386	150	209	142	171	137	79	71	67
9	78	91	425	352	149	218	138	163	125	79	71	67
10	79	88	715	350	149	203	139	145	117	78	71	68
11	79	85	575	502	155	186	146	136	112	77	73	67
12	81	85	302	371	165	175	152	131	108	77	73	67
13	82	94	223	298	168	178	160	135	105	78	71	67
14	80	106	186	262	165	166	168	130	103	78	71	68
15	80	89	169	382	162	162	155	125	101	77	71	68
16	80	87	183	663	163	160	148	125	100	77	71	68
17	79	93	186	520	157	153	158	146	98	76	71	68
18	80	96	162	352	152	149	198	135	97	75	70	68
19	80	89	150	284	148	145	290	125	95	75	70	68
20	80	96	140	244	145	142	270	119	94	74	70	70
21	80	102	137	220	148	142	250	116	92	74	69	70
22	81	92	198	204	150	141	218	113	92	74	69	69
23	87	90	180	193	151	140	200	112	91	74	69	70
24	86	87	152	189	151	140	185	110	89	74	69	70
25	84	87	139	182	151	147	177	107	88	75	69	70
26	81	86	132	176	153	152	172	106	89	75	68	71
27	82	86	127	171	162	148	172	105	87	76	68	71
28	83	86	203	168	170	142	173	110	85	75	68	70
29	86	86	364	193	182	135	176	151	83	73	68	69
30	85	99	222	267	---	130	177	131	82	73	68	68
31	85	---	177	230	---	130	---	116	---	72	68	---
TOTAL	2495	2698	8913	10857	4698	5473	5144	4068	3102	2379	2175	2051
MEAN	80.5	89.9	288	350	162	177	171	131	103	76.7	70.2	68.4
MAX	87	106	796	1380	216	276	290	171	137	82	73	71
MIN	77	84	127	148	145	130	131	105	82	72	68	67
AC-FT	4950	5350	17680	21530	9320	10860	10200	8070	6150	4720	4310	4070

CAL YR 1987 TOTAL 73334 MEAN 201 MAX 3530 MIN 75 AC-FT 145500
WTR YR 1988 TOTAL 54053 MEAN 148 MAX 1380 MIN 67 AC-FT 107200

SACRAMENTO RIVER BASIN

RESERVOIRS IN STONY CREEK BASIN, CA

11385100 EAST PARK RESERVOIR NEAR STONYFORD.--Lat 39°21'24", long 122°30'53", in SW 1/4 NE 1/4 sec.3, T.17 N., R.6 W., Colusa County, Hydrologic Unit 18020115, near south side of spillway section on East Park Dam on Little Stony Creek, 1.9 mi southeast of Stonyford. DRAINAGE AREA, 98.2 mi². PERIOD OF RECORD, October 1969 to current year. GAGE, nonrecording gage read once daily. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation).

Reservoir is formed by a concrete arch-type dam. Storage began in 1910. Capacity, 48,211 acre-ft, between elevations 1,131.68 ft, invert of sluice pipe, and 1,198.18 ft, crest of spillway. Capacity increased to 50,889 acre-ft with the addition of flashboards to an elevation of 1,199.68 ft. Dead storage, 279 acre-ft. Records of contents provided by U.S. Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 53,500 acre-ft, Mar. 30, 1974, elevation, 1,201.10 ft; minimum, 280 acre-ft, Aug. 8 to Oct. 31, 1972, Apr. 30 to Nov. 1, 1977, elevation, 1,131.68 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 51,000 acre-ft, Apr. 6, 7, elevation, 1,199.74 ft; minimum, 16,830 acre-ft, Oct. 21, elevation, 1,174.42 ft.

11386100 STONY GORGE RESERVOIR NEAR ELK CREEK.--Lat 39°35'09", long 122°31'54", in NE 1/4 SE 1/4 sec.16, T.20 N., R.6 W., Glenn County, Hydrologic Unit 18020115, on south end of Stony Gorge Dam on Stony Creek, 1.3 mi southeast of Elk Creek. DRAINAGE AREA, 301 mi². PERIOD OF RECORD, October 1969 to current year. GAGE, nonrecording gage read once daily. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation).

Reservoir is formed by slab and buttress-type dam. Storage began in 1928. Capacity, 50,383 acre-ft between elevations 728.0 ft, top of low intake, and 841.0 ft, crest of spillway. No dead storage. Records of contents provided by U.S. Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 54,630 acre-ft, Mar. 26, 1971, elevation, 844.20 ft; minimum, 3,810 acre-ft, Nov. 6, 1971, elevation, 779.20 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 50,360 acre-ft, Apr. 14, elevation, 840.98 ft; minimum, 12,880 acre-ft, Oct. 24, elevation, 800.90 ft.

MONTHEND ELEVATION NGVD AND CONTENTS, AT 0800, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
11385100 EAST PARK RESERVOIR				11386100 STONY GORGE RESERVOIR		
Sept. 30.....	1,175.68	17,980	-1,960	800.85	12,850	-2,280
Oct. 31.....	1,174.94	17,300	-680	801.45	13,210	+360
Nov. 30.....	1,176.16	18,440	+1,140	803.00	14,140	+930
Dec. 31.....	1,188.26	32,600	+14,160	829.10	36,220	+22,080
CAL YR 1987	--	--	+4,340	--	--	+11,330
Jan. 31.....	1,198.42	48,640	+16,040	831.30	38,650	+2,430
Feb. 29.....	1,198.32	48,460	-180	840.52	49,760	+11,110
Mar. 31.....	1,199.46	50,500	+2,040	840.58	49,840	+80
Apr. 30.....	1,199.62	50,780	+280	840.95	50,320	+480
May 31.....	1,198.24	48,320	-2,460	838.48	47,170	-3,150
June 30.....	1,192.80	39,300	-9,020	834.95	42,860	-4,310
July 31.....	1,185.88	29,400	-9,900	827.33	34,340	-8,520
Aug. 31.....	1,178.08	20,340	-9,060	814.88	22,680	-11,660
Sept. 30.....	1,176.18	18,460	-1,880	811.03	19,650	-3,030
WTR YR 1988	--	--	+480	--	--	+6,800

SACRAMENTO RIVER BASIN

11387990 SOUTH DIVERSION CANAL NEAR ORLAND, CA

LOCATION.--Lat 39°48'36", long 122°19'45", in SW 1/4 NE 1/4 sec.32, T.23 N., R.4 W., Tehama County, Hydrologic Unit 18020103, on left bank canal 0.4 mi downstream from Black Butte Dam and 8.2 mi northwest of Orland.

PERIOD OF RECORD.--July 1955 to current year. Prior to October 1961, published as an adjustment to Stony Creek at Black Butte damsite, near Orland (station 11388000).

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 372.64 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 23, 1956, at site 0.5 mi upstream at different datum. Oct. 23, 1956, to Sept. 30, 1960, at present site and datum. Oct. 1, 1960, to Sept. 30, 1961, at datum 1.00 ft lower.

REMARKS.--No estimated daily discharges. Records good. Canal diverts from Black Butte Lake at right end of Black Butte Dam; water is used for irrigation. A pump with a capacity of 6 ft³/s diverted water at times above station and was included in the canal record prior to Mar. 1, 1970. Total diverted during the current year was 805 acre-ft. Prior to October 1987 records were provided by U.S. Army Corps of Engineers.

AVERAGE DISCHARGE.--33 years, 98.3 ft³/s, 71,220 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 320 ft³/s, May 8, 1969; no flow at times most years.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	87	1.7	.04	.18	.14	9.9	83	6.1	97	230	183	178
2	98	1.7	.04	.21	.10	13	112	89	128	208	199	151
3	79	1.0	.04	2.0	.08	16	91	138	191	186	181	140
4	66	.75	.05	1.4	.08	15	88	202	200	161	198	130
5	98	.78	.04	.20	.08	74	77	253	198	155	199	148
6	127	.78	.09	.05	.08	90	73	257	206	165	168	169
7	146	.81	.04	.12	.08	84	115	103	171	166	142	167
8	143	3.5	.10	.16	.08	83	137	7.5	123	153	143	169
9	102	.26	.08	.47	.08	95	161	.13	74	159	161	149
10	62	.22	.05	.30	11	104	165	.13	75	166	164	147
11	65	.95	.07	.26	29	110	180	.13	90	184	113	119
12	77	1.3	.07	.24	31	133	195	.13	114	188	124	126
13	76	1.3	.14	.21	27	132	189	.13	140	188	141	154
14	70	1.1	.25	.19	55	147	145	.14	177	178	135	164
15	57	1.1	.30	.18	63	160	111	.11	188	167	152	163
16	34	1.1	.45	.24	76	141	90	90	192	164	173	135
17	24	.81	.13	.31	84	114	69	104	215	164	210	112
18	24	.08	.09	.20	57	91	50	108	228	181	214	97
19	49	.06	.10	.18	.13	84	14	142	231	215	187	93
20	64	.08	.17	.20	.13	90	.48	169	232	226	142	124
21	94	.04	.18	.18	.13	121	.20	201	210	198	113	118
22	98	.04	.16	.18	.13	132	.11	213	151	199	132	132
23	30	.04	.16	.18	.13	132	.23	216	116	204	174	116
24	.25	.04	.15	.18	33	139	.21	221	120	165	186	107
25	.25	.28	.16	.21	48	145	.18	213	128	161	167	106
26	.22	1.5	.18	.21	48	141	.25	190	132	182	134	111
27	.39	.98	.22	.18	44	150	.29	143	170	195	127	98
28	1.6	.54	.71	.21	38	178	.21	97	184	174	145	110
29	1.5	.54	.26	.48	33	196	.18	95	200	132	171	114
30	1.5	.33	.18	.20	---	175	.19	104	232	145	179	108
31	1.5	---	.19	.17	---	102	---	101	---	154	184	---
TOTAL	1777.21	23.71	4.89	9.68	678.45	3396.9	2147.53	3463.50	4913	5513	5041	3955
MEAN	57.3	.79	.16	.31	23.4	110	71.6	112	164	178	163	132
MAX	146	3.5	.71	2.0	84	196	195	257	232	230	214	178
MIN	.22	.04	.04	.05	.08	9.9	.11	.11	74	132	113	93
AC-FT	3530	47	9.7	19	1350	6740	4260	6870	9740	10940	10000	7840
CAL YR 1987	TOTAL	31870.11	MEAN	87.3	MAX	255	MIN	0	AC-FT	63210		
WTR YR 1988	TOTAL	30923.87	MEAN	84.5	MAX	257	MIN	.04	AC-FT	61340		

SACRAMENTO RIVER BASIN

11387995 BLACK BUTTE LAKE NEAR ORLAND, CA

LOCATION.--Lat 39°48'50", long 122°20'12", in SE 1/4 SW 1/4 sec.29, T.23 N., R.4 W., Tehama County, Hydrologic Unit 18020115, in control tower in right abutment of main dam on Stony Creek, 8 mi northwest of Orland.

DRAINAGE AREA.--738 mi².

PERIOD OF RECORD.--October 1963 to current year. Prior to October 1971, published as Black Butte Reservoir near Orland.

REVISED RECORDS.--WDR CA-77-4; Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Contents based on capacity table dated September 1978 provided by U.S. Army Corps of Engineers.

REMARKS.--Lake is formed by seven earthfill dams. Storage began Oct. 28, 1963. Usable capacity, 143,676 acre-ft, between elevations 375.0 ft, invert of control tower, and 473.5 ft, spillway crest. Normal operating pool is from elevation 414.6 ft, capacity, 6,640 acre-ft, to 473.5 ft, capacity, 143,676 acre-ft. South Diversion Canal (station 11387990) diverts at right end of dam. Lake is used for irrigation, flood control, and recreation. Water is released down Stony Creek (station 11388000) for irrigation. Figures given herein represent total contents at 2400 hours.

COOPERATION.--Records were provided by U.S. Army Corps of Engineers.

EXTREMES (at 2400) FOR PERIOD OF RECORD.--Maximum contents, 168,198 acre-ft, Feb. 18, 1986, elevation, 478.76 ft; minimum since first filling, 1,006 acre-ft, Nov. 6, 1977, elevation, 397.20 ft.

EXTREMES (at 2400) FOR CURRENT YEAR.--Maximum contents, 58,304 acre-ft, May 19, elevation, 449.26 ft; minimum, 22,726 acre-ft, Dec. 1, elevation, 431.38 ft.

Capacity table (elevation, in feet NGVD, and contents, in acre-feet)
(Based on survey by U.S. Corps of Engineers, in 1977)

375	0	394	597	409	3,948	440	37,172
382	20	397	950	412	5,260	450	60,258
385	74	400	1,432	415	6,874	460	90,634
388	178	403	2,070	420	10,340	470	128,571
391	346	406	2,897	430	20,845	480	174,303

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31057	24175	22726	39531	37703	53867	53768	54667	55120	52291	46980	45468
2	30572	24087	23753	39409	39409	54592	53520	54466	55196	52047	46889	45401
3	30196	24029	24514	44141	41101	55652	53371	54266	54994	51853	46798	45401
4	29856	23941	24961	55170	42689	56416	53051	53867	54868	51707	46662	45379
5	29502	23883	25671	55120	43857	56647	52756	53545	54692	51537	46526	45312
6	29034	23825	27936	48804	44470	56904	52560	53273	54541	51320	46480	45156
7	28539	23767	29687	42070	45001	57368	52266	53694	54567	51127	46480	44669
8	28049	23753	31300	37309	45513	57809	52047	54216	54617	51055	46526	44097
9	27662	23753	32755	36491	46051	58044	51707	54541	54768	50983	46480	43574
10	27421	23738	36413	35532	46548	57913	51489	55271	54969	50887	46367	42947
11	27135	23666	38359	34515	47048	57731	51200	55703	55120	50720	46367	42432
12	26835	23594	39266	32539	47529	57576	50887	56212	55246	50480	46345	41943
13	26537	23551	39961	30883	47944	57757	50504	56647	55271	50218	46390	41436
14	26287	23464	40476	30918	48338	57939	50456	57110	55271	50004	46526	40871
15	26071	23407	41038	32111	48640	58096	50456	57550	55145	49767	46594	40290
16	25901	23349	42113	31828	48944	58122	50456	57861	54969	49461	46571	39776
17	25794	23407	43054	31916	49155	57913	50385	58122	54642	49272	46458	39145
18	25702	23349	43726	32503	49343	57705	50504	58226	54367	49037	46299	38761
19	25428	23292	43639	32683	49696	57524	50911	58304	54117	48804	46187	38380
20	25081	23307	42990	33008	50052	57368	51320	57913	53768	48477	46096	37902
21	24692	23264	42432	33682	50385	57162	51780	57317	53570	48245	46074	37467
22	24351	23207	42028	34814	50648	56956	52193	56724	53495	47990	46029	36996
23	24588	23136	41499	36124	50887	56750	52584	56059	53495	47783	45916	36549
24	24603	23065	41059	37743	51007	56519	52903	55423	53471	47713	45827	36105
25	24558	22965	40621	37782	51103	56263	53273	54843	53446	47667	45602	35703
26	24514	22923	40167	37113	51176	55956	53570	54367	53446	47598	45647	35266
27	24469	22867	39776	37016	51392	55550	53867	54292	53371	47460	45737	34852
28	24440	22810	39735	37388	51853	55120	54117	54417	53150	47391	45782	34422
29	24381	22754	39878	37565	52486	54592	54216	54567	52879	47346	45759	34014
30	24322	22754	39858	37211	---	54167	54491	54768	52584	47254	45692	33609
31	24234	---	39735	37016	---	53967	---	54944	---	47117	45580	---
MAX	31057	24175	43726	55170	52486	58122	54491	58304	55271	52291	46980	45468
MIN	24234	22754	22726	30883	37703	53867	50385	53273	52584	47117	45580	33609
a	432.43	431.40	441.28	439.92	446.96	447.56	447.77	447.95	447.00	444.69	444.01	438.12
b	-7259	-1480	+16981	-2719	+15470	+1481	+524	+453	-2360	-5467	-1537	-11971
c	780	288	318	250	580	1040	941	1333	1845	2418	1891	1870

CAL YR 1987 b +22783

WTR YR 1988 b + 2116

a Elevation, in feet NGVD, at end of month.

b Change in contents, in acre-feet.

c Evaporation, in acre-feet; not reviewed by U.S. Geological Survey.

SACRAMENTO RIVER BASIN

11388000 STONY CREEK BELOW BLACK BUTTE DAM, NEAR ORLAND, CA

LOCATION.--Lat 39°49'07", long 122°19'26", in NW 1/4 SW 1/4 sec.28, T.23 N., R.4 W., Tehama County, Hydrologic Unit 18020103, on left bank 200 ft downstream from road bridge, 0.6 mi downstream from Black Butte Dam, 8.1 mi northwest of Orland

DRAINAGE AREA.--738 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1955 to current year. Prior to October 1962, published as Stony Creek at Black Butte damsite, near Orland.

REVISED RECORDS.--WDR CA-77-4: Drainage area.

GAGE.--Water-stage recorder and grouted rock control. Datum of gage is 366.18 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Dec. 12, 1960, water-stage recorder at site 0.6 mi upstream at different datum. Dec. 12, 1960, to Nov. 30, 1963, nonrecording gage at bridge 200 ft upstream at datum 4.04 ft higher.

REMARKS.--No estimated daily discharges. Records good. Many diversions above station for irrigation. Flow completely regulated by Black Butte Lake (station 11387995), East Park Reservoir (station 11385100), and Stony Gorge Reservoir (station 11386100). Prior to October 1956, figures of daily discharge included water diverted to South Diversion Canal, which diverts 0.6 mi above station. Prior to October 1987 records were provided by U.S. Army Corps of Engineers.

AVERAGE DISCHARGE.--33 years, 662 ft³/s, 479,600 acre-ft/yr, adjusted for diversions to South Diversion Canal since 1956, Wackerman Ranch since 1979, and for change in contents in and evaporation from Black Butte Lake since 1964; unadjusted for same period, 547 ft³/s, 396,300 acre-ft.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,300 ft³/s, Feb. 24, 1958, gage height, 11.82 ft, site and datum then in use, from rating curve extended above 7,500 ft³/s on basis of slope-area measurement of peak flow; no flow many days in 1956, 1957, 1962. Since completion of Black Butte Dam in 1964, maximum discharge, 23,300 ft³/s, Feb. 18, 1986, gage height, 11.40 ft; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,720 ft³/s, Jan. 5, gage height, 8.06 ft; no flow Mar. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	111	35	34	238	953	0	126	40	51	132	122	123
2	120	35	34	239	263	1.2	117	94	76	129	93	114
3	94	36	34	256	66	24	90	116	102	125	107	111
4	66	40	34	895	35	24	67	122	113	120	114	119
5	61	37	34	3120	30	39	76	146	113	127	111	121
6	72	34	35	4900	30	31	85	134	108	134	96	103
7	76	34	30	4570	29	73	84	83	120	126	92	94
8	75	24	29	3490	29	92	93	38	106	91	95	99
9	65	.65	30	1790	29	97	102	30	92	73	110	104
10	53	3.7	29	1800	30	119	81	30	80	77	125	104
11	60	35	30	2370	28	131	114	28	67	98	136	99
12	63	34	31	2330	28	136	115	16	66	124	126	89
13	47	33	31	2020	29	144	114	9.1	61	132	84	89
14	42	31	16	1320	28	139	110	9.6	71	135	53	100
15	42	31	.48	1180	31	128	94	23	96	140	54	105
16	37	31	.06	1780	31	128	77	44	128	140	84	109
17	21	32	5.8	1860	30	127	67	42	135	121	94	109
18	23	32	32	1570	33	127	54	47	131	117	99	79
19	73	33	224	1500	33	108	36	66	120	117	109	68
20	91	34	459	1220	33	90	22	117	113	114	124	76
21	90	34	495	868	33	75	19	131	116	117	131	84
22	82	33	474	560	43	66	8.1	137	117	122	132	94
23	34	33	474	507	70	66	11	135	117	123	127	100
24	21	33	427	507	95	66	10	130	107	116	114	89
25	22	33	377	1200	91	63	10	114	91	110	98	82
26	22	31	374	1570	91	81	8.1	105	91	108	84	85
27	23	31	375	1110	36	110	8.0	99	82	113	77	90
28	26	31	309	1040	.48	119	9.1	68	80	117	92	77
29	31	32	241	1380	.02	117	9.0	22	97	134	101	77
30	33	33	238	1710	---	124	8.7	12	132	148	108	74
31	34	---	238	1460	---	130	---	31	---	147	122	---
TOTAL	1710	929.35	5174.34	50360	2257.50	2775.2	1825.0	2218.7	2979	3727	3214	2867
MEAN	55.2	31.0	167	1625	77.8	89.5	60.8	71.6	99.3	120	104	95.6
MAX	120	40	495	4900	953	144	126	146	135	148	136	123
MIN	21	.65	.06	238	.02	0	8.0	9.1	51	73	53	68
AC-FT	3390	1840	10260	99890	4480	5500	3620	4400	5910	7390	6370	5690

CAL YR 1987 TOTAL 29018.69 MEAN 79.5 MAX 495 MIN .06 AC-FT 57560 MEAN a 195 AC-FT a 141200
WTR YR 1988 TOTAL 80037.09 MEAN 219 MAX 4900 MIN 0 AC-FT 15880 MEAN a 326 AC-FT a 236600

a Adjusted for diversions to South Diversion Canal near Orland, Wackerman Ranch, and for change in contents and evaporation from Black Butte Lake. Adjustments provided by U.S. Army Corps of Engineers; evaporation adjustments not reviewed by U.S. Geological Survey.

SACRAMENTO RIVER BASIN

11388000 STONY CREEK BELOW BLACK BUTTE DAM, NEAR ORLAND, CA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1958 to current year.

CHEMICAL DATA: Water years 1958-79. Published as "at damsite" 1959-64.

WATER TEMPERATURE: Water years 1969 to current year.

SEDIMENT DATA: Water years 1958-59, 1961-62.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: June 1969 to current year.

INSTRUMENTATION.--Temperature recorder since June 1969.

REMARKS.--Interruptions in record were due to recorder failure July 5-7.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum recorded, 31.5 °C, Aug. 15, 1977; minimum recorded, 3.5 °C, Jan. 3, 4, Feb. 2, Dec. 9, 1972, Jan. 10, 1974, Dec. 21, 1978, Dec. 12, 1985.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 27.5 °C, Aug. 9; minimum recorded, 5.5 °C, Dec. 16, Jan. 3, 4, Feb. 18.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	22.5	21.0	18.5	17.5	11.5	10.5	6.5	6.0	8.5	7.5	13.0	11.5
2	22.5	21.0	18.5	17.5	12.0	11.5	6.0	6.0	8.5	7.0	14.0	11.0
3	22.5	21.0	19.0	16.5	12.5	11.5	6.0	5.5	9.0	6.5	14.0	10.0
4	23.0	21.0	18.5	16.5	12.0	11.5	6.0	5.5	9.5	6.5	12.0	9.5
5	22.5	20.5	18.0	16.5	11.5	11.5	6.0	6.0	9.0	6.5	11.5	10.0
6	23.0	20.5	17.0	17.0	12.0	11.0	6.0	6.0	9.0	6.5	12.5	10.0
7	23.0	21.0	18.5	16.5	12.0	10.0	6.0	6.0	9.5	7.0	12.0	9.5
8	23.0	21.0	18.0	16.0	11.0	10.0	6.5	6.0	10.5	7.5	12.0	9.5
9	23.0	21.0	16.5	16.0	11.5	10.5	6.5	6.5	9.5	7.5	11.5	9.5
10	22.5	20.5	16.0	15.0	12.0	11.0	7.0	6.5	10.5	7.5	11.0	9.5
11	22.0	20.5	17.0	15.0	10.5	9.0	7.0	6.5	11.0	8.0	12.0	10.0
12	22.0	20.5	16.5	15.0	9.5	8.0	7.0	6.5	10.0	8.0	12.5	10.5
13	22.0	20.5	17.0	15.5	8.5	7.0	7.0	6.5	10.0	8.0	13.0	11.0
14	22.0	19.5	16.0	14.0	8.0	7.5	7.0	6.5	11.0	6.5	13.0	11.0
15	21.5	19.5	15.0	13.5	7.5	6.0	7.0	7.0	11.0	8.0	13.0	11.0
16	21.5	19.0	15.0	14.0	6.5	5.5	7.5	7.0	10.5	7.5	13.5	11.0
17	21.5	18.5	14.0	14.0	7.5	6.0	7.0	7.0	9.5	7.0	13.5	11.0
18	20.5	18.0	15.0	13.5	8.0	7.0	7.0	7.0	9.5	5.5	14.0	11.5
19	20.5	18.0	15.5	13.5	7.5	6.5	7.0	6.5	10.5	6.5	14.0	11.5
20	20.5	19.0	14.0	13.5	7.5	7.5	7.0	6.5	11.5	7.0	14.5	11.5
21	20.5	19.0	14.5	13.0	7.5	7.5	7.5	6.5	11.0	7.0	14.5	12.0
22	20.0	19.0	14.5	12.5	7.5	7.5	7.0	6.5	11.0	8.0	14.5	12.0
23	20.0	19.0	14.0	12.0	7.5	7.0	7.5	7.0	11.0	8.5	14.0	11.5
24	21.0	18.0	13.5	12.0	7.0	7.0	7.5	7.0	11.0	9.0	14.0	11.0
25	20.5	17.5	12.5	11.0	7.0	6.5	7.5	7.0	11.0	9.0	14.5	11.5
26	20.5	17.5	12.5	10.5	7.0	6.5	7.5	7.5	11.0	9.5	15.0	12.0
27	20.5	18.0	12.0	10.5	6.5	6.5	8.0	7.5	11.5	9.5	13.0	10.5
28	19.5	18.5	12.0	10.5	6.5	5.5	8.0	7.5	14.0	10.5	14.0	11.0
29	20.0	18.0	11.0	10.0	6.5	6.0	8.0	7.5	13.0	11.0	15.0	12.5
30	19.5	18.0	10.5	10.5	6.5	6.0	8.0	7.5	---	---	14.5	12.0
31	20.0	17.5	---	---	6.5	6.0	8.0	8.0	---	---	14.5	12.0
MONTH	23.0	17.5	19.0	10.0	12.5	5.5	8.0	5.5	14.0	5.5	15.0	9.5

SACRAMENTO RIVER BASIN

11388000 STONY CREEK BELOW BLACK BUTTE DAM, NEAR ORLAND, CA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	15.5	12.5	16.0	12.5	19.5	17.0	22.0	19.0	27.0	24.5	26.5	24.5
2	15.0	13.0	16.5	13.5	20.5	17.0	22.0	16.5	27.0	24.0	26.5	24.5
3	15.5	13.0	17.0	14.5	20.5	17.0	23.0	18.5	27.0	24.0	27.0	24.5
4	15.5	12.5	16.5	14.5	19.0	16.5	22.5	20.0	27.0	24.5	26.5	24.5
5	15.5	12.5	16.0	14.5	18.5	16.5	---	---	27.0	24.5	26.5	24.5
6	15.5	13.0	16.0	15.0	19.0	16.0	---	---	26.5	24.0	27.0	24.0
7	15.5	13.0	15.5	15.0	19.0	18.0	---	---	27.0	24.0	26.5	24.0
8	14.5	11.5	18.0	14.5	20.0	18.0	24.0	21.0	27.0	24.5	26.5	23.5
9	15.5	12.5	18.0	14.5	19.5	18.0	24.5	21.5	27.5	24.5	26.5	24.0
10	16.5	13.5	19.5	15.0	20.0	17.5	24.5	21.5	27.0	24.5	26.0	23.5
11	16.5	13.5	19.0	14.0	20.5	17.5	24.5	21.5	27.0	24.5	24.0	21.5
12	16.0	14.0	20.0	14.5	20.5	17.5	24.5	21.5	26.5	24.5	24.0	22.0
13	14.5	14.0	19.0	14.0	21.0	17.5	24.5	22.0	26.5	24.0	24.0	21.5
14	15.0	13.5	22.0	16.0	21.0	18.0	24.5	22.0	26.5	24.0	24.0	21.5
15	16.5	13.5	21.0	16.5	21.0	18.0	24.5	22.0	26.0	23.0	24.0	21.5
16	15.5	14.0	17.0	15.5	20.5	18.0	24.5	22.0	27.0	23.5	24.0	22.0
17	15.5	14.0	18.0	15.0	20.5	18.0	25.0	22.0	26.5	24.0	22.5	20.0
18	16.5	14.0	18.0	15.0	21.0	18.0	25.5	22.5	26.0	23.0	21.5	19.0
19	15.5	12.5	18.0	15.0	21.5	18.5	25.5	23.0	26.5	23.5	21.5	19.5
20	16.0	12.0	18.0	15.0	21.0	18.5	26.0	23.0	26.5	24.0	20.5	17.5
21	17.0	13.0	18.5	15.0	21.5	18.5	26.0	23.5	26.0	24.0	21.0	18.0
22	16.0	14.0	18.0	15.0	21.0	18.5	26.0	23.5	26.0	24.0	20.5	18.5
23	16.0	12.5	18.5	15.5	21.5	18.5	26.0	23.5	26.5	24.0	20.5	18.5
24	16.5	13.0	19.5	16.0	20.5	18.0	26.0	24.0	26.5	24.0	20.5	18.5
25	16.5	13.5	19.5	16.5	20.5	18.5	26.0	24.0	26.0	23.5	21.0	18.5
26	18.5	14.0	19.0	16.5	21.5	18.0	27.0	24.0	26.5	24.0	21.5	18.5
27	18.5	15.5	19.5	16.5	20.0	17.0	27.0	24.0	26.5	24.0	20.5	18.5
28	19.0	15.0	18.5	16.5	21.0	17.5	27.0	24.0	26.5	24.0	20.5	18.0
29	19.0	14.5	20.0	15.5	20.0	16.5	26.5	24.0	26.5	24.0	21.0	18.5
30	17.0	14.0	20.5	15.0	21.5	17.5	26.0	24.0	26.5	24.5	21.0	19.0
31	---	---	19.0	16.5	---	---	26.5	24.5	26.5	24.0	---	---
MONTH	19.0	11.5	22.0	12.5	21.5	16.0	---	---	27.5	23.0	27.0	17.5

SACRAMENTO RIVER BASIN

11389000 SACRAMENTO RIVER AT BUTTE CITY, CA

LOCATION.--Lat 39°27'28", long 121°59'35", in SE 1/4 NE 1/4 sec.32, T.19 N., R.1 W., Glenn County, Hydrologic Unit 18020104, on left bank 100 ft upstream from highway bridge, 0.5 mi south of Butte City, and at mile 115.8 upstream from Sacramento.

DRAINAGE AREA.--12,080 mi².

PERIOD OF RECORD.--April 1921 to current year (Prior to October 1938, low-water periods only). Monthly discharge only for some periods, published in WSP 1315-A.

CHEMICAL DATA: Water years 1955-66

WATER TEMPERATURE: Water years 1955-58, 1960-67, 1969-81.

SEDIMENT DATA: Water years 1978-80.

REVISED RECORDS.--WDR CA-86-4: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2.92 ft below National Geodetic Vertical Datum of 1929. Prior to December 1930, at site 0.5 mi upstream at same datum.

REMARKS.--Estimated daily discharges: Oct. 1-27, Nov. 5 to Dec. 1 and Dec. 18 to Jan. 5. Records good except for periods of estimated daily discharge, which are fair. Natural flow affected by storage reservoirs, power developments, diversions for irrigation, return flow from irrigated areas, and bypassing for flood control. When discharge exceeds about 90,000 ft³/s, overbank flow into Butte basin occurs upstream from left (east) bank levee. The combined overbank flow and tributary runoff then flows south on the east bank floodplain into the Butte Sink and Sutter Bypass. Records tabulated below do not include overbank flow into the Butte basin.

AVERAGE DISCHARGE.--50 years (water years 1939-88), 13,480 ft³/s, 9,766,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (water years 1941-88), 170,000 ft³/s, Feb. 7, 1942, gage height, 96.87 ft, from rating curve extended above 101,000 ft³/s; minimum recorded, 1,050 ft³/s, July 15, 25, 26, 1931, gage height, 67.49 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 50,500 ft³/s, Jan. 5, gage height, 83.71 ft; minimum daily, 3,960 ft³/s, Oct. 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5420	4190	4510	7600	10900	6410	8150	6800	8430	9730	10600	6120
2	5400	4390	8340	6600	9540	6930	8100	6940	7700	9810	10500	6210
3	5330	4400	16100	10000	8720	7040	9120	7610	7370	9810	10600	6160
4	5350	4430	11900	27000	8090	6590	10100	8130	7060	9900	10500	6230
5	5370	4330	8410	44000	7430	6270	10100	8000	7170	9980	9960	6330
6	5400	4210	9440	29700	7070	6760	10000	8060	7410	10000	10300	6340
7	5320	4190	18300	21100	6830	6590	10400	8260	7570	9980	10900	6320
8	5310	4150	14400	18100	6630	6260	10600	9890	8210	9940	11100	6230
9	5300	4060	14500	21300	6430	5760	10900	12000	8510	9790	11000	6120
10	5290	4080	23100	26800	6430	5840	12100	13500	7720	9880	10900	5990
11	5240	4020	26700	23000	6470	5430	12300	13700	7770	9910	10800	6010
12	5030	4000	16900	22800	6470	5390	12200	13400	7650	9810	10500	6060
13	4960	3980	11300	16800	6430	6010	12100	12000	7470	9830	10700	6280
14	4940	4150	9210	13700	6440	6510	12000	10000	6890	10000	11000	6030
15	4910	4200	8110	12400	6320	6580	11800	9020	6530	10300	11100	5810
16	4680	4150	7580	15200	6240	6370	11800	8570	6720	10200	11000	5820
17	4470	4200	9180	20600	5960	6450	11700	8920	6800	10100	10600	5720
18	4380	4350	10100	17500	5330	6560	11700	9320	7070	10000	10400	5710
19	4360	4390	7800	13600	5210	6680	12000	8760	7250	10100	9300	5750
20	4350	4410	7000	11800	5320	6830	13000	8550	7620	10000	8220	5750
21	4240	4520	6600	10500	5280	7060	12900	7980	7820	10100	7390	5790
22	4230	4640	7000	9430	5240	6600	11100	7410	8010	10200	7320	5920
23	4290	4480	7500	8790	5210	6200	11300	7210	8030	10200	7320	5930
24	4370	4370	6900	8440	5390	6180	12000	7000	7910	9700	7240	5930
25	4470	4310	6300	8490	5550	6050	10800	6660	7770	9890	7230	5980
26	4150	4270	6000	9230	5760	6870	10200	6950	7820	10200	6750	6150
27	4130	4270	5800	9170	6040	8010	9750	6890	8640	10200	6240	6480
28	3960	4310	6700	8690	6140	8270	8900	6910	9640	9960	5980	6540
29	3990	4300	10400	8830	6240	8130	7430	7460	9650	10100	6010	6520
30	4040	4280	10100	12000	---	8080	7000	8300	9870	10000	6030	6760
31	4090	---	9000	13700	---	8210	---	8450	---	10400	6060	---
TOTAL	146770	128030	325180	486870	189110	206920	321550	272650	234080	310020	283550	182990
MEAN	4735	4268	10490	15710	6521	6675	10720	8795	7803	10000	9147	6100
MAX	5420	4640	26700	44000	10900	8270	13000	13700	9870	10400	11100	6760
MIN	3960	3980	4510	6600	5210	5390	7000	6660	6530	9700	5980	5710
AC-FT	291100	253900	645000	965700	375100	410400	637800	540800	464300	614900	562400	363000

CAL YR 1987 TOTAL 3143330 MEAN 8612 MAX 47000 MIN 3960 AC-FT 6235000
WTR YR 1988 TOTAL 3087720 MEAN 8436 MAX 44000 MIN 3960 AC-FT 6124000

SACRAMENTO RIVER BASIN

11389500 SACRAMENTO RIVER AT COLUSA, CA

LOCATION.--Lat 39°12'51", long 121°59'57", at north end of Jimeno Grant, Colusa County, Hydrologic Unit 18020104, on right bank 60 ft downstream from highway bridge at Colusa and at mile 89.4 upstream from Sacramento.

DRAINAGE AREA.--12,090 mi².

PERIOD OF RECORD.--April 1921 to current year (prior to October 1940, low-water periods only).

CHEMICAL DATA: Water years 1959-66.

WATER TEMPERATURES: Water years 1977-80.

SEDIMENT DATA: Water years 1973-80.

REVISED RECORDS.--WSP 1345: 1952. WDR CA-77-4: Drainage area, 12,096 mi².

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2.95 ft below National Geodetic Vertical Datum of 1929. Prior to December 1930, water-stage recorder in center fender pier 50 ft upstream from bridge at same datum.

REMARKS.--Estimated daily discharges: Oct. 26-28, Jan. 7, 8. Records good. Natural flow of stream affected by storage reservoirs, power development, bypassing for flood control, diversions for irrigation, and return flow from irrigated areas. When discharge exceeds about 30,000 ft³/s, flow begins over Colusa weir, 2.5 mi upstream on left bank, into Butte Sink and Sutter Bypass. Records tabulated below do not include flow over Colusa weir.

AVERAGE DISCHARGE.--48 years (water years 1941-88), 11,640 ft³/s, 8,433,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (water years 1941-88), 51,800 ft³/s, Mar. 4, 1983, gage height, 68.50 ft; maximum gage height, 69.20 ft, Feb. 18, 1942; minimum recorded, 820 ft³/s, July 25, 26, 1931, gage height, 34.79 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 36,900 ft³/s, Jan. 5, gage height, 62.94 ft; minimum daily, 3,800 ft³/s, Nov. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5310	4010	4320	8230	11800	6340	7730	6880	8130	8970	9850	5820
2	5280	4140	6150	7300	10200	6560	7780	6740	7720	9020	9810	5920
3	5220	4200	12200	7000	9290	7030	8170	7180	7310	9090	9860	5890
4	5240	4250	13600	19200	8640	6650	9370	7770	7000	9120	9800	5950
5	5260	4150	9470	36100	8010	6370	9640	7780	6950	9190	9390	6040
6	5290	4030	8840	32300	7560	6420	9530	7750	7090	9230	9390	6110
7	5220	4030	13300	24700	7280	6610	9750	7890	7270	9260	9950	6070
8	5200	3970	15800	19000	7080	6340	10100	8520	7560	9190	10300	6060
9	5190	3880	13400	19500	6910	5870	10200	10800	8180	9120	10200	5930
10	5180	3900	17200	22800	6820	5630	11200	11900	7740	9130	10100	5800
11	5130	3840	24200	24400	6830	5600	11700	12900	7360	9200	10100	5800
12	4930	3820	21300	23100	6800	5060	11800	12800	7490	9120	9790	5830
13	4850	3800	13700	19000	6770	5620	11700	12000	7300	9100	9750	5970
14	4830	3970	10300	15200	6730	6200	11600	10400	6880	9140	10100	5950
15	4810	4020	8850	13100	6630	6310	11400	9200	6370	9480	10300	5650
16	4570	3970	8150	14000	6520	6260	11400	8600	6390	9490	10300	5690
17	4360	4020	8330	17500	6390	6030	11200	8530	6560	9380	10100	5600
18	4270	4170	9500	18800	5850	6340	11200	9040	6620	9390	9920	5570
19	4270	4210	8250	15100	5420	6410	11300	8760	6930	9400	9360	5560
20	4240	4230	7440	12900	5560	6530	12000	8450	7060	9310	8350	5580
21	4130	4340	6960	11600	5520	6740	12600	8080	7490	9240	7220	5620
22	4120	4450	6700	10600	5470	6620	11400	7440	7480	9410	6980	5710
23	4180	4290	7200	9700	5360	6050	10500	7150	7570	9400	6990	5790
24	4260	4180	7120	9230	5430	5940	11700	6970	7550	9280	6880	5790
25	4360	4120	6690	9080	5660	5870	10900	6700	7400	9000	6850	5780
26	3900	4080	6400	9360	5700	6020	10200	6680	7330	9460	6610	5920
27	3860	4080	6200	9660	6000	7490	9740	6830	7630	9500	6070	6250
28	3860	4120	6200	9280	6160	7860	9130	6750	8680	9360	5740	6350
29	3880	4110	8070	9080	6190	7780	7910	7010	8850	9310	5680	6400
30	3960	4090	11600	10200	---	7710	7150	7740	9030	9440	5690	6440
31	3980	---	10100	13600	---	7810	---	8030	---	9610	5720	---
TOTAL	143140	122470	317540	480620	198580	200070	310000	263270	222920	287340	267150	176840
MEAN	4617	4082	10240	15500	6848	6454	10330	8493	7431	9269	8618	5895
MAX	5310	4450	24200	36100	11800	7860	12600	12900	9030	9610	10300	6440
MIN	3860	3800	4320	7000	5360	5060	7150	6680	6370	8970	5680	5560
AC-FT	283900	242900	629800	953300	393900	396800	614900	522200	442200	569900	529900	350800

CAL YR 1987 TOTAL 3003030 MEAN 8227 MAX 34600 MIN 3800 AC-FT 5957000
WTR YR 1988 TOTAL 2989940 MEAN 8169 MAX 36100 MIN 3800 AC-FT 5931000

SACRAMENTO RIVER BASIN

11389720 BUTTE CREEK BELOW DIVERSION DAM, NEAR STIRLING CITY, CA

LOCATION.--Lat 39°58'53", long 121°35'15", unsurveyed, T.25 N., R.3 E., Butte County, Hydrologic Unit 18020120, on left bank 400 ft downstream from diversion dam, 0.1 mi upstream from Haw Creek, and 6.2 mi northwest of Stirling City.

DRAINAGE AREA.--61.3 mi².

PERIOD OF RECORD.--January to February 1986, June 1986 to current year (low-flow records only).

GAGE.--Water-stage recorder. Elevation of gage is 2,840 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. No records computed above 50 ft³/s. Flow regulated by diversion dam 400 ft upstream. Most of the water is diverted at diversion dam to Butte Creek Canal and then to De Sabla powerplant (station 11389750).

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	9.0	---	14	---	---	20	---	16	12	12	12
2	---	9.3	---	14	44	---	21	45	13	12	12	12
3	---	8.7	---	---	31	---	24	40	12	12	12	12
4	---	8.6	---	---	21	---	28	38	13	12	12	12
5	---	8.4	---	---	17	---	24	41	14	12	12	12
6	---	8.9	---	---	16	---	24	---	15	12	12	12
7	---	9.1	---	---	15	---	25	---	27	12	12	12
8	---	9.1	---	---	15	---	23	47	27	12	12	12
9	---	9.3	---	---	17	---	19	39	11	12	12	12
10	---	9.1	---	---	22	---	18	35	11	12	12	12
11	---	9.1	---	---	38	---	18	49	10	12	12	12
12	---	9.1	---	---	43	45	18	39	9.7	12	12	12
13	---	11	---	---	41	38	18	29	9.3	12	12	12
14	---	9.3	40	---	35	36	28	24	11	12	12	12
15	12	9.1	27	---	34	35	31	---	12	12	12	12
16	11	9.1	27	---	30	30	21	---	11	12	12	12
17	11	9.3	16	---	22	27	21	37	11	12	12	12
18	11	9.3	15	43	21	27	26	26	12	12	12	11
19	10	9.2	15	30	19	29	---	20	12	12	12	11
20	9.4	9.3	14	27	18	30	---	18	12	12	12	11
21	8.7	9.4	15	24	19	34	---	15	12	12	12	12
22	8.0	9.3	23	17	17	31	---	13	11	12	12	12
23	8.8	9.2	15	20	18	44	---	13	12	12	12	12
24	9.4	9.3	15	34	19	41	---	13	11	12	12	12
25	9.3	9.3	14	37	18	33	---	13	11	12	12	12
26	9.1	9.2	14	37	19	35	---	12	11	12	12	12
27	9.1	9.3	14	41	22	39	---	14	11	12	12	12
28	9.1	9.4	15	46	29	29	---	---	11	12	12	12
29	9.1	9.4	15	---	---	26	---	20	12	12	12	12
30	9.1	10	14	---	---	24	---	15	12	12	12	12
31	9.0	---	14	---	---	21	---	23	---	12	12	---
TOTAL	---	277.1	---	---	---	---	---	---	383.0	372	372	357
MEAN	---	9.24	---	---	---	---	---	---	12.8	12.0	12.0	11.9
MAX	---	11	---	---	---	---	---	---	27	12	12	12
MIN	---	8.4	---	---	---	---	---	---	9.3	12	12	11
AC-FT	---	550	---	---	---	---	---	---	760	738	738	708

SACRAMENTO RIVER BASIN

11389780 BUTTE CREEK BELOW CENTERVILLE DIVERSION DAM, NEAR PARADISE, CA

LOCATION.--Lat 39°52'01", long 121°37'58", in SW 1/4 NW 1/4 sec.10, T.23 N., R.3 E., Butte County, Hydrologic Unit 18020120, on left bank 400 ft downstream from Centerville diversion dam, 0.2 mi downstream from De Sabla powerplant, and 6.8 mi north of Paradise.

DRAINAGE AREA.--101 mi².

PERIOD OF RECORD.--November 1985 to February 1986, June 1986 to current year (low-flow records only).

GAGE.--Water-stage recorder. Elevation of gage is 1,130 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. No records computed above 90 ft³/s. Flow regulated by several reservoirs and diversions upstream. Most of the water is diverted at Centerville diversion dam to the Centerville powerplant (station 11389775).

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	---	---	19	---	---	67	---	42	11	33	29
2	13	---	---	12	---	---	68	---	58	14	31	30
3	13	---	---	---	---	---	71	---	55	15	31	30
4	13	---	---	---	---	---	74	---	70	14	30	29
5	13	---	---	---	---	---	70	---	64	13	30	29
6	13	19	---	---	87	---	69	---	50	13	30	29
7	13	12	---	---	78	---	71	---	33	13	30	27
8	13	12	---	---	74	---	68	---	22	13	30	29
9	13	12	---	---	76	---	64	69	17	13	30	29
10	13	12	---	---	81	---	63	---	15	12	29	25
11	13	12	---	---	---	---	64	---	14	12	29	19
12	12	12	---	---	---	---	64	82	13	12	29	18
13	13	14	---	---	---	---	67	77	13	12	29	15
14	13	13	---	---	---	---	84	---	12	12	29	13
15	13	12	---	---	---	---	71	---	12	13	30	13
16	13	12	---	---	---	89	67	---	12	13	29	13
17	13	12	---	---	86	84	70	79	12	13	29	13
18	13	12	70	---	81	82	---	72	12	13	29	13
19	---	12	58	---	71	84	---	67	12	15	29	13
20	---	12	40	---	67	85	---	64	11	20	29	13
21	---	12	39	---	73	86	---	62	12	18	30	13
22	---	12	---	---	74	87	---	61	13	19	30	13
23	---	12	56	---	76	---	---	57	13	19	30	13
24	---	12	33	---	77	---	---	57	14	19	31	13
25	---	12	33	---	75	83	---	57	13	19	30	13
26	---	12	23	---	79	84	---	---	13	19	30	13
27	---	12	14	---	89	86	---	66	13	20	30	12
28	---	12	48	---	---	80	---	57	13	23	30	12
29	---	12	65	---	---	75	---	58	13	28	30	12
30	---	14	40	---	---	72	---	53	13	35	30	12
31	---	---	21	---	---	65	---	40	---	34	30	---
TOTAL	---	---	---	---	---	---	---	---	679	519	926	555
MEAN	---	---	---	---	---	---	---	---	22.6	16.7	29.9	18.5
MAX	---	---	---	---	---	---	---	---	70	35	33	30
MIN	---	---	---	---	---	---	---	---	11	11	29	12
AC-FT	---	---	---	---	---	---	---	---	1350	1030	1840	1100
a	1750	4300	11000	11110	10260	11160	10750	11050	9190	6260	4440	2040

a Diversion, in acre-feet, to Centerville powerplant, provided by Pacific Gas & Electric Co.

SACRAMENTO RIVER BASIN

11389800 TOADTOWN CANAL ABOVE BUTTE CANAL, NEAR STIRLING CITY, CA

LOCATION.--Lat 39°53'09", long 121°36'35", in NE 1/4 NW 1/4 sec.2, T.23 N., R.3 E., Butte County, Hydrologic Unit 18020120, on right bank 600 ft upstream from Butte Canal and 4.6 mi west of Stirling City.

PERIOD OF RECORD.--October 1986 to current year. Monthly discharges for water years 1931-86 are published as a line item to Butte Creek near Chico (station 11390000).

GAGE.--Water-stage recorder and Parshall flume. Elevation of gage is 2,790 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 1 to Nov. 2, July 6-21. Canal diverts from right bank of West Branch Feather River, in sec.16, T.24 N., R.4 E., flows through Toadtown powerplant and discharges into Butte Canal. Butte Canal flows to De Sabla powerplant (station 11389750) on Butte Creek.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 118 ft³/s, Apr. 13, 1987, no flow in each year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	20	90	59	112	108	106	109	114	41	50	30
2	6.8	33	91	59	109	111	109	109	109	38	50	30
3	6.8	24	95	64	100	114	112	112	112	37	49	29
4	6.0	21	100	90	94	114	112	115	108	35	48	29
5	6.0	21	100	108	90	113	112	111	102	34	47	29
6	6.0	21	106	115	86	113	112	117	96	31	47	11
7	6.0	21	105	103	82	113	112	116	89	50	42	.00
8	6.0	21	114	98	80	113	111	108	85	50	40	.00
9	6.0	27	114	93	80	113	107	80	83	49	39	.00
10	6.0	26	110	106	81	113	109	110	79	49	39	.00
11	6.8	25	112	114	83	113	111	110	76	48	38	.00
12	11	24	111	108	92	113	112	114	73	51	39	.00
13	9.1	40	111	110	100	113	112	111	73	50	39	.00
14	9.1	33	110	111	99	113	113	109	70	48	40	.00
15	6.8	24	107	111	96	113	112	109	66	47	39	.00
16	6.8	23	110	114	97	113	112	112	63	60	39	.00
17	6.8	25	101	115	97	113	112	113	62	63	37	.00
18	6.8	25	91	107	94	113	112	113	60	55	37	.00
19	20	23	87	95	93	113	105	114	57	58	37	.00
20	19	26	81	89	90	113	113	114	55	51	36	.00
21	17	27	79	86	89	113	113	113	53	56	36	.00
22	19	24	94	83	91	113	112	114	52	51	36	.00
23	23	23	83	81	93	113	112	113	49	52	35	.00
24	24	22	69	82	94	114	115	115	47	58	34	.00
25	20	22	71	84	96	114	117	114	47	57	34	.00
26	20	22	70	86	99	113	112	113	46	55	33	.00
27	20	22	65	88	105	113	110	110	45	54	32	.00
28	20	22	67	90	105	113	109	113	44	53	31	.00
29	20	22	70	94	110	113	109	107	42	52	31	.00
30	20	32	66	106	---	111	109	109	42	51	31	.25
31	19	---	58	112	---	107	---	105	---	51	30	---
TOTAL	386.6	741	2838	2961	2737	3492	3334	3432	2099	1535	1195	158.25
MEAN	12.5	24.7	91.5	95.5	94.4	113	111	111	70.0	49.5	38.5	5.27
MAX	24	40	114	115	112	114	117	117	114	63	50	30
MIN	6.0	20	58	59	80	107	105	80	42	31	30	.00
AC-FT	767	1470	5630	5870	5430	6930	6610	6810	4160	3040	2370	314
a	1540	4240	10190	10580	10000	11180	10810	11010	8230	5670	4930	2160

CAL YR 1987 TOTAL 21315.52 MEAN 58.4 MAX 118 MIN .00 AC-FT 42280 AC-FT a 80760
WTR YR 1988 TOTAL 24908.85 MEAN 68.1 MAX 117 MIN .00 AC-FT 49410 AC-FT a 90530

a Discharge, in acre-feet, at De Sabla powerplant, provided by Pacific Gas & Electric Co.

SACRAMENTO RIVER BASIN

11390000 BUTTE CREEK NEAR CHICO, CA

LOCATION.--Lat 39°43'34", Long 121°42'28", in NW 1/4 NW 1/4 sec.36, T.22 N., R.2 E., Butte County, Hydrologic Unit 18020105, on right bank 0.7 mi downstream from Little Butte Creek and 7.5 mi east of Chico.

DRAINAGE AREA.--147 mi².

PERIOD OF RECORD.--October 1930 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

CHEMICAL DATA: Water years 1953-79.

WATER TEMPERATURE: Water years 1962-79.

REVISED RECORDS.--WSP 1445: 1953(M). WSP 1931: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 320 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Aug. 13, 1944, water-stage recorder at site 0.4 mi upstream at different datum. Aug. 13, 1944, to June 5, 1986, at datum 3.00 ft higher.

REMARKS.--No estimated daily discharges. Records good. Flow slightly regulated by storage in Magalia Reservoir, usable capacity, 2,640 acre-ft, and since 1957 by Paradise Reservoir, usable capacity, 11,500 acre-ft. Diversions above station for irrigation and domestic use of about 7,000 acre-ft annually. Butte Creek receives water above station from West Branch Feather River by way of Toadtown Canal (11389800).

AVERAGE DISCHARGE (unadjusted).--58 years, 411 ft³/s, 297,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,000 ft³/s, Feb. 17, 1986, gage height, 17.52 ft, present datum, from rating curve extended above 6,100 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 10 ft³/s, Nov. 29, 1952.

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)
Dec. 2	1515	*1,800	*5.16				

Minimum daily, 48 ft³/s, Sept. 8, 11, 12, 15, 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68	100	595	231	408	455	269	316	254	125	122	90
2	68	157	1450	216	380	447	269	305	257	121	121	89
3	67	112	652	417	347	385	270	300	252	120	118	88
4	67	102	376	1100	327	361	278	294	236	116	118	86
5	68	97	330	946	312	345	278	288	234	113	118	88
6	69	97	840	692	297	338	277	289	250	113	116	80
7	70	98	726	541	289	334	273	331	255	124	115	49
8	70	95	571	644	284	326	273	350	270	130	115	48
9	70	116	707	588	284	325	272	340	267	128	113	49
10	70	105	1050	577	286	319	261	316	249	128	105	54
11	68	99	763	779	304	312	261	276	236	123	107	48
12	70	98	495	620	320	300	262	288	222	123	104	48
13	80	142	394	511	317	297	265	300	212	123	102	50
14	80	160	342	449	310	293	276	294	204	123	105	49
15	67	114	313	526	306	292	281	285	191	119	104	48
16	65	107	315	654	305	289	273	291	186	128	104	48
17	65	115	319	645	298	284	273	341	183	131	106	51
18	72	121	280	534	290	284	273	304	177	125	104	50
19	67	108	263	442	281	283	475	289	170	127	102	51
20	84	117	242	398	277	283	551	281	164	116	102	54
21	86	156	233	367	278	284	449	273	160	120	100	54
22	86	122	284	345	279	284	399	269	157	119	100	52
23	105	112	276	327	280	286	390	265	152	119	100	53
24	110	106	238	328	280	290	370	265	146	117	103	53
25	101	107	226	329	278	287	356	261	144	118	97	53
26	96	105	216	327	278	288	345	250	142	120	97	53
27	92	103	206	327	282	290	343	248	139	128	97	55
28	92	104	254	334	290	285	330	253	136	124	95	55
29	94	105	395	370	300	279	327	285	133	126	94	54
30	95	162	314	511	---	280	334	269	130	124	93	52
31	94	---	258	440	---	273	---	254	---	124	90	---
TOTAL	2456	3442	13923	15515	8767	9678	9553	8970	5908	3795	3267	1752
MEAN	79.2	115	449	500	302	312	318	289	197	122	105	58.4
MAX	110	162	1450	1100	408	455	551	350	270	131	122	90
MIN	65	95	206	216	277	273	261	248	130	113	90	48
AC-FT	4870	6830	27620	30770	17390	19200	18950	17790	11720	7530	6480	3480

CAL YR 1987 TOTAL 92238 MEAN 253 MAX 2830 MIN 60 AC-FT 183000
WTR YR 1988 TOTAL 87026 MEAN 238 MAX 1450 MIN 48 AC-FT 172600

CAL YR 1987	TOTAL	2903750	MEAN	7955	MAX	25900	MIN	3630	AC-FT	5760000
WTR YR 1988	TOTAL	2875330	MEAN	7856	MAX	25800	MIN	3630	AC-FT	5703000

SACRAMENTO RIVER BASIN

11390500 SACRAMENTO RIVER BELOW WILKINS SLOUGH, NEAR GRIMES, CA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1967 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1966 to current year.

INSTRUMENTATION.--Temperature recorder since October 1966.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum record, 25.5 °C, Sept. 6-8, 1977; minimum recorded, 4.0 °C, Dec. 26, 1968.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 24.0 °C, Aug. 30, Sept. 4, 5; minimum recorded, 5.5 °C, Jan. 1.

WATER TEMPERATURE, DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

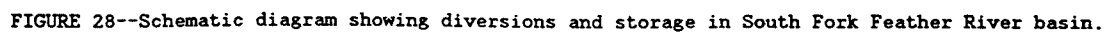
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	21.0	20.5	17.0	16.5	10.0	10.0	6.0	5.5	9.5	8.5	13.5	13.5
2	21.0	20.5	16.5	15.5	11.0	10.5	6.0	6.0	8.5	8.0	13.5	13.0
3	21.0	20.5	16.0	15.0	12.0	11.0	6.5	6.0	8.5	8.5	13.0	12.5
4	21.0	20.5	15.5	15.0	12.5	12.0	7.0	6.5	8.5	8.5	13.0	13.0
5	21.0	20.5	15.0	14.5	12.5	12.5	7.0	6.5	8.5	8.5	13.5	13.0
6	21.0	20.5	15.0	15.0	12.5	12.0	7.5	7.0	9.0	8.5	14.0	13.5
7	20.5	20.0	15.5	14.5	12.0	11.5	8.0	7.5	9.5	8.5	14.0	13.5
8	20.5	20.0	15.0	14.5	11.5	10.5	8.0	8.0	10.0	9.0	14.0	13.5
9	20.0	19.5	15.5	14.5	10.5	10.5	8.5	8.0	10.5	10.0	14.0	14.0
10	19.5	19.5	15.0	14.0	11.0	10.5	8.5	8.5	11.5	10.5	14.0	13.0
11	19.5	19.0	15.0	14.0	11.0	10.5	9.0	8.5	12.0	11.0	13.0	12.5
12	19.5	19.0	15.0	14.0	10.5	9.5	9.0	9.0	12.5	11.5	12.5	11.5
13	19.0	19.0	14.5	14.5	9.5	7.5	9.0	8.0	12.5	12.0	12.5	12.0
14	19.0	18.5	14.5	13.5	7.5	7.0	8.5	8.0	12.0	11.5	13.0	12.0
15	18.5	18.5	13.5	13.0	7.0	6.5	8.5	8.5	12.0	11.5	13.0	12.5
16	18.5	18.0	13.0	12.5	7.0	6.5	9.0	8.5	12.0	11.5	13.0	12.5
17	18.0	17.5	13.0	12.5	7.5	6.5	9.0	8.5	11.0	10.5	13.5	12.5
18	17.5	17.0	13.0	13.0	8.0	7.5	8.5	7.5	11.0	10.5	14.0	13.0
19	17.5	17.0	13.0	12.5	8.0	7.5	7.5	7.5	11.0	10.5	14.5	13.5
20	17.5	17.0	13.0	12.5	8.0	8.0	7.5	7.0	11.5	10.5	15.0	14.0
21	17.5	17.0	13.0	12.5	8.5	8.0	7.5	7.5	12.0	11.0	15.0	14.0
22	17.5	17.0	12.5	12.5	9.5	8.5	8.0	7.5	12.5	11.5	15.5	14.5
23	17.0	17.0	12.5	12.0	9.0	8.5	8.5	8.0	12.5	12.0	15.5	14.5
24	17.5	17.0	12.0	11.5	8.5	7.5	9.0	8.5	13.0	12.5	15.0	14.5
25	17.5	17.0	11.5	10.5	7.0	6.5	9.5	9.0	13.5	12.5	15.0	14.5
26	17.5	17.5	10.5	10.0	6.5	6.0	10.0	9.5	13.5	13.0	16.0	14.5
27	18.0	17.5	10.0	10.0	6.0	6.0	10.0	9.5	13.5	13.0	15.5	14.5
28	18.0	18.0	10.0	10.0	6.5	6.0	9.5	9.5	14.0	13.0	14.5	13.0
29	18.0	17.5	10.0	10.0	6.5	6.0	10.0	9.5	13.5	13.5	13.0	12.5
30	18.0	17.0	10.0	10.0	6.5	6.0	10.0	10.0	---	---	13.0	12.5
31	17.5	16.5	---	---	6.0	6.0	10.0	9.5	---	---	13.0	12.5
MONTH	21.0	16.5	17.0	10.0	12.5	6.0	10.0	5.5	14.0	8.0	16.0	11.5

SACRAMENTO RIVER BASIN

1390500 SACRAMENTO RIVER BELOW WILKINS SLOUGH, NEAR GRIMES, CA--Continued

WATER TEMPERATURE, DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	13.5	13.0	16.0	15.5	18.0	17.0	20.0	18.0	21.5	20.0	23.5	23.0
2	14.5	13.5	15.5	15.0	18.0	17.5	20.5	19.0	21.0	20.0	23.5	23.0
3	14.0	14.0	16.0	15.5	19.0	18.0	21.5	19.5	21.0	20.0	23.5	23.0
4	14.0	13.5	16.5	16.0	19.0	18.5	21.0	20.0	21.0	20.0	24.0	23.0
5	14.5	13.5	16.5	16.0	18.5	18.0	20.5	19.5	21.0	20.0	24.0	23.0
6	15.0	14.0	16.0	14.5	18.0	17.5	20.5	19.0	21.0	20.0	23.5	23.0
7	15.5	14.0	15.0	14.0	17.5	17.0	20.5	19.0	20.5	19.5	23.0	22.0
8	15.0	13.5	14.5	13.5	16.5	16.0	20.5	19.0	20.5	19.0	22.5	22.0
9	14.0	13.0	14.5	14.0	17.0	16.0	21.0	19.5	21.0	19.5	22.0	21.0
10	14.5	13.0	15.5	14.0	17.0	16.5	21.5	20.0	21.5	19.5	21.5	20.5
11	15.0	13.5	16.5	15.0	18.5	17.0	21.5	20.0	21.0	20.0	21.0	20.0
12	15.5	14.0	17.0	16.0	20.0	18.5	21.5	20.0	20.5	19.5	20.5	19.5
13	15.0	13.5	17.0	16.0	20.5	19.5	21.5	20.0	20.0	19.0	19.5	19.0
14	14.0	13.0	18.0	16.0	21.0	20.5	21.5	20.5	20.0	18.5	20.0	19.0
15	13.5	12.5	19.0	17.0	21.5	21.0	21.5	20.5	20.5	19.0	20.0	19.0
16	13.5	12.5	18.5	17.5	22.0	21.0	22.0	20.5	20.5	19.0	20.0	19.5
17	14.0	13.0	18.0	17.0	22.0	21.0	22.0	20.5	20.5	19.0	20.0	19.5
18	14.5	13.0	18.5	17.0	22.0	21.5	22.5	21.0	21.0	19.5	20.0	18.5
19	14.0	13.0	18.5	17.5	22.5	21.5	22.5	21.0	21.5	20.0	19.0	18.0
20	13.0	12.5	19.5	18.0	22.5	22.0	22.5	21.0	22.0	20.5	18.0	17.5
21	13.0	12.5	20.5	19.0	22.5	21.5	22.5	21.0	22.0	20.5	17.5	17.0
22	13.5	12.5	20.5	19.5	22.0	21.5	22.5	21.0	22.0	21.5	18.0	17.5
23	14.0	13.0	20.5	19.5	22.0	21.5	22.5	21.0	22.5	22.0	18.5	17.5
24	14.5	13.5	20.5	20.0	22.5	21.5	22.0	21.0	22.5	22.0	19.0	18.0
25	15.0	13.5	21.0	20.0	22.5	21.5	22.0	21.0	23.0	22.5	19.0	18.5
26	16.5	14.5	20.5	20.0	22.5	21.5	21.5	20.0	23.0	22.5	19.0	18.5
27	17.0	15.5	20.5	19.5	22.0	21.5	22.0	20.5	23.0	22.5	19.0	18.0
28	16.5	15.5	20.5	19.0	22.0	21.0	22.0	21.0	23.0	22.5	19.0	18.0
29	16.5	15.5	19.0	18.5	21.0	19.0	22.5	21.0	23.5	22.5	19.0	18.0
30	16.5	16.0	18.0	17.5	19.0	18.0	22.5	21.0	24.0	23.0	19.5	18.5
31	---	---	18.0	17.5	---	---	22.0	21.0	23.5	23.0	---	---
MONTH	17.0	12.5	21.0	13.5	22.5	16.0	22.5	18.0	24.0	18.5	24.0	17.0



SACRAMENTO RIVER BASIN

11395020 LITTLE GRASS VALLEY RESERVOIR NEAR LA PORTE, CA

LOCATION.--Lat 39°43'25", long 121°01'10", in SE 1/4 NW 1/4 sec.31, T.22 N., R.9 E., Plumas County, Hydrologic Unit 18020123, Plumas National Forest, on right bank 300 ft upstream from dam on South Fork Feather River, 3.3 mi northwest of La Porte.

DRAINAGE AREA.--25.8 mi².

PERIOD OF RECORD.--October 1961 to current year. Monthend elevation and contents only, October 1961 to October 1962.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Oroville-Wyandotte Irrigation District). Prior to Nov. 1, 1962, in valve chamber in dam at same datum.

REMARKS.--Reservoir is formed by rockfill dam. Storage began in October 1961. Total capacity, 93,000 acre-ft between elevations 4,876 ft, invert of release valve, and 5,047 ft, top of spillway gates, all of which is available for release. Water is released down South Fork Feather River for power development and irrigation. Records, including extremes, represent contents at 2400 hours. See schematic diagram of South Fork Feather River basin.

COOPERATION.--Records provided by Oroville-Wyandotte Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 96,100 acre-ft, Apr. 29, 1965, elevation, 5,047.9 ft; minimum since reservoir first filled, 30,300 acre-ft, on many days in 1977, elevation, 4,994.8 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 65,800 acre-ft, June 13 to July 2, elevation, 5,027.6 ft; minimum, 43,100 acre-ft, Feb. 1, elevation, 5,008.6 ft.

Capacity table (elevation, in feet NGVD, and contents, in acre-feet)
(Provided by Pacific Gas & Electric Co., from 1963 survey)

4,990	26,300	5,030	68,900
5,000	34,600	5,040	83,500
5,010	44,400	5,048	96,300
5,020	55,900		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60000	55800	53100	51100	43100	45400	52200	60200	65100	65800	65000	63000
2	59800	55700	53800	50800	43200	45700	52300	60400	65100	65800	64900	62800
3	59700	55500	53900	50600	43200	45900	52600	60700	65100	65600	64900	62600
4	59500	55400	53900	50500	43300	46300	52800	61000	65100	65600	64900	62500
5	59400	55300	54000	50300	43300	46500	53000	61100	65100	65600	64900	62400
6	59300	55200	54600	49900	43300	46700	53100	61300	65200	65600	64700	62100
7	59100	55100	54700	49700	43400	47100	53400	61600	65200	65600	64700	62000
8	59000	55000	54800	49500	43400	47300	53600	61900	65400	65600	64700	61900
9	58700	54800	55200	49100	43400	47500	53800	62000	65500	65600	64600	61700
10	58600	54700	56100	49000	43500	47900	54000	62300	65500	65600	64600	61600
11	58500	54600	56400	48800	43500	48100	54200	62400	65600	65500	64600	61300
12	58500	54500	56400	48600	43600	48200	54400	62600	65600	65500	64500	61200
13	58200	54500	56100	48200	43600	48400	54600	62800	65800	65500	64500	61100
14	58100	54500	56000	48000	43600	48700	55000	63000	65800	65400	64300	61000
15	58000	54400	55800	47800	43700	48800	55200	63200	65800	65400	64300	60700
16	57800	54300	55700	47800	43700	48900	55400	63400	65800	65400	64300	60600
17	57700	54200	55400	47400	43700	49100	55700	63600	65800	65400	64300	60400
18	57600	54000	55100	47200	43800	49200	56000	63800	65800	65400	64200	60300
19	57400	53800	54800	46800	43800	49500	56700	63900	65800	65400	64200	60000
20	57300	53800	54600	46500	43800	49700	56900	64100	65800	65400	64200	59900
21	57100	53700	54300	46200	43900	49800	57300	64200	65800	65200	64200	59800
22	56900	53600	54000	45800	43900	50000	57600	64200	65800	65200	64100	59700
23	56900	53500	53800	45500	44000	50300	57800	64300	65800	65200	64100	59500
24	56800	53400	53400	45100	44100	50500	58100	64500	65800	65200	64100	59400
25	56700	53100	53100	44800	44100	50700	58400	64500	65800	65100	63900	59300
26	56500	53100	52900	44400	44200	51100	58600	64500	65800	65100	63900	59000
27	56400	53000	52600	44200	44300	51300	58900	64500	65800	65100	63700	58900
28	56300	52800	52400	43900	44400	51500	59100	64600	65800	65100	63600	58900
29	56100	52700	52100	43800	44900	51600	59500	64700	65800	65100	63400	58700
30	56000	52700	51800	43500	---	51900	59900	64900	65800	65000	63300	58500
31	55900	---	51400	43300	---	52100	---	64900	---	65000	63200	---
MAX	60000	55800	56400	51100	44900	52100	59900	64900	65800	65800	65000	63000
MIN	55900	52700	51400	43300	43100	45400	52200	60200	65100	65000	63200	58500
a	5020.0	5017.2	5016.1	5008.8	5010.4	5016.7	5023.1	5026.9	5027.6	5027.0	5025.6	5022.0
b	-4300	-3200	-1300	-8100	+1600	+7200	+7800	+5000	+900	-800	-1800	-4700

CAL YR 1987 b +2500

WTR YR 1988 b -1700

a Elevation, in feet NGVD, at end of month.

b Change in contents, in acre-feet.

SACRAMENTO RIVER BASIN

11395030 SOUTH FORK FEATHER RIVER BELOW LITTLE GRASS VALLEY DAM, CA

LOCATION.--Lat 39°43'26", long 121°01'16", in SW 1/4 NW 1/4 sec.31, T.22 N., R.9 E., Plumas County, Hydrologic Unit 18020123, Plumas National Forest, on left bank 0.1 mi downstream from Little Grass Valley Dam and 3.5 mi northwest of La Porte.

DRAINAGE AREA.--25.9 mi².

PERIOD OF RECORD.--October 1927 to September 1933 (published as "near La Porte"), October 1960 to current year.

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,809.0 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1960, at site 0.4 mi upstream at different datum. Oct. 1, 1960, to Oct. 30, 1962, at present site and datum. Nov. 1, 1962, to May 31, 1966, at site on outlet works at base of Little Grass Valley Dam 0.1 mi upstream at datum 4,850.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Flow regulated by Little Grass Valley Reservoir (station 11395020) beginning in October 1961. No diversion above station. See schematic diagram of South Fork Feather River basin.

AVERAGE DISCHARGE (adjusted for change in contents in Little Grass Valley Reservoir).--34 years, 99.7 ft³/s, 72,230 acre-ft/yr.

COOPERATION.--Records provided by Oroville-Wyandotte Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,780 ft³/s, Feb. 18, 1986, gage height, 14.78 ft; minimum, 0.2 ft³/s, Oct. 28-31, Nov. 2, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 202 ft³/s, Dec. 11, gage height, 8.81 ft; minimum daily, 8.5 ft³/s, many days in August.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	54	57	187	110	14	9.9	10	9.6	9.1	9.0	58
2	54	54	64	187	15	14	10	9.9	9.4	9.1	9.0	58
3	54	54	58	187	15	13	10	9.9	9.3	9.1	9.0	58
4	54	54	56	187	14	13	10	9.8	9.3	9.1	9.0	58
5	54	54	56	187	14	13	10	9.8	9.3	9.1	9.0	58
6	54	54	61	187	14	13	10	9.6	9.3	9.1	9.0	58
7	54	54	56	186	13	13	10	9.6	9.3	9.1	8.9	58
8	54	54	54	187	14	13	9.8	9.8	9.3	9.1	8.7	58
9	54	55	56	186	13	13	9.7	9.8	9.3	9.1	8.7	58
10	54	55	64	187	14	13	9.9	10	9.3	9.1	8.7	58
11	54	55	127	187	14	13	10	10	9.3	9.1	8.7	57
12	54	55	192	186	13	13	10	10	9.3	9.1	8.7	57
13	54	55	192	186	13	13	10	10	9.2	9.1	8.7	57
14	54	55	191	186	13	13	11	10	9.1	9.1	8.5	57
15	54	55	192	186	13	13	10	10	9.1	9.1	8.5	57
16	54	55	191	186	13	13	10	10	9.1	9.1	8.5	57
17	54	55	191	185	13	13	10	10	9.1	9.1	8.5	57
18	54	55	191	185	13	13	10	9.8	9.1	9.1	8.5	57
19	54	55	191	185	13	12	11	9.8	9.1	9.1	8.5	57
20	54	55	190	185	13	13	10	9.6	9.1	9.1	8.6	57
21	54	55	190	184	13	13	10	9.6	9.1	9.1	8.5	57
22	54	55	190	185	12	13	9.8	9.4	9.1	9.1	8.5	57
23	54	55	189	185	12	14	9.9	9.3	9.1	9.1	8.5	57
24	54	55	188	185	12	14	9.9	9.3	9.1	9.1	8.5	57
25	54	55	188	184	12	14	10	9.3	9.1	9.1	39	57
26	54	56	188	184	12	15	10	9.3	9.1	8.9	58	57
27	54	55	188	184	12	15	11	9.3	9.1	9.0	58	57
28	54	55	188	184	13	15	11	9.4	9.1	9.0	58	57
29	54	55	188	184	13	15	11	9.6	9.1	9.0	58	57
30	54	55	188	184	---	14	10	9.3	9.1	9.0	58	57
31	54	---	187	184	---	13	---	9.3	---	9.0	58	---
TOTAL	1674	1643	4502	5752	478	416	303.9	300.5	275.9	281.4	595.7	1720
MEAN	54.0	54.8	145	186	16.5	13.4	10.1	9.69	9.20	9.08	19.2	57.3
MAX	54	56	192	187	110	15	11	10	9.6	9.1	58	58
MIN	54	54	54	184	12	12	9.7	9.3	9.1	8.9	8.5	57
AC-FT	3320	3260	8930	11410	948	825	603	596	547	558	1180	3410

CAL YR 1987 TOTAL 16112.8 MEAN 44.1 MAX 192 MIN 9.4 AC-FT 31960 MEAN a 47.6 AC-FT a 34460
WTR YR 1988 TOTAL 17942.4 MEAN 49.0 MAX 192 MIN 8.5 AC-FT 35590 MEAN a 46.7 AC-FT a 33890

a Adjusted for change in contents in Little Grass Valley Reservoir.

SACRAMENTO RIVER BASIN

11395200 SOUTH FORK FEATHER RIVER BELOW DIVERSION DAM, NEAR STRAWBERRY VALLEY, CA

LOCATION.--Lat 39°38'51", long 121°07'04", in NE 1/4 SE 1/4 sec.30, T.21 N., R.8 E., Plumas County, Hydrologic Unit 18020123, Plumas National Forest, on left bank 0.1 mi downstream from diversion dam, 3.1 mi upstream from Rock Creek, and 5.8 mi north of Strawberry Valley.

DRAINAGE AREA.--37.7 mi².

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

REVISED RECORDS.--WDR CA-80-4: 1976(M).

GAGE.--Water-stage recorder and since May 8, 1987, sharp crested rectangular weir. Datum of gage is 3,535.02 ft above National Geodetic Vertical Datum of 1929 (levels by Oroville-Wyandotte Irrigation District).

REMARKS.--No estimated daily discharges. Flow regulated by Little Grass Valley Reservoir (station 11395020). South Fork diversion tunnel, maximum capacity, about 600 ft³/s 500 ft upstream, diverts to Sly Creek Reservoir (station 11395400); diversion began in November 1961. See schematic diagram of South Fork Feather River basin.

AVERAGE DISCHARGE (adjusted for diversion to South Fork tunnel).--28 years, 156 ft³/s, 113,000 acre-ft/yr.

COOPERATION.--Records provided by Oroville-Wyandotte Irrigation District, under general supervision of the U.S. Geological survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,870 ft³/s, Feb. 17, 1986, gage height, 14.92 ft, from rating curve extended above 40 ft³/s on basis of computation of peak flow over diversion dam from floodmark; minimum daily, 0.3 ft³/s, Dec. 25, 1962, to Jan. 2, 1963, Mar. 1-3, 1963.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 216 ft³/s, Dec. 10, gage height, 6.82 ft; minimum daily, 5.2 ft³/s, May 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	11	6.1	6.1	5.5	5.5	8.2	5.5	5.8	5.6	5.6	5.8
2	11	11	6.4	6.0	5.4	5.4	5.8	5.4	5.7	5.6	5.6	5.8
3	11	8.1	6.0	6.2	5.3	5.5	5.8	5.3	5.6	5.6	5.6	5.8
4	11	5.6	5.8	6.2	5.3	5.5	5.8	5.2	5.6	5.6	5.6	5.8
5	11	5.6	5.9	6.3	5.3	5.5	5.8	5.5	5.6	5.6	5.6	5.8
6	11	5.6	6.2	6.2	5.3	5.5	5.8	5.8	5.7	5.6	5.6	5.8
7	11	5.6	6.1	6.2	5.3	5.4	5.8	5.8	5.8	5.6	5.6	5.8
8	11	5.6	6.1	6.2	5.3	5.5	5.8	5.8	5.8	5.6	5.6	5.8
9	11	5.6	6.4	6.3	5.3	5.4	5.8	5.8	5.6	5.6	5.6	5.8
10	11	5.6	7.9	6.4	5.3	5.3	5.7	5.8	5.6	5.7	5.6	5.8
11	11	5.6	6.2	6.5	5.3	5.3	5.8	5.8	5.6	5.6	5.6	5.8
12	11	5.6	6.2	6.4	5.3	5.3	5.8	5.8	5.6	5.6	5.6	5.8
13	11	5.7	6.2	6.4	5.3	5.3	5.8	5.8	5.6	5.6	5.6	5.8
14	11	5.6	6.2	8.1	5.3	5.3	5.8	5.8	5.6	5.6	5.6	5.8
15	11	5.6	6.2	5.9	5.3	5.3	5.8	5.8	5.6	5.6	5.6	5.8
16	11	5.6	6.2	5.8	5.3	5.3	5.8	5.8	5.6	5.6	5.6	5.8
17	11	5.6	6.2	5.7	5.3	5.6	5.8	5.8	5.6	5.6	5.6	5.8
18	11	5.6	6.2	5.7	5.3	5.8	5.7	5.8	5.6	5.6	5.6	5.8
19	11	5.6	6.2	5.6	5.3	5.8	5.9	5.8	5.6	5.6	5.6	5.8
20	11	5.6	6.2	5.5	5.3	5.8	5.8	5.8	5.6	5.6	5.6	5.8
21	11	5.6	6.2	5.5	5.3	5.8	5.8	5.8	5.6	5.6	5.6	5.8
22	11	5.6	6.2	5.5	5.3	5.8	5.8	5.8	5.6	5.6	5.6	5.8
23	11	5.5	6.2	5.5	5.3	5.8	5.8	5.8	5.6	5.6	5.6	5.8
24	11	5.5	6.2	5.5	5.3	5.8	5.8	5.8	5.6	5.6	5.6	5.8
25	11	5.7	6.2	5.5	5.3	5.8	5.8	5.8	5.6	5.6	5.7	5.8
26	11	5.8	6.2	5.5	5.3	5.8	5.8	5.6	5.6	5.6	5.8	5.8
27	11	5.8	6.2	5.5	5.3	5.7	5.8	5.6	5.6	5.6	5.8	5.8
28	11	5.8	6.2	5.5	5.3	5.7	5.7	5.7	5.6	5.6	5.8	5.8
29	11	5.8	6.2	5.5	5.3	5.8	5.5	5.8	5.6	5.6	5.8	5.8
30	11	5.8	6.2	5.5	---	5.8	5.5	5.7	5.6	5.6	5.8	5.7
31	11	---	6.2	5.5	---	8.9	---	5.6	---	5.6	5.8	---
TOTAL	341	182.3	193.1	184.2	154.0	176.0	175.6	176.9	168.8	173.7	174.9	173.9
MEAN	11.0	6.08	6.23	5.94	5.31	5.68	5.85	5.71	5.63	5.60	5.64	5.80
MAX	11	11	7.9	8.1	5.5	8.9	8.2	5.8	5.8	5.7	5.8	5.8
MIN	11	5.5	5.8	5.5	5.3	5.3	5.5	5.2	5.6	5.6	5.6	5.7
AC-FT	676	362	383	365	305	349	348	351	335	345	347	345
MEAN a	61.6	61.7	209	231	58.4	68.6	42.5	36.3	23.2	15.9	23.7	62.9
AC-FT a	3780	3670	12880	14220	3360	4220	2530	2230	1380	977	1460	3740
b	3110	3310	12500	13860	3060	3870	2180	1880	1050	632	1110	3400

CAL YR 1987 TOTAL 3177.4 MEAN 8.71 MAX 94 MIN 5.3 AC-FT 6300 MEAN a 70.6 AC-FT a 51110
WTR YR 1988 TOTAL 2274.4 MEAN 6.21 MAX 11 MIN 5.2 AC-FT 4510 MEAN a 75.0 AC-FT a 54480

a Adjusted for diversion to South Fork tunnel.

b Diversion. in acre-feet. from South Fork Feather River to South Fork tunnel.

SACRAMENTO RIVER BASIN

11395400 SLY CREEK RESERVOIR NEAR STRAWBERRY VALLEY, CA

LOCATION.--Lat 39°35'01", long 121°06'59", in NE 1/4 NE 1/4 sec.19, T.20 N., R.8 E., Butte County, Hydrologic Unit 18020123, Plumas National Forest, on right bank 100 ft upstream from dam on Lost Creek, 1.4 mi northwest of Strawberry Valley.

DRAINAGE AREA.--24.0 mi².

PERIOD OF RECORD.--November 1961 to current year (fragmentary prior to Mar. 14, 1962).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Oroville-Wyandotte Irrigation District). Prior to Sept. 30, 1966, water-stage recorder in valve chamber inside dam at same datum. Oct. 1, 1966, to December 1974, nonrecording gage read once daily.

REMARKS.--Estimated contents: Aug. 10-17. Reservoir is formed by earthfill dam. Storage began in November 1961. Total capacity, 65,600 acre-ft between elevations 3,285 ft, invert of outlet, and 3,531 ft, top of spillway gate, all of which is available for release. Water is diverted into reservoir from South Fork Feather River through South Fork diversion tunnel and from North Yuba River basin through Slate Creek tunnel (station 11413250). Records, including extremes, show contents at 2400 hours. See schematic diagram of South Fork Feather River basin.

COOPERATION.--Records provided by Oroville-Wyandotte Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 65,600 acre-ft, June 22, 1978, elevation, 3,530.9 ft; minimum observed under normal operating conditions since reservoir first filled, 860 acre-ft, Feb. 11, 1976, elevation, 3,320.0 ft. Reservoir completely drained for powerplant construction, Sept. 12 to Oct. 17, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 62,300 acre-ft, May 9, elevation, 3,525.4 ft; minimum, 16,400 acre-ft, Jan. 27, elevation, 3,419.1 ft.

Capacity table (elevation, in feet NGVD, and contents, in acre-feet)
(Provided by Pacific Gas & Electric Co., from 1946 survey)

3,310	450	3,360	4,300	3,450	26,300
3,315	655	3,380	7,360	3,480	38,500
3,320	860	3,400	11,500	3,510	53,400
3,340	2,150	3,420	16,600	3,531	65,600

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36000	26300	19700	21700	19500	26600	45900	60100	59700	53600	41300	27800
2	35800	26100	21400	21100	19100	28000	46200	60600	59300	53200	41000	27200
3	35100	25800	22300	20600	19100	29100	46600	61100	59000	52900	40500	26900
4	34500	25800	22700	20500	19300	30100	46900	61300	58800	52800	40000	26400
5	34200	25700	22900	20600	19600	31000	47300	61300	58800	52700	39500	26000
6	33800	25300	24100	20400	19500	31900	47600	61300	58700	52200	38900	25400
7	33200	25100	25000	20300	19400	32700	48000	61600	58600	51700	38500	25000
8	32800	24800	25600	19900	19300	33400	48300	62000	58600	51200	37900	24900
9	32300	24100	26700	19700	19300	34300	48700	62300	58700	50900	37700	24800
10	32200	24300	29700	19700	19400	35000	49000	62100	58700	50500	37600	24900
11	32300	24100	30800	20400	19600	35700	49300	61600	58800	50100	37000	25000
12	32400	23800	30800	20800	19900	36400	49600	61400	59000	49700	36400	25100
13	32500	23300	30400	20700	20100	36900	50000	61200	58700	49300	36100	25200
14	32600	23200	30100	20600	20300	37400	50400	61200	58500	48800	35800	25300
15	32500	23100	30000	20400	20400	37900	50800	61000	58000	48300	35100	25500
16	32200	22900	30100	20600	20600	38400	51100	60900	57600	47900	34700	25600
17	31900	22500	29700	20100	20700	38800	51500	61000	57400	47400	34100	25700
18	31400	22200	29100	19700	20900	39200	51800	61200	57100	47000	33400	25800
19	30900	21800	28500	19400	21100	39700	52700	61500	56700	46600	32900	25900
20	30500	21600	27900	19000	21300	40200	53300	61600	56300	46400	32300	26000
21	30200	21500	27500	18500	21200	40700	53900	61800	56100	45900	31700	26000
22	29700	21300	27200	17900	21300	41300	54600	61700	55800	45600	31200	25500
23	28900	20700	26700	17400	21400	41700	55100	61500	55600	45300	31000	25000
24	28100	20300	26000	17200	21400	42200	55700	61000	55200	44800	30400	24800
25	27600	20100	25300	16700	21900	42800	56300	60500	55000	44400	30000	24700
26	27500	19800	24800	16500	22400	43300	57000	60300	54700	44100	29600	24700
27	27700	19500	24200	16400	23000	43800	57600	60100	54400	43600	29400	24800
28	27800	19300	24000	16800	23800	44300	58300	60100	54100	43200	29400	24900
29	28000	19200	23400	17600	24700	44700	59000	60200	54000	42700	29000	25000
30	27500	19300	22700	18500	---	45200	59700	60100	53800	42200	29000	25100
31	26600	---	22300	19300	---	45600	---	59800	---	41700	28600	---
MAX	36000	26300	30800	21700	24700	45600	59700	62300	59700	53600	41300	27800
MIN	26600	19200	19700	16400	19100	26600	45900	59800	53800	41700	28600	24700
a	3450.9	3429.3	3438.5	3429.3	3445.5	3494.7	3521.0	3521.2	3510.7	3486.8	3456.1	3446.7
b	-9300	-7300	+3000	-3000	+5400	+20900	+14100	+100	-6000	-12100	-13100	-3500
CAL YR 1987	b	+300										
WTR YR 1988	b	-10800										

a Elevation, in feet NGVD, at end of month.

b Change in contents, in acre-feet.

SACRAMENTO RIVER BASIN

11395500 OROVILLE-WYANDOTTE CANAL NEAR CLIPPER MILLS, CA

LOCATION.--Lat 39°33'15", long 121°11'31", in NW 1/4 NE 1/4 sec.33, T.20 N., R.7 E., Butte County, Hydrologic Unit 18020123, in concrete valve house at head of canal and 2.5 mi north of Clipper Mills.

PERIOD OF RECORD.-- October 1927 to September 1941 (published as Forbestown ditch), October 1953 to current year. Monthly discharge only for October 1953 to September 1961, published with records for Lost Creek near Clipper Mills.

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 3,166.0 ft above National Geodetic Vertical Datum of 1929 (levels by Oroville-Wyandotte Irrigation District). Prior to Sept. 30, 1941, nonrecording gages and Oct. 1, 1941, to Nov. 16, 1962, water-stage recorder at sites at different datums 4 mi upstream in abandoned part of canal, 0.3 mi downstream from Lost Creek Dam.

REMARKS.--No estimated daily discharges. Water is discharged to canal through valve in Woodleaf penstock. Prior to Nov. 16, 1962, canal diverted from Lost Creek Dam. Water is used for irrigation and domestic supply. Demand for water reduced when a large lumber mill closed at Woodleaf in 1962. See schematic diagram of South Fork Feather River basin.

AVERAGE DISCHARGE.--23 years (water years 1928-41, 1954-62, prior to closure of lumber mill), 21.0 ft³/s, 15,200 ac-ft/yr; 26 years (water years 1963-88), 8.41 ft³/s, 6,090 acre-ft/yr.

COOPERATION.--Records provided by Oroville-Wyandotte Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 43 ft³/s, Aug. 9 to Sept. 9, 1937, Aug. 13-15, 1977; no flow at times in many years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	8.7	3.1	.69	.71	.63	5.1	2.0	14	21	23	25
2	21	7.8	.54	.71	.70	.59	5.2	3.1	12	21	23	25
3	21	5.4	.55	.69	.69	.59	5.2	4.7	12	21	23	25
4	21	5.3	.55	.69	.68	.58	5.2	4.7	12	21	23	25
5	21	5.4	.55	.69	.68	.58	5.2	4.8	12	21	23	25
6	21	5.4	.55	.70	.68	.58	6.1	6.7	12	21	23	25
7	22	5.4	.55	.69	.66	1.0	7.2	8.0	12	21	14	25
8	22	5.4	.55	.73	.66	1.8	7.2	7.9	12	21	.28	25
9	22	5.4	.55	.76	.64	1.8	7.3	8.0	11	21	.28	25
10	22	5.4	.54	.77	.64	1.8	7.3	6.4	11	21	.25	25
11	22	5.4	.53	.76	.63	1.8	8.0	5.6	11	22	.22	25
12	22	5.3	.53	.77	.64	1.8	9.3	8.0	11	24	8.1	25
13	22	5.4	.53	.77	.64	1.8	9.3	8.0	11	24	19	25
14	17	5.4	.55	.74	.66	1.8	11	7.9	14	24	23	25
15	12	5.4	.55	.74	.65	1.8	12	8.0	18	21	23	25
16	12	5.4	.55	.75	.65	1.8	12	8.0	18	23	23	25
17	12	5.5	.54	.76	.64	1.7	12	6.6	18	23	23	25
18	12	5.0	.54	.77	.66	1.7	12	5.9	18	23	23	25
19	12	4.4	.54	.76	.65	1.7	9.0	5.7	18	24	25	25
20	12	4.4	.55	.77	.64	1.7	4.1	5.8	18	24	24	24
21	12	4.4	.53	.77	.65	1.8	2.0	5.8	18	24	25	24
22	12	4.4	.54	.75	.66	1.8	2.1	5.8	18	24	25	24
23	12	4.3	.53	.75	.67	1.7	2.1	7.1	19	24	24	24
24	12	4.2	.53	.76	.64	1.8	2.1	9.7	20	24	25	24
25	12	4.1	.55	.78	.63	2.3	2.0	11	20	25	25	24
26	10	4.3	.56	.74	.61	3.1	2.0	13	20	24	25	24
27	8.7	4.3	.55	.74	.60	3.1	2.1	15	20	24	25	23
28	8.3	4.2	.54	.73	.60	3.1	2.0	16	20	23	25	23
29	8.8	4.2	.55	.73	.57	4.1	2.0	16	20	23	25	23
30	8.8	4.2	.62	.77	---	5.2	2.0	16	20	23	25	23
31	8.8	---	.66	.77	---	5.2	---	16	---	23	25	---
TOTAL	482.4	153.8	19.60	23.00	18.83	60.75	180.1	257.2	470	703	618.13	735
MEAN	15.6	5.13	.63	.74	.65	1.96	6.00	8.30	15.7	22.7	19.9	24.5
MAX	22	8.7	3.1	.78	.71	5.2	12	16	20	25	25	25
MIN	8.3	4.1	.53	.69	.57	.58	2.0	2.0	11	21	.22	23
AC-FT	957	305	39	46	37	120	357	510	932	1390	1230	1460

CAL YR 1987 TOTAL 3474.37 MEAN 9.52 MAX 22 MIN .41 AC-FT 6890
WTR YR 1988 TOTAL 3721.81 MEAN 10.2 MAX 25 MIN .22 AC-FT 7380

SACRAMENTO RIVER BASIN

11396000 LOST CREEK NEAR CLIPPER MILLS, CA

LOCATION.--Lat 39°34'25", long 121°08'26", in SE 1/4 SW 1/4 sec.24, T.20 N., R.7 E., Butte County, Hydrologic Unit 18020123, Plumas National Forest, on left bank 0.3 mi downstream from Lost Creek Reservoir and 2.8 mi north of Clipper Mills.

DRAINAGE AREA.--30.0 mi².

PERIOD OF RECORD.--October 1927 to September 1941, October 1948 to current year. Records for Woodleaf powerplant from February 1963 to September 1966 in files of U.S. Geological Survey.

REVISED RECORDS.--WSP 1395: 1954. WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Sharp crested weir for low-water control since June 20, 1987. Elevation of gage is 3,170 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to June 20, 1987, at site 100 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Flow regulated by Sly Creek Reservoir (station 11395400) 1.5 mi upstream and Lost Creek Reservoir 0.3 mi upstream, usable capacity, 5,920 acre-ft with flashboards. Water is diverted into Sly Creek Reservoir through South Fork diversion tunnel from South Fork Feather River and through Slate Creek tunnel (station 11413250) from North Yuba River basin. Woodleaf tunnel diverts from Lost Creek Reservoir to Woodleaf powerplant. Oroville-Wyandotte Canal (station 11395500) diverts from Woodleaf penstock for irrigation and domestic use. Records represent seepage, release, and spill from Lost Creek Reservoir to Lost Creek. See schematic diagram of South Fork Feather River basin.

COOPERATION.--Records provided by Oroville-Wyandotte Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission Project.

AVERAGE DISCHARGE.--27 years (water years 1928-41, 1949-61, prior to regulation by Sly Creek Reservoir), 73.0 ft³/s, 52,850 acre-ft/yr; 27 years (water years 1962-88), 24.4 ft³/s, 17,680 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,000 ft³/s, Dec. 22, 1955, gage height, 6.90 ft, at site then in use; no flow at times in some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10 ft³/s, Oct. 24, gage height, 4.89 ft; minimum daily, 3.4 ft³/s, Mar. 25, 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.1	5.2	4.2	3.5	3.8	4.2	4.4	7.0	5.4	5.4	5.4	5.2
2	5.1	4.4	4.8	3.5	3.7	3.6	4.4	6.8	5.4	5.4	5.4	5.4
3	5.1	3.6	3.8	4.3	3.7	3.6	4.4	5.8	5.5	5.6	5.3	5.4
4	5.4	3.6	3.6	4.7	3.7	3.6	4.6	5.2	6.1	5.7	5.2	5.6
5	5.2	3.6	3.7	4.4	3.7	3.6	4.7	5.2	5.5	5.6	5.3	5.4
6	5.2	3.6	4.4	4.0	3.7	3.6	4.7	5.2	5.4	5.4	5.3	6.2
7	5.4	3.6	3.8	3.8	3.6	3.7	4.6	5.2	5.6	5.4	5.4	6.4
8	5.4	3.6	3.8	3.9	3.6	3.6	4.5	5.2	5.9	5.4	6.0	6.2
9	5.4	3.6	4.4	4.1	3.5	3.6	4.4	5.2	5.8	5.4	5.9	6.0
10	5.2	3.6	4.5	4.3	3.5	3.6	4.5	5.2	5.6	5.4	5.9	6.0
11	5.2	3.5	3.8	4.7	3.5	3.6	4.5	5.2	5.4	5.4	6.2	5.8
12	5.1	3.5	3.7	4.1	3.5	3.7	5.9	5.1	5.2	5.4	5.8	5.6
13	5.1	3.8	3.7	3.9	3.5	3.7	6.8	5.2	5.2	5.4	5.7	5.5
14	5.1	3.6	3.7	3.8	3.5	3.7	6.8	5.4	5.2	5.5	5.4	5.4
15	5.1	3.6	3.6	4.1	3.5	3.7	6.7	5.2	5.2	5.5	5.6	5.4
16	5.1	3.5	3.6	4.0	3.5	3.7	6.6	5.4	5.2	5.5	5.4	5.4
17	5.2	3.5	3.5	3.9	3.5	3.7	6.6	5.7	5.3	5.5	5.5	5.3
18	5.2	3.5	3.5	3.9	3.5	3.7	6.6	5.9	5.3	5.6	5.4	5.2
19	5.1	3.5	3.5	3.8	3.5	3.7	7.6	6.1	5.4	6.0	5.2	5.2
20	5.2	3.5	3.5	3.7	3.5	3.6	8.0	5.7	5.8	6.0	5.3	5.2
21	5.2	3.5	3.5	3.7	3.5	3.6	8.0	5.2	5.6	5.6	5.8	5.2
22	5.2	3.5	3.6	3.7	3.5	3.5	8.4	5.1	6.0	5.4	6.5	5.2
23	5.2	3.5	3.5	3.7	3.5	3.5	8.9	5.1	5.5	5.4	5.5	5.2
24	6.7	3.5	3.5	3.7	3.6	3.5	9.2	5.1	5.5	5.2	5.5	5.2
25	6.7	3.5	3.5	3.7	3.5	3.4	9.2	5.2	5.6	5.3	5.5	5.2
26	7.4	3.5	3.5	3.7	3.5	3.4	8.6	5.1	6.2	5.5	5.5	5.2
27	6.3	3.5	3.5	3.7	3.6	3.5	7.2	5.1	6.0	5.5	5.4	5.2
28	5.2	3.5	3.6	3.7	3.6	3.6	7.0	5.2	5.6	5.5	5.3	5.2
29	5.1	3.5	3.6	3.9	3.8	4.5	7.0	5.2	5.6	5.5	5.2	5.2
30	5.1	3.6	3.6	4.2	---	4.4	7.0	5.1	5.4	5.5	5.2	5.2
31	5.2	---	3.6	3.9	---	4.3	---	5.1	---	5.5	5.2	---
TOTAL	167.2	109.0	116.1	122.0	103.6	114.7	191.8	167.4	166.4	170.4	171.2	163.8
MEAN	5.39	3.63	3.75	3.94	3.57	3.70	6.39	5.40	5.55	5.50	5.52	5.46
MAX	7.4	5.2	4.8	4.7	3.8	4.5	9.2	7.0	6.2	6.0	6.5	6.4
MIN	5.1	3.5	3.5	3.5	3.5	3.4	4.4	5.1	5.2	5.2	5.2	5.2
AC-FT	332	216	230	242	205	228	380	332	330	338	340	325
a	12560	13210	25420	30020	9110	691	311	11020	10820	12800	14400	6160

CAL YR 1987 TOTAL 1456.2 MEAN 3.99 MAX 21 MIN 1.4 AC-FT 2890
WTR YR 1988 TOTAL 1763.6 MEAN 4.82 MAX 9.2 MIN 3.4 AC-FT 3500

a Diversion, in acre-feet, through Woodleaf powerplant, provided by Oroville-Wyandotte Irrigation District; not reviewed by U.S. Geological Survey.

SACRAMENTO RIVER BASIN

11396200 SOUTH FORK FEATHER RIVER BELOW FORBESTOWN DAM, CA

LOCATION.--Lat 39°33'05", long 121°12'30", in SE 1/4 NE 1/4 sec.32, T.20 N., R.7 E., Butte County, Hydrologic Unit 18020123, Plumas National Forest, on right bank 500 ft downstream from Forbestown Dam, 0.4 mi upstream from Oroleve Creek, and 4.0 mi northeast of Forbestown.

DRAINAGE AREA.--87.5 mi².

PERIOD OF RECORD.--July 1962 to current year. Records for Forbestown powerplant from February 1963 to September 1966 in files of U.S. Geological Survey.

GAGE.--Water-stage recorder. Elevation of gage is 1,690 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Flow regulated by Little Grass Valley Reservoir (station 11395020), Sly Creek Reservoir (station 11395400), and smaller reservoirs. Water from North Yuba River basin is imported through Slate Creek tunnel (station 11413250) to Sly Creek Reservoir. Oroville-Wyandotte Canal (station 11395500) diverts above station. Tunnel 600 ft above station diverts most flow through Forbestown powerplant except fishwater releases and uncontrolled spill over Forbestown Dam. See schematic diagram of South Fork Feather River basin.

AVERAGE DISCHARGE.--26 years, 67.0 ft³/s, 48,540 acre-ft/yr.

COOPERATION.--Records provided by Oroville-Wyandotte Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,400 ft³/s, Feb. 17, 1986, gage height, 16.07 ft, from rating curve extended above 5,400 ft³/s on basis of flow-over-dam measurement of peak flow; minimum daily, 0.6 ft³/s, Apr. 4, 1963.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 17 ft³/s, Nov. 19, gage height, 5.02 ft; minimum daily, 5.0 ft³/s, Nov. 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	11	6.4	6.3	5.5	5.8	5.5	5.3	5.3	5.1	5.9	5.9
2	11	8.4	6.6	6.3	5.5	5.5	5.5	5.2	5.3	5.1	5.9	5.9
3	11	6.1	6.2	6.6	5.5	5.5	5.5	5.3	5.3	5.1	5.9	5.9
4	11	5.7	6.1	6.7	5.5	5.5	5.5	5.3	5.3	5.1	5.8	5.9
5	11	5.1	6.2	6.6	5.5	5.4	5.5	5.3	5.3	5.2	5.8	5.9
6	11	5.9	6.4	6.5	5.5	5.4	5.5	5.3	5.3	5.3	5.7	5.8
7	11	7.3	6.0	6.4	5.5	5.4	5.5	5.3	5.4	5.1	5.8	5.7
8	11	7.1	5.8	6.3	5.5	5.4	5.5	5.3	5.4	5.5	5.8	5.8
9	11	7.1	5.9	6.3	5.5	5.5	5.5	5.3	5.4	5.7	5.8	5.7
10	11	6.4	5.9	6.5	5.5	5.6	5.4	5.3	5.4	5.7	5.8	5.7
11	11	5.7	5.6	6.1	5.5	5.5	5.5	5.5	5.3	5.7	5.7	5.5
12	10	7.4	5.5	5.5	5.5	5.3	5.5	5.5	5.3	5.7	5.7	5.7
13	11	7.6	5.5	5.5	5.5	5.4	5.5	5.4	5.3	5.7	5.7	5.5
14	11	7.3	5.7	5.3	5.5	5.5	5.5	5.3	5.3	5.9	5.8	5.5
15	11	6.9	5.7	5.6	5.5	5.5	5.5	5.4	5.3	5.9	5.7	5.6
16	11	5.0	5.6	5.7	5.5	5.5	5.5	5.4	5.3	5.9	5.7	5.5
17	11	7.8	5.5	5.6	5.5	5.6	5.5	5.4	5.3	5.9	5.7	5.6
18	11	7.2	5.5	5.5	5.5	5.5	5.5	5.2	5.3	5.9	5.7	5.7
19	11	5.4	5.5	5.5	5.5	5.5	5.8	5.2	5.3	5.9	5.7	5.5
20	11	7.3	5.5	5.5	5.5	5.5	5.5	5.2	5.3	5.8	5.7	5.6
21	11	8.1	5.5	5.5	5.5	5.5	5.5	5.3	5.3	5.9	5.8	5.7
22	11	7.0	5.7	5.5	5.4	5.4	5.4	5.3	5.3	5.9	5.9	5.6
23	11	7.3	5.5	5.5	5.5	5.4	5.5	5.3	5.3	5.9	5.9	5.5
24	11	7.0	5.6	5.5	5.5	5.5	5.4	5.3	5.3	5.9	5.8	5.8
25	11	6.1	5.7	5.5	5.5	5.5	5.4	5.3	5.3	5.9	5.9	5.7
26	11	6.1	5.7	5.5	5.5	5.5	5.4	5.3	5.1	5.9	5.9	5.7
27	11	6.1	5.7	5.5	5.5	5.5	5.4	5.3	5.1	5.9	5.9	5.7
28	11	6.1	6.2	5.5	5.5	5.5	5.5	5.4	5.1	5.9	5.9	5.5
29	11	6.1	6.3	5.7	5.5	5.5	5.5	5.3	5.1	5.8	5.8	5.5
30	11	6.3	6.3	5.6	---	5.4	5.4	5.3	5.1	5.7	5.9	5.5
31	11	---	6.3	5.5	---	5.4	---	5.3	---	5.9	5.9	---
TOTAL	340	203.9	181.6	181.1	159.4	169.9	164.6	164.8	158.4	175.8	179.9	170.1
MEAN	11.0	6.80	5.86	5.84	5.50	5.48	5.49	5.32	5.28	5.67	5.80	5.67
MAX	11	11	6.6	6.7	5.5	5.8	5.8	5.5	5.4	5.9	5.9	5.9
MIN	10	5.0	5.5	5.3	5.4	5.3	5.4	5.2	5.1	5.1	5.7	5.5
AC-FT	674	404	360	359	316	337	326	327	314	349	357	337
a	12890	12560	28130	33980	10020	1320	643	11920	10690	12760	14380	5700

CAL YR 1987 TOTAL 3274.9 MEAN 8.97 MAX 62 MIN 5.0 AC-FT 6500
WTR YR 1988 TOTAL 2249.5 MEAN 6.15 MAX 11 MIN 5.0 AC-FT 4460

a Diversion, in acre-feet, to Forbestown powerplant, provided by Oroville-Wyandotte Irrigation District; not reviewed by U.S. Geological Survey.

SACRAMENTO RIVER BASIN

11396310 MINERS RANCH CANAL BELOW PONDEROSA DAM, NEAR FORBESTOWN, CA

LOCATION.--Lat 39°33'00", long 121°18'20", in SE 1/4 NW 1/4 sec.33, T.20 N., R.6 E., Butte County, Hydrologic Unit 18020123, on right bank 800 ft downstream from Ponderosa Dam and 3 mi northwest of Forbestown.

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

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 975 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Feb. 25-29, Mar. 7-14, 17-23. Canal diverts from South Fork Feather River at Ponderosa Dam. Water is used for power development and irrigation. See schematic diagram of South Fork Feather River basin.

AVERAGE DISCHARGE.--26 years, 204 ft³/s, 147,800 acre-ft/yr.

COOPERATION.--Records provided by Oroville-Wyandotte Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 314 ft³/s, May 13, 1984; no flow at times in most years.

REVISIONS.--Corrected values of total monthly discharge, in acre-ft, through Kelley Ridge powerplant are given below. These figures supersede those published in the report for the 1987 water year.

	MONTH		ACRE-FT	
	November 1986		12,700	
	December		11,000	

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988												
MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	125	262	249	248	251	162	24	142	204	194	274	249
2	105	254	250	250	254	254	28	211	204	193	182	249
3	248	256	245	250	254	185	28	261	205	193	276	249
4	252	255	241	250	254	80	28	274	203	192	277	249
5	252	258	244	250	251	79	28	273	204	224	277	249
6	263	257	250	250	250	77	28	257	204	252	277	248
7	272	256	251	250	244	48	29	138	203	254	277	248
8	275	256	232	249	248	2.0	29	141	203	254	276	257
9	276	257	250	248	250	2.0	29	207	202	255	186	272
10	275	248	257	248	250	12	29	254	202	255	278	247
11	275	252	258	248	250	49	28	252	204	255	280	158
12	275	252	258	253	251	2.0	25	253	204	254	281	66
13	265	250	258	237	252	2.0	26	256	205	254	280	42
14	166	254	258	252	253	57	21	257	211	255	281	22
15	69	254	258	252	251	96	18	259	210	255	280	18
16	29	254	257	250	250	85	19	235	211	255	283	.00
17	21	254	255	245	188	24	19	260	210	256	285	.00
18	221	254	253	246	237	2.0	59	58	210	256	285	.00
19	228	253	253	246	231	2.0	171	165	210	255	285	.00
20	271	238	232	249	252	2.0	227	254	210	254	284	.00
21	270	242	239	253	258	2.0	226	254	210	254	283	.00
22	257	251	251	252	261	2.0	63	256	210	254	279	139
23	258	251	251	251	261	1.3	44	265	249	254	267	163
24	258	252	251	251	260	.00	46	275	243	254	177	.00
25	258	252	251	251	84	.00	46	274	199	253	249	31
26	258	251	251	251	2.0	91	47	275	198	251	249	97
27	254	247	251	250	2.0	.00	47	274	198	250	250	37
28	260	251	251	247	2.0	.00	49	274	198	181	248	23
29	259	250	251	248	56	.00	108	273	198	273	248	21
30	259	251	250	253	---	128	148	273	196	274	249	108
31	258	---	247	250	---	9.5	---	231	---	274	249	---
TOTAL	7012	7572	7753	7728	6107.0	1455.80	1717	7331	6218	7587	8152	3442.00
MEAN	226	252	250	249	211	47.0	57.2	236	207	245	263	115
MAX	276	262	258	253	261	254	227	275	249	274	285	272
MIN	21	238	232	237	2.0	.00	18	58	196	181	177	.00
AC-FT	13910	15020	15380	15330	12110	2890	3410	14540	12330	15050	16170	6830
a	12430	14490	14950	14970	11920	1920	1680	13050	11030	12870	14090	5000

CAL YR 1987 TOTAL 71123.20 MEAN 195 MAX 296 MIN .00 AC-FT 141100
WTR YR 1988 TOTAL 72074.80 MEAN 197 MAX 285 MIN .00 AC-FT 143000

a Discharge, in acre-ft, through Kelly Ridge powerplant, provided by Oroville-Wyandotte Irrigation District; not reviewed by U.S. Geological Survey.

SACRAMENTO RIVER BASIN

11396330 BANGOR CANAL BELOW MINERS RANCH RESERVOIR, NEAR OROVILLE, CA

LOCATION.--Lat 39°30'15", long 121°27'16", in NE 1/4 SW 1/4 sec.18, T.19 N., R.5 E., Butte County, Hydrologic Unit 18020124, on left bank 400 ft downstream from outlet at Miners Ranch Dam and 5 mi east of Oroville.

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

GAGE.--Water-stage recorder and Parshall flume. Elevation of gage is 815 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Flow regulated by Miners Ranch Reservoir, capacity, 912 acre-ft. Canal completed in November 1962. Water is used for irrigation. See schematic diagram of South Fork Feather River basin.

AVERAGE DISCHARGE.--25 years, 14.1 ft³/s, 10,220 acre-ft/yr.

COOPERATION.--Records provided by Oroville-Wyandotte Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 65 ft³/s, Aug. 17-20, 1963; no flow for several days in 1965, 1969.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	12	3.8	2.8	3.0	6.1	14	6.3	14	18	20	20
2	18	10	2.4	2.8	3.0	6.0	14	7.4	12	18	20	20
3	19	8.3	2.4	2.8	3.3	5.9	14	8.5	12	18	20	20
4	18	8.7	2.8	2.8	3.3	5.9	14	10	11	18	20	20
5	18	8.5	2.8	2.8	3.3	5.9	14	12	11	18	20	20
6	18	8.6	2.8	2.9	3.3	5.9	14	13	12	19	19	20
7	18	8.7	2.8	2.8	3.3	5.9	14	13	13	18	19	20
8	18	8.7	2.8	2.8	3.3	5.9	14	12	13	19	20	20
9	18	7.8	2.8	2.8	3.3	5.6	14	12	12	19	20	20
10	18	6.9	2.8	2.8	3.3	5.6	15	12	12	19	20	20
11	18	6.8	2.8	2.8	3.3	5.7	15	12	13	19	20	20
12	18	6.9	2.8	2.8	3.3	6.1	14	12	14	19	20	20
13	17	6.8	2.7	2.8	3.7	5.9	14	12	14	20	20	20
14	16	7.0	2.8	2.8	4.2	5.8	14	12	15	20	20	20
15	16	7.0	2.8	2.8	4.1	5.9	14	12	16	20	20	20
16	17	7.0	2.8	2.8	4.1	6.5	14	12	16	20	20	19
17	17	7.0	2.8	2.8	4.1	7.1	14	12	16	20	20	19
18	18	6.9	2.8	2.8	3.9	7.7	14	12	16	20	20	20
19	17	5.8	2.8	2.8	3.9	9.0	13	12	16	20	20	20
20	13	4.7	2.8	2.9	3.9	9.5	7.0	13	16	20	20	20
21	13	4.6	2.8	3.0	4.4	9.4	5.0	13	16	20	20	20
22	13	4.6	2.8	3.0	5.1	9.5	6.0	13	16	20	20	20
23	13	4.5	2.8	2.8	5.1	8.6	5.9	13	16	20	20	20
24	13	4.6	2.8	2.8	5.1	9.1	6.1	13	16	20	20	19
25	13	4.6	2.8	2.8	5.6	11	6.2	14	16	20	20	20
26	12	4.6	2.8	2.8	6.1	12	6.2	15	16	20	20	20
27	12	4.6	2.8	2.8	6.1	12	6.4	15	15	20	20	20
28	12	4.6	2.8	2.8	6.0	12	6.4	15	15	20	20	20
29	12	4.6	2.8	2.8	5.9	15	6.5	15	17	20	20	20
30	12	4.6	2.8	2.8	---	15	6.5	16	18	20	20	20
31	12	---	2.8	3.0	---	15	---	15	---	20	20	---
TOTAL	485	200.0	86.9	87.6	120.3	256.5	335.2	384.2	435	602	618	597
MEAN	15.6	6.67	2.80	2.83	4.15	8.27	11.2	12.4	14.5	19.4	19.9	19.9
MAX	19	12	3.8	3.0	6.1	15	15	16	18	20	20	20
MIN	12	4.5	2.4	2.8	3.0	5.6	5.0	6.3	11	18	19	19
AC-FT	962	397	172	174	239	509	665	762	863	1190	1230	1180

CAL YR 1987 TOTAL 4409.2 MEAN 12.1 MAX 23 MIN 2.4 AC-FT 8750
WTR YR 1988 TOTAL 4207.7 MEAN 11.5 MAX 20 MIN 2.4 AC-FT 8350

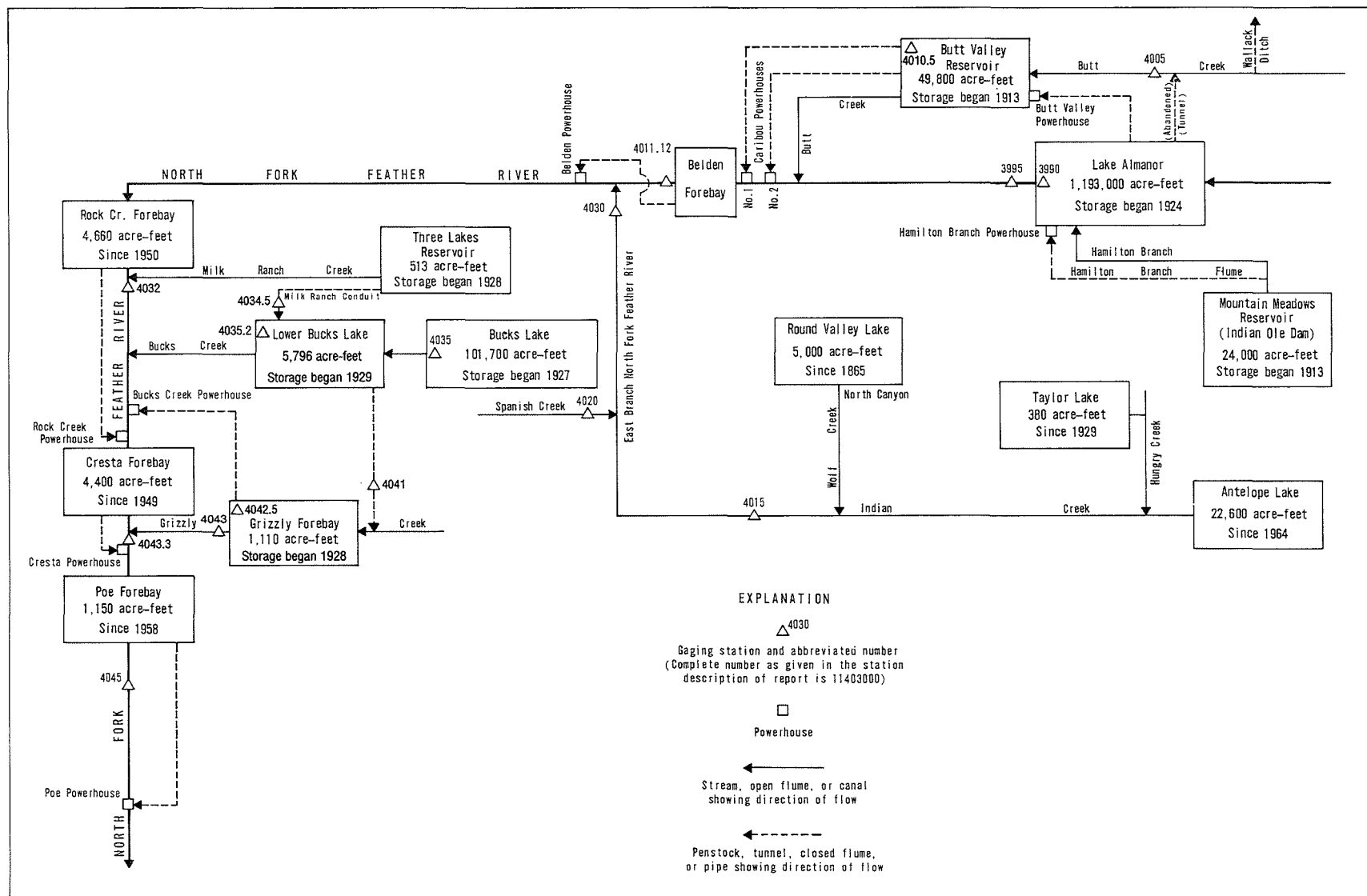


FIGURE 29--Schematic diagram showing diversions and storage in North Fork Feather River basin.

SACRAMENTO RIVER BASIN

11399000 LAKE ALMANOR AT PRATTVILLE, CA

LOCATION.--Lat 40°12'46", long 121°09'43", in SW 1/4 NE 1/4 sec.11, T.27 N., R.7 E., Plumas County, Hydrologic Unit 18020121, Lassen National Forest, at intake tower to Butt Valley tunnel at Prattville, 4.7 mi northwest of Lake Almanor Dam, and 5.6 mi northwest of Canyon Dam.

DRAINAGE AREA.--491 mi².

PERIOD OF RECORD.--July 1913 to current year. Monthly contents only for some periods, published in WSP 1315-A. Published as "near Prattville" 1937-60. Prior to October 1964, records published as usable contents.

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Nonrecording gage read once daily. Datum of gage is 10.23 ft below National Geodetic Vertical Datum of 1929 (levels by Pacific Gas & Electric Co.). Prior to June 1, 1965, nonrecording gage at site 4.7 mi southeast at same datum.

REMARKS.--Lake is formed by earthfill dam; storage began in July 1913; dam raised to gage height 4,455 ft in 1917 and 4,515 ft in 1927. Capacity, 1,183,835 acre-ft between gage heights 4,495.5 ft, upper storage limit, and 4,422 ft, bottom of lowest outlet, of which 8,948 acre-ft is not available for release. Water is diverted by tunnel and penstock to Butt Valley powerplant (station 11400600) and then is used for power development in the North Fork Feather River. Figures given herein, including extremes, represent total contents at 2400 hours. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES (at 2400) FOR PERIOD OF RECORD.--Maximum contents, 1,142,960 acre-ft, June 8, 1982, gage height, 4,494.00 ft; minimum, 5,230 acre-ft, Feb. 5, 1918, gage height, 4,416.1 ft.

EXTREMES (at 2400) FOR CURRENT YEAR.--Maximum contents, 956,214 acre-ft, Oct. 1, gage height, 4,486.90 ft; minimum, 699,565 acre-ft, Jan. 16, gage height, 4,476.20 ft.

Capacity table (gage height, in feet, and contents, in acre-feet)
(Based on surveys by Pacific Gas & Electric Co. in 1924 and 1926)

4,422	8,948	4,434	49,510	4,460	376,686
4,424	10,067	4,437	74,189	4,470	565,519
4,426	11,260	4,440	101,869	4,480	787,304
4,428	13,480	4,445	156,414	4,490	1,036,269
4,430	21,200	4,450	220,848	4,495.5	1,183,835
4,432	34,173	4,455	294,531		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	956214	888141	797243	737181	712934	744097	776706	814862	842738	862400	839839	808419
2	951652	886169	800327	733962	714298	745252	777881	815818	844187	862644	838148	806040
3	949121	884198	800802	732583	715209	746408	779056	816535	844912	862644	836599	803898
4	947603	881245	798903	729601	716347	747796	779997	817013	845395	862644	835250	801281
5	947603	879279	796768	725936	717486	749185	781174	817492	846361	862888	833326	798667
6	948615	876333	798191	723536	718398	750343	782116	818448	847329	863132	833085	795589
7	949121	872901	798191	721136	719310	751502	783058	819644	848786	864108	833566	793459
8	947350	869474	797717	718170	720223	753126	784237	820122	849514	863376	832605	790855
9	944318	866786	794162	714981	721364	754286	784944	821078	850242	862644	831403	788014
10	941290	862881	796768	713844	721821	755215	785891	821317	850971	861667	830201	784950
11	938768	859470	798666	709980	722734	755680	787069	822035	852428	861911	828759	782124
12	936249	856307	796294	706578	723649	757307	788251	822513	853156	862155	827077	779299
13	932978	853391	792505	704766	724563	758005	789434	823952	853884	862155	825875	777416
14	929963	850236	788958	702955	725478	758703	790855	825154	854127	860447	825875	775064
15	926951	846359	786124	702277	726851	759867	792275	826596	855341	859470	823952	772255
16	925697	843214	784237	699565	727538	760799	793459	827077	855827	858498	822274	769915
17	922190	840314	781409	700695	728226	761964	794642	828759	857041	857041	819883	766638
18	919438	836936	777881	700469	729142	763363	795826	830201	857526	855341	818448	763830
19	918438	834285	775063	700243	729830	764297	800092	830682	857769	855341	817013	761038
20	914941	830434	771780	700921	730977	765231	802233	831884	858498	854856	817253	758945
21	912446	827310	769438	702503	731665	766165	803660	832605	859714	853156	817492	755920
22	910203	823711	767100	702709	732813	767333	804850	834047	859470	851456	815818	753826
23	908211	820835	762663	704313	733962	768502	806040	834527	860691	850728	815579	751042
24	905723	817484	760100	705219	734651	769672	806753	835250	861667	850242	814622	751273
25	903239	813900	756842	706351	735801	770609	807943	835974	862155	848786	813905	751736
26	900757	810321	756145	706805	736721	771780	809133	836457	862400	847086	812949	752198
27	899021	806985	751039	707938	737872	772483	810084	837182	862155	845637	813666	752896
28	896543	803654	749648	709073	739023	773420	810798	838390	862155	843704	813905	753361
29	894563	800090	746177	710662	741097	774359	812710	840081	862400	842255	812471	753361
30	892091	798191	743174	711116	---	774828	813661	840805	862644	841047	811036	754059
31	890115	---	740636	712252	---	775767	---	841772	---	841530	810084	---
MAX	956214	888141	800802	737181	741097	775767	813661	841772	862644	864108	839839	808419
MIN	890115	798191	740636	699565	712934	744097	776706	814862	842738	841047	810084	751042
a	4484.26	4480.46	4478.00	4476.76	4478.02	4479.51	4481.11	4482.28	4483.14	4482.27	4480.96	4478.58
b	-67365	-91924	-57555	-28384	+28845	+34670	+37894	+28111	+20872	-21114	-31446	-56025

CAL YR 1987 MAX 1004440 MIN 721820 b +21106
WTR YR 1988 MAX 956214 MIN 699565 b -203421

a Gage height, in feet, at end of month.
b Change in contents in acre-feet

SACRAMENTO RIVER BASIN

11399500 NORTH FORK FEATHER RIVER NEAR PRATTVILLE, CA

LOCATION.--Lat 40°10'06", long 121°05'31", in NE 1/4 SW 1/4 sec.28, T.27 N., R.8 E., Plumas County, Hydrologic Unit 18020121, Plumas National Forest, on left bank 0.4 mi downstream from Almanor Dam, 4.5 mi southeast of Prattville, and 9 mi upstream from Butt Creek.

DRAINAGE AREA.--493 mi².

PERIOD OF RECORD.--June 1905 to current year. Published as "below Prattville" prior to 1911. No record for January, February, or March 1911. Estimated mean discharge for water year 1911 published in WSP 1315-A.

REVISED RECORDS.--WSP 1245: 1951 (yearly summaries). WSP 1285: 1952 (yearly summaries).

GAGE.--Water-stage recorder and broad-crested weir. Datum of gage is 4,390.09 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1936, nonrecording gages or water-stage recorders at several sites within 0.5 mi of present site at various datums.

REMARKS.--Estimated daily discharges: Feb. 6-26, Apr. 19 to May 4, May 8-18, May 22 to June 2. Flow regulated since 1913 by Lake Almanor (station 11399000) 0.5 mi upstream and since 1924 by Mountain Meadows Reservoir, capacity, 24,000 acre-ft, 12 mi upstream on Hamilton Branch. Water diverted from Lake Almanor to Butt Valley Reservoir (station 11401050) through old Almanor-Butt Creek tunnel from May 1921 to December 1958, for use at Caribou powerplant. Old tunnel closed Dec. 30, 1958, and diversion began to Butt Valley powerplant (station 11400600) at upstream end of Butt Valley Reservoir. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE (adjusted for change in contents in Lake Almanor, diversion to Butt Valley powerplant, and leakage from Almanor-Butt Creek tunnel at Outlet (station 11400200)).--83 years, 907 ft³/s, 657,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,000 ft³/s, Mar. 19, 1907, before construction of dam, gage height, 16.2 ft, at former site, from rating curve extended above 3,700 ft³/s; no flow at times during 1914, 1919, 1923.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 453 ft³/s, Dec. 21, gage height, 4.53 ft; minimum daily, 34 ft³/s, Jan. 6-14.

REVISIONS.--The monthly and yearly totals for Butt Valley powerplant (station 11400600) for the 1987 water year have been revised. The revised figures are listed as line b in the table below. These figures supersede those published in WDR CA-87-4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	36	35	35	39	39	36	36	37	37	36	36
2	36	36	35	35	39	39	36	36	37	37	36	36
3	36	36	36	35	39	37	36	36	37	37	36	36
4	36	36	35	35	39	36	36	37	37	37	36	36
5	36	36	35	35	39	36	36	37	37	37	36	36
6	36	36	35	34	39	36	36	37	37	36	36	36
7	36	37	36	34	39	36	36	37	37	36	36	36
8	36	37	35	34	39	36	36	37	37	36	36	36
9	36	37	35	34	39	36	36	37	37	36	36	36
10	36	37	35	34	39	36	36	37	37	36	36	36
11	36	37	35	34	39	36	36	37	37	36	36	35
12	36	37	35	34	39	36	36	37	37	37	36	35
13	35	37	36	34	39	36	36	37	37	36	36	35
14	35	36	36	34	39	36	36	37	37	36	36	35
15	35	36	36	36	39	36	36	37	37	36	36	36
16	35	36	38	38	39	36	36	37	37	36	36	37
17	35	36	38	38	39	36	36	37	37	36	36	37
18	35	36	37	39	39	36	36	37	37	36	36	37
19	35	36	37	39	39	36	36	37	37	36	36	37
20	37	36	37	39	39	36	36	37	37	36	36	37
21	37	36	57	39	39	36	36	37	37	36	36	37
22	37	36	40	39	39	36	36	37	37	36	36	37
23	37	36	40	39	39	36	36	37	37	36	36	37
24	37	36	40	39	39	36	36	37	37	36	36	37
25	37	36	40	39	39	36	36	37	37	36	36	37
26	37	36	40	39	39	36	36	37	37	36	36	37
27	37	36	40	39	39	36	36	37	37	36	36	37
28	36	36	40	39	39	36	36	37	37	36	36	37
29	36	36	40	39	39	36	36	37	37	36	36	37
30	36	35	38	39	---	36	36	37	37	36	36	37
31	36	---	35	39	---	36	---	37	---	36	36	---
TOTAL	1117	1086	1167	1139	1131	1123	1080	1144	1110	1122	1116	1091
MEAN	36.0	36.2	37.6	36.7	39.0	36.2	36.0	36.9	37.0	36.2	36.0	36.4
MAX	37	37	57	39	39	39	36	37	37	37	36	37
MIN	35	35	35	34	39	36	36	36	37	36	36	35
AC-FT	2220	2150	2310	2260	2240	2230	2140	2270	2200	2230	2210	2160
a	104200	82580	21730	0	0	0	0	0	0	4930	2170	55830
b	88840	113800	103000	62030	0	0	0	312	309	34470	41180	64370

CAL YR 1987 TOTAL 13567 MEAN 37.2 MAX 57 MIN 35 AC-FT 26910 a 368600 b 733800
WTR YR 1988 TOTAL 13426 MEAN 36.7 MAX 57 MIN 34 AC-FT 26630 a 508400 b 271400

a Diversion, in acre-feet, to Butt Valley powerplant, provided by Pacific Gas & Electric Co.

b Diversion, in acre-feet, to Butt Valley powerplant, for the 1987 water year.

11400500 BUTT CREEK BELOW ALMANOR-BUTT CREEK TUNNEL, NEAR PRATTVILLE, CA

LOCATION.--Lat 40°11'14", long 121°11'13", in NE 1/4 NW 1/4 sec.22, T.27 N., R.7 E., Plumas County, Hydrologic Unit 18020121, on right bank 500 ft downstream from outlet of old Almanor-Butt Creek tunnel, and 2.2 mi southwest of Prattville.

DRAINAGE AREA.--69.3 mi².

PERIOD OF RECORD.--October 1936 to September 1959, October 1964 to current year. Published as "below tunnel No. 1" 1938-40. Records for water years 1937-38 published in WSP 1515.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 4,300 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Oct. 5, 1937, at site 200 ft downstream at datum 4 ft lower.

REMARKS.--No estimated daily discharges. No regulation upstream from station. Howell-Bunger valve in conduit from Lake Almanor (station 11399000) to Butt Valley powerplant (station 11400600) is opened for short periods several times a year, causing sharp peaks. Wallack ditch upstream from station diverts about 3 ft³/s during each irrigation season into Yellow Creek basin. Some inflow 500 ft upstream that is the leakage from the abandoned Almanor-Butt Creek tunnel at Outlet (station 11400200) is included in the table below. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE (adjusted for inflow from Almanor-Butt Creek tunnel at Outlet since 1965).--52 years (records for station 11400000 Butt Creek above Almanor-Butt Creek tunnel, near Prattville were used for water years 1937-64), 83.8 ft³/s, 60,710 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,870 ft³/s, Feb. 17, 1986, gage height, 5.90 ft, from rating curve extended above 1,400 ft³/s; minimum daily, 26 ft³/s, several days during May and June 1976.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 367 ft³/s, Dec. 10, gage height, 1.81 ft; minimum daily, 29 ft³/s, Sept. 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	43	83	48	51	87	63	64	57	36	33	30
2	39	46	167	53	48	81	63	63	54	37	33	30
3	39	43	89	52	47	79	65	61	50	36	33	30
4	39	42	67	53	49	80	64	60	50	36	32	30
5	39	42	68	55	50	85	63	60	52	36	32	30
6	39	42	125	53	51	87	63	60	52	36	32	30
7	39	42	90	51	52	84	63	63	58	35	32	29
8	40	42	71	52	52	82	62	65	57	35	32	30
9	39	43	75	54	52	90	60	61	55	34	32	30
10	39	42	242	60	53	77	60	58	52	34	35	30
11	39	43	106	62	56	72	60	58	50	34	34	30
12	39	43	70	54	57	70	60	58	49	34	34	30
13	39	53	60	56	58	70	62	59	48	34	33	30
14	39	47	61	57	57	71	63	58	42	34	33	30
15	39	45	63	58	58	70	62	57	42	34	33	30
16	39	44	62	57	59	68	61	59	42	34	33	30
17	39	54	61	56	57	68	61	63	41	34	32	30
18	39	55	57	49	57	69	63	58	40	33	31	30
19	39	53	59	49	56	70	75	56	39	33	31	30
20	39	53	55	51	57	71	79	55	39	33	31	31
21	39	55	61	53	58	72	78	54	39	34	31	31
22	39	52	57	53	59	71	73	52	39	34	30	31
23	41	52	49	53	61	73	71	52	39	34	30	32
24	40	52	44	52	62	73	70	51	38	33	30	32
25	40	50	51	52	63	73	69	50	40	34	31	32
26	40	50	50	51	64	72	69	47	40	40	30	32
27	40	50	50	51	67	73	68	47	38	39	30	32
28	40	50	53	52	72	68	66	52	37	35	30	32
29	42	50	53	54	78	66	66	56	37	34	31	32
30	42	51	50	53	---	65	66	50	37	33	30	32
31	42	---	48	52	---	63	---	49	---	33	30	---
TOTAL	1226	1429	2297	1656	1661	2300	1968	1756	1353	1075	984	918
MEAN	39.5	47.6	74.1	53.4	57.3	74.2	65.6	56.6	45.1	34.7	31.7	30.6
MAX	42	55	242	62	78	90	79	65	58	40	35	32
MIN	39	42	44	48	47	63	60	47	37	33	30	29
AC-FT	2430	2830	4560	3280	3290	4560	3900	3480	2680	2130	1950	1820
a	497	557	548	458	464	504	473	495	499	527	485	413

CAL YR 1987 TOTAL 22928 MEAN 62.8 MAX 492 MIN 33 AC-FT 45480 AC-FT a 6500
WTR YR 1988 TOTAL 18623 MEAN 50.9 MAX 242 MIN 29 AC-FT 36940 AC-FT a 5920

a Inflow, in acre-feet, from Almanor-Butt Creek tunnel at Outlet, provided by Pacific Gas & Electric Co.

SACRAMENTO RIVER BASIN

11401050 BUTT VALLEY RESERVOIR NEAR CARIBOU, CA

LOCATION.--Lat 40°06'59", long 121°08'42", in SE 1/4 SW 1/4 sec.12, T.26 N., R.7 E., Plumas County, Hydrologic Unit 18020121, on center intake tower in Butt Valley Reservoir, 2.5 mi north of Caribou, and 5.4 mi southwest of Canyon Dam.

DRAINAGE AREA.--83.5 mi².

PERIOD OF RECORD.--October 1985 to current year. Unpublished records for water years 1983-85 available in files of U.S. Geological Survey.

GAGE.--Nonrecording gage read once daily. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Great Western Power Co.).

REMARKS.--Lake is formed by earthfill dam. Storage began in 1924. Usable capacity, 49,930 acre-ft between elevations 4,075.9 ft, invert of outlet tunnel, and 4,132.1 ft, crest of spillway. Water is diverted by tunnel and penstock to Caribou powerplants (station 11401110). Figures given herein, including extremes, represent total contents at 2400 hours. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 52,667 acre-ft, Feb. 18, 19, 1986, elevation, 4,133.80 ft; minimum, 25,590 acre-ft, Oct. 18, 1987, elevation, 4,115.65 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 43,311 acre-ft, Oct. 28, elevation, 4,127.77 ft; minimum, 25,590 acre-ft, Oct. 18, elevation, 4,115.65 ft.

Capacity table (elevation in feet, and contents, in acre-feet)
(Based on surveys by Great Western Power Co. in 1923 and 1924)

4,100	8,024	4,130	46,591
4,110	18,395	4,137	57,891
4,120	31,592		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42156	40705	38815	36362	30394	35482	40022	39946	36584	31948	32875	33594
2	41772	40248	40399	36215	30535	35628	40173	39720	36584	31806	33161	33739
3	41544	39418	39040	36289	30675	35847	40173	39720	36436	31735	33017	34679
4	40628	38815	37919	36215	30887	36067	40399	39342	36141	31451	32661	35190
5	37175	37695	37994	36141	30958	36362	40628	39267	36067	31310	33594	35773
6	34971	37844	39342	35993	31099	36584	40781	39191	35919	31240	33089	35701
7	33162	38217	38815	35919	31310	36805	40705	39418	35919	30958	33017	35846
8	32732	37994	37844	36289	31451	37101	40781	39418	35993	31240	32946	35700
9	32875	37844	38516	36436	31663	37322	40993	39418	35846	31099	33162	35774
10	32519	37994	39267	36362	31806	37545	41086	39342	35774	32305	33739	37101
11	31877	38068	38292	36584	32020	37695	39720	38890	35628	32020	33450	37620
12	32233	37994	38068	36953	32162	37769	39795	38442	35482	31806	32376	37770
13	31381	38292	37919	36510	32376	37994	39946	38367	35408	31451	32020	36584
14	30535	37994	37919	35336	32519	38143	40173	38292	35408	32233	32020	37101
15	29626	38068	37844	34316	32732	38367	40399	38516	35408	32519	32447	37175
16	28310	37884	37769	33324	32875	38143	40467	38442	35262	32661	32447	37101
17	26873	37695	37695	30113	33017	37919	40628	38292	35190	32661	33017	36289
18	25590	37844	37545	28861	33324	38217	40324	37994	34823	32804	33522	35919
19	26941	38741	37396	28241	33378	38367	40248	38068	34752	32804	34027	36288
20	28791	38890	37396	28447	33594	38591	40399	37844	34606	32732	33739	36436
21	30675	38741	37396	28585	33739	38591	40628	37770	34388	32875	33594	37101
22	32519	38815	37248	28516	33883	38741	40704	37620	34171	32732	34606	37695
23	34388	38591	37101	28930	34099	38815	40705	37545	33883	32447	34171	37396
24	36510	38441	36953	29139	34244	39040	40248	37396	33811	32162	34171	37101
25	38591	38143	36805	29278	34388	39191	40097	37248	33739	32020	34171	37174
26	40467	38367	36658	29487	34316	39418	40097	37027	33594	32305	34099	37248
27	42387	38591	36584	29626	34533	39493	40248	36879	33450	32519	34027	37248
28	43311	38890	36584	29843	34752	39644	40173	36879	32732	32732	33955	37396
29	42387	38741	36584	30044	35044	39644	40097	36658	31877	33017	34099	37471
30	42387	38741	36436	30113	---	39795	40097	36805	31028	33017	33739	36436
31	41620	---	36362	30253	---	40022	---	36510	---	32732	33306	---
MAX	43311	40705	40399	36953	35044	40022	41086	39946	36584	33017	34606	37770
MIN	25590	37695	36362	28241	30394	35482	39720	36510	31028	30958	32020	33594
a	4126.80	4124.90	4123.30	4119.05	4122.40	4125.75	4125.80	4123.40	4119.60	4120.80	4121.20	4123.35
b	-1075	-2879	-2379	-6109	+4791	+4978	+75	-3587	-5482	+1704	+574	+3130
c	89350	121200	112600	73300	526	2190	5230	9880	9880	33760	41240	63320

CAL YR 1987 MAX 44399 MIN 25590 b -6333 c 433900

WTR YR 1988 MAX 43311 MIN 25590 b -6259 c 562500

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

c Flow, in acre-feet, through Caribou powerplants, provided by Pacific Gas & Electric Co.

SACRAMENTO RIVER BASIN

11401112 NORTH FORK FEATHER RIVER BELOW BELDEN DAM, CA

LOCATION.--Lat 40°04'17", long 121°09'49", in NE 1/4 NW 1/4 sec.35, T.26 N., R.7 E., Plumas County, Hydrologic Unit 18020121, Plumas National Forest, on left bank 0.4 mi downstream from Belden Dam, 0.5 mi upstream from Deadwood Canyon, and 6.4 mi northeast of Belden.

DRAINAGE AREA.--612 mi².

PERIOD OF RECORD.--October 1969 to current year. July 1959 to September 1969 in files of Pacific Gas & Electric Co.

REVISED RECORDS.--WDR CA-78-4: 1977 (monthly and yearly summaries).

GAGE.--Water-stage recorder. Datum of gage is 2,811.00 ft above National Geodetic Vertical Datum of 1929 (levels by Pacific Gas & Electric Co.).

REMARKS.--No estimated daily discharges. Flow regulated by Butt Valley Reservoir (station 11401050), Lake Almanor (station 11399000), Belden Reservoir, and Mountain Meadows Reservoir, combined capacity, 1,267,000 acre-ft. Diversion to Belden powerplant (station 11403050) began on Aug. 27, 1969. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE (adjusted for diversion to Belden powerplant).--19 years, 1,138 ft³/s, 824,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,230 ft³/s, Sept. 30, 1987, gage height, 8.96 ft; minimum daily, 2.3 ft³/s, Oct. 25, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,470 ft³/s, Oct. 11, gage height, 8.22 ft; minimum daily, 61 ft³/s, Sept. 25-28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2320	65	65	64	86	62	63	143	147	144	144	144
2	2230	66	66	64	84	62	64	144	145	144	145	145
3	2180	65	65	63	84	62	64	144	146	144	144	144
4	2090	65	64	64	84	64	64	145	146	145	145	145
5	1910	65	64	64	72	63	64	145	144	144	145	145
6	1300	65	64	64	64	63	63	146	143	145	145	98
7	1010	65	63	63	64	63	64	147	145	145	145	63
8	1580	65	63	64	65	63	65	145	144	145	145	69
9	2040	65	62	64	71	64	64	144	144	144	145	67
10	2280	65	66	64	71	64	64	146	143	144	144	64
11	2390	65	72	64	66	64	64	146	143	144	145	65
12	1400	65	70	63	66	63	65	146	144	144	144	64
13	62	65	70	64	66	64	64	145	145	145	145	66
14	65	65	70	64	67	65	64	144	145	144	144	64
15	65	65	71	64	67	64	63	143	145	144	144	62
16	64	65	71	64	67	63	63	145	145	145	145	63
17	64	65	65	65	67	63	62	145	145	145	144	63
18	64	65	69	66	67	63	63	146	144	144	144	63
19	64	65	69	65	67	63	63	145	144	144	145	62
20	65	65	69	64	66	64	64	144	145	145	145	62
21	65	65	68	64	65	64	63	144	145	145	145	62
22	65	65	66	65	65	64	63	146	144	145	145	62
23	66	65	67	65	66	63	64	146	145	144	144	62
24	65	65	69	65	67	63	64	145	145	145	145	62
25	65	66	68	65	66	63	64	143	145	145	145	61
26	65	65	68	82	64	63	66	144	145	144	145	61
27	65	65	69	87	62	64	64	144	144	145	144	61
28	64	65	68	86	62	64	63	145	145	145	144	61
29	65	65	68	86	62	63	139	146	144	145	145	62
30	66	65	64	86	---	64	144	144	144	144	144	62
31	66	---	64	86	---	64	---	146	---	145	145	---
TOTAL	23960	1952	2077	2118	1990	1965	2068	4491	4338	4480	4483	2334
MEAN	773	65.1	67.0	68.3	68.6	63.4	68.9	145	145	145	145	77.8
MAX	2390	66	72	87	86	65	144	147	147	145	145	145
MIN	62	65	62	63	62	62	62	143	143	144	144	61
AC-FT	47520	3870	4120	4200	3950	3900	4100	8910	8600	8890	8890	4630
a	50090	121300	114600	74930	1510	3890	6590	3470	7290	37140	38590	64280

CAL YR 1987 TOTAL 88909 MEAN 244 MAX 2390 MIN 60 AC-FT 176400 AC-FT a 333500
WTR YR 1988 TOTAL 56256 MEAN 154 MAX 2390 MIN 61 AC-FT 111600 AC-FT a 523700

a Diversion, in acre-feet, to Belden powerplant, provided by Pacific Gas & Electric Co.

SACRAMENTO RIVER BASIN

11401500 INDIAN CREEK NEAR CRESCENT MILLS, CA

LOCATION.--Lat 40°04'41", long 120°55'37", in SW 1/4 SW 1/4 sec.25, T.26 N., R.9 E., Plumas County, Hydrologic Unit 18020122, on left bank 0.7 mi upstream from Dixie Creek, and 1.5 mi southwest of Crescent Mills.
DRAINAGE AREA.--739 mi².

PERIOD OF RECORD.--January 1906 to December 1909, September 1911 to March 1918, October 1930 to current year.

CHEMICAL DATA: Water years 1951-66, 1972.

SUSPENDED SEDIMENT: Water years 1956-66.

WATER TEMPERATURE: Water years 1963-79.

REVISED RECORDS.--WSP 1445: 1906-9. WSP 1931: 1956, 1958(M).

GAGE.--Water-stage recorder. Elevation of gage is 3,500 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to March 1918, nonrecording gage at site 800 ft upstream at different datum.

REMARKS.--Estimated daily discharges: Mar. 22-25. Records good except estimated discharges, which are fair. Natural flow affected by storage in Round Valley Reservoir since 1865, capacity 5,000 acre-ft, Taylor Lake since 1929, capacity, 380 acre-ft, and Antelope Lake since November 1963, capacity, 22,500 acre-ft. Diversions upstream from station for irrigation of about 11,800 acres of which 9,700 acres are in Indian and Genesee Valleys. See schematic diagram of North Fork Feather River basin.

AVERAGE DISCHARGE.--67 years (water years 1907-9, 1912-17, 1931-88), 552 ft³/s, 399,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,200 ft³/s, Feb. 18, 1986, gage height, 20.80 ft, from rating curve extended above 20,400 ft³/s; minimum daily, 0.90 ft³/s, July 28, 29, 1977.

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)
Dec. 7	0415	*357	*3.49				

Minimum daily, 2.9 ft³/s, Aug. 31.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	44	73	62	145	276	66	87	45	9.7	5.0	4.0
2	13	47	166	81	133	293	55	79	47	13	4.2	5.3
3	12	49	152	83	118	272	61	69	40	12	4.2	5.2
4	17	49	99	100	117	267	64	66	34	9.5	4.1	4.7
5	19	50	83	115	115	271	58	65	33	12	5.0	4.6
6	17	51	144	121	116	271	58	68	34	11	3.9	4.8
7	18	51	280	115	116	252	59	69	42	11	4.1	3.6
8	18	51	160	115	115	219	61	73	43	9.6	4.8	8.0
9	21	55	150	129	115	219	61	74	41	9.7	6.1	7.7
10	18	54	169	163	114	206	63	62	36	8.4	6.3	7.9
11	21	53	223	294	114	174	59	65	34	7.5	4.9	6.9
12	23	56	155	191	119	159	58	56	31	7.4	4.9	7.6
13	24	64	110	157	125	150	58	58	23	8.1	4.3	7.5
14	24	71	95	152	127	143	74	57	21	8.8	6.0	5.3
15	25	65	98	231	127	137	89	55	19	7.9	4.8	9.9
16	25	63	94	206	128	126	85	51	17	8.4	3.7	11
17	25	63	89	179	126	105	81	57	16	6.4	4.0	11
18	24	63	83	144	126	99	81	51	20	3.6	6.3	11
19	28	61	87	132	118	96	132	48	17	4.8	4.2	11
20	30	63	78	126	114	87	182	42	14	5.1	5.4	12
21	32	63	84	121	115	87	145	35	12	3.7	6.8	10
22	32	60	97	117	119	90	133	37	11	3.7	6.3	11
23	33	59	92	121	121	93	126	36	10	4.7	3.5	7.0
24	32	59	70	116	124	94	110	27	11	4.1	3.6	4.9
25	33	65	73	113	130	90	105	30	18	3.8	3.5	6.6
26	34	61	79	113	141	89	99	26	22	5.3	3.4	6.6
27	33	59	76	115	157	86	92	27	18	14	3.6	8.3
28	37	58	85	117	181	81	89	32	15	11	3.4	10
29	45	59	82	145	215	81	87	42	13	8.5	3.1	8.6
30	45	62	77	193	---	78	90	47	10	6.2	3.4	5.8
31	44	---	69	157	---	71	---	44	---	5.3	2.9	---
TOTAL	816	1728	3472	4324	3731	4762	2581	1635	747	244.2	139.7	227.8
MEAN	26.3	57.6	112	139	129	154	86.0	52.7	24.9	7.88	4.51	7.59
MAX	45	71	280	294	215	293	182	87	47	14	6.8	12
MIN	12	44	69	62	114	71	55	26	10	3.6	2.9	3.6
AC-FT	1620	3430	6890	8580	7400	9450	5120	3240	1480	484	277	452

CAL YR 1987 TOTAL 47557.5 MEAN 130 MAX 1560 MIN 7.8 AC-FT 94330
WTR YR 1988 TOTAL 24407.7 MEAN 66.7 MAX 294 MIN 2.9 AC-FT 48410

SACRAMENTO RIVER BASIN

11402000 SPANISH CREEK ABOVE BLACKHAWK CREEK, AT KEDDIE, CA

LOCATION.--Lat 40°00'11", long 120°57'12", in SE 1/4 NE 1/4 sec.27, T.25 N., R.9 E., Plumas County, Hydrologic Unit 18020122, on right bank 200 ft upstream from Blackhawk Creek and 0.9 mi southeast of Keddle.

DRAINAGE AREA.--184 mi².

PERIOD OF RECORD.--October 1933 to current year. Prior to October 1953 published as "at Keddle." Records for October 1911 to September 1933 at site 1.2 mi downstream not equivalent owing to inflow.

REVISED RECORDS.--WSP 1041: 1938(M).

GAGE.--Water-stage recorder. Datum of gage is 3,129.86 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Low flow regulated by five small reservoirs having a combined capacity of 800 acre-ft. Approximately 4,600 acres irrigated upstream from station (from information provided by U.S. Forest Service). City of Quincy diverts about 450 acre-ft annually for municipal supply. See schematic diagram of North Fork Feather River basin.

AVERAGE DISCHARGE.--55 years, 272 ft³/s, 197,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,600 ft³/s, Feb. 17, 1986, gage height, 14.88 ft, from rating curve extended above 5,200 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 3.0 ft³/s, Sept. 4, 5, 1988.

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)
Dec. 6	1945	*827	*4.08				
Minimum daily, 3.0 ft ³ /s, Sept. 4, 5.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	32	58	51	151	391	100	134	78	28	21	7.3
2	21	35	329	66	135	345	101	123	84	26	20	7.9
3	22	36	213	71	120	268	106	107	69	24	17	4.2
4	23	34	104	138	111	238	110	99	63	27	18	3.0
5	23	33	82	185	106	226	106	98	53	26	19	3.0
6	18	32	305	158	104	222	106	97	60	27	15	4.7
7	23	34	360	132	101	212	108	105	73	32	16	6.2
8	21	35	180	124	100	194	107	103	83	28	16	5.9
9	20	36	173	123	104	206	99	98	74	23	15	6.8
10	21	36	399	144	109	188	93	89	61	30	11	7.6
11	21	33	325	328	122	168	95	87	53	28	10	8.1
12	23	35	184	219	133	153	97	88	49	26	16	8.7
13	27	38	136	169	138	142	99	89	44	25	14	11
14	26	45	111	152	136	135	116	84	42	23	16	8.8
15	24	39	98	235	133	133	113	79	43	22	16	9.9
16	24	38	99	209	136	125	111	81	39	19	16	15
17	26	39	90	178	129	120	112	101	35	13	8.2	13
18	25	41	80	150	123	118	111	86	30	13	7.1	11
19	27	38	78	130	117	121	183	77	31	9.1	10	13
20	27	38	72	121	115	132	220	72	35	8.0	8.6	18
21	26	39	71	116	117	136	180	71	32	17	8.3	19
22	26	38	83	111	119	137	163	71	25	14	9.0	17
23	29	37	78	107	122	137	160	68	27	13	7.8	18
24	32	37	62	105	124	145	162	57	27	7.6	7.3	14
25	31	37	66	103	129	132	159	54	33	7.5	9.6	16
26	30	36	62	100	136	131	164	50	36	12	9.3	17
27	32	36	59	100	151	138	168	51	30	27	14	17
28	31	36	68	104	171	134	161	56	29	28	15	16
29	32	36	67	121	223	119	151	86	27	24	13	15
30	31	38	63	195	---	116	147	77	28	25	8.9	15
31	31	---	59	167	---	110	---	74	---	22	6.8	---
TOTAL	797	1097	4214	4412	3715	5272	3908	2612	1393	654.2	398.9	337.1
MEAN	25.7	36.6	136	142	128	170	130	84.3	46.4	21.1	12.9	11.2
MAX	32	45	399	328	223	391	220	134	84	32	21	19
MIN	18	32	58	51	100	110	93	50	25	7.5	6.8	3.0
AC-FT	1580	2180	8360	8750	7370	10460	7750	5180	2760	1300	791	669

CAL YR 1987 TOTAL 37245 MEAN 102 MAX 2150 MIN 11 AC-FT 73880
WTR YR 1988 TOTAL 28810.2 MEAN 78.7 MAX 399 MIN 3.0 AC-FT 57150

SACRAMENTO RIVER BASIN

11403200 NORTH FORK FEATHER RIVER BELOW ROCK CREEK DIVERSION DAM, CA

LOCATION.--Lat 39°58'49", long 121°16'33", in SW 1/4 NW 1/4 sec.35, T.25 N., R.6 E., Plumas County, Hydrologic Unit 18020121, Plumas National Forest, on left bank 0.7 mi downstream from Rock Creek diversion dam and 5.0 mi northeast of Storrie.

DRAINAGE AREA.--1,773 mi².

PERIOD OF RECORD.--October 1985 to February 1986, October 1986 to current year. Unpublished records for water years 1982-85 available in files of U.S. Geological Survey.

GAGE.--Water-stage recorder. Elevation of gage is 2,120 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Low and medium flow regulated by Rock Creek Dam 0.7 mi upstream. Most of the flow is diverted to Rock Creek powerplant (station 11403800). Diversion to Rock Creek powerplant began Feb. 28, 1950. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 79,400 ft³/s, Feb. 19, 1986, gage height, unknown, on basis of slope-area measurement of peak discharge; minimum daily, 51 ft³/s, Sept. 1, 1987.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 295 ft³/s, Dec. 2, gage height, 4.50 ft; minimum daily, 52 ft³/s, several days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	53	59	59	54	57	55	114	111	111	108	109
2	53	53	79	59	54	54	55	114	111	111	108	108
3	52	53	56	61	53	54	55	113	111	111	108	109
4	52	53	53	62	53	54	55	113	110	111	108	109
5	52	53	53	60	53	54	55	113	111	109	108	109
6	52	53	61	58	53	54	55	113	110	106	108	109
7	53	53	58	58	53	53	55	113	111	107	108	109
8	52	53	57	59	53	53	55	114	111	106	108	109
9	52	53	61	61	53	53	54	113	111	106	108	109
10	52	53	64	62	52	53	55	110	111	106	109	109
11	53	53	62	65	54	53	55	111	111	106	109	111
12	52	53	58	60	56	53	55	111	110	106	109	123
13	53	54	56	59	53	53	55	111	110	106	109	110
14	53	52	56	56	53	53	55	110	109	107	109	109
15	53	53	55	60	53	53	55	112	109	107	109	109
16	53	53	58	61	53	53	54	112	110	106	109	110
17	53	53	61	60	53	53	54	112	110	107	109	110
18	53	53	60	58	53	53	53	112	109	107	109	110
19	53	53	59	57	53	53	57	112	109	108	109	124
20	52	53	60	56	53	53	56	111	111	108	109	110
21	53	53	60	55	53	53	54	111	111	108	109	109
22	53	54	61	54	53	53	54	112	111	108	109	109
23	52	54	60	54	53	53	54	111	111	108	109	109
24	53	53	60	54	53	53	53	111	111	108	109	114
25	53	54	59	53	53	53	53	111	111	108	109	100
26	53	53	60	53	53	53	53	111	111	108	109	75
27	53	53	59	53	53	53	53	111	111	108	109	69
28	53	53	60	53	53	54	52	111	111	108	109	85
29	53	54	60	54	54	55	80	111	111	108	109	96
30	53	54	60	54	---	55	114	111	111	108	109	104
31	53	---	60	53	---	55	---	111	---	108	109	---
TOTAL	1634	1595	1845	1781	1543	1659	1718	3466	3316	3340	3370	3185
MEAN	52.7	53.2	59.5	57.5	53.2	53.5	57.3	112	111	108	109	106
MAX	54	54	79	65	56	57	114	114	111	111	109	124
MIN	52	52	53	53	52	53	52	110	109	106	108	69
AC-FT	3240	3160	3660	3530	3060	3290	3410	6870	6580	6620	6680	6320
a	97950	130400	147900	109200	32870	43390	38360	34440	25850	43840	49880	68460

CAL YR 1987 TOTAL 28975 MEAN 79.4 MAX 3170 MIN 51 AC-FT 57470 AC-FT a 787900
WTR YR 1988 TOTAL 28452 MEAN 77.7 MAX 124 MIN 52 AC-FT 56430 AC-FT a 822500

a Diversion, in acre-feet, to Rock Creek powerplant, provided by Pacific Gas & Electric Co.

SACRAMENTO RIVER BASIN

11403450 MILK RANCH CONDUIT AT OUTLET, NEAR BUCKS LODGE, CA

LOCATION.--Lat 39°54'09", long 121°13'36", in SW 1/4 SW 1/4 sec.29, T.24 N., R.7 E., Plumas County, Hydrologic Unit 18020121, Plumas National Forest, on left bank 150 ft upstream from right abutment of Lower Bucks Lake Dam, 200 ft upstream from outlet, and 3.4 mi northwest of Bucks Lodge.

PERIOD OF RECORD.--October 1986 to current year. Unpublished records for water years 1981-84 available in files of U.S. Geological Survey.

GAGE.--Water-stage recorder in 3-ft steel pipe. Datum of gage is 5,054.20 ft (revised) above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: July 9-12. Conduit diverts from channel below Three Lakes Reservoir, capacity 513 acre-ft, and from 12 additional diversions along the conduit. Water is used for power at Bucks Creek powerplant (station 11403800). See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 46 ft³/s, Mar. 12, 1987; minimum daily, 0.26 ft³/s, Sept. 23, 24, 1987.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.41	.46	5.0	3.7	4.2	12	12	30	24	3.5	7.6	5.4
2	.41	.83	23	3.7	3.9	9.9	13	29	21	3.3	7.5	5.3
3	.40	.75	13	3.6	3.8	9.8	15	30	20	3.1	7.4	5.2
4	.36	.69	6.4	3.7	3.7	9.5	15	29	19	3.0	7.3	5.1
5	.36	.58	8.8	4.2	3.7	9.9	17	27	20	2.9	7.2	5.0
6	.36	.58	17	3.8	3.8	11	18	26	18	2.8	7.1	4.9
7	.36	.58	9.0	3.7	3.8	10	19	25	12	2.9	7.0	4.8
8	.35	.58	6.0	3.6	4.4	10	17	26	14	2.6	6.9	4.6
9	.31	.75	12	5.3	5.0	12	16	26	14	2.7	6.8	4.4
10	.32	.60	29	8.1	5.5	13	19	22	12	2.5	6.8	4.3
11	.32	.52	13	6.6	6.0	20	22	28	12	2.4	6.7	4.1
12	.45	.52	8.1	5.2	6.7	20	22	27	11	2.3	6.7	3.9
13	.45	1.6	7.3	4.7	6.8	20	22	22	10	2.2	6.7	3.6
14	.41	.88	7.8	4.5	6.5	18	23	20	9.4	2.1	6.7	3.3
15	.39	.68	7.1	4.4	7.0	9.5	23	20	8.8	2.2	6.7	2.9
16	.36	.64	6.7	4.4	7.0	8.8	28	23	8.4	2.0	6.5	1.7
17	.36	1.0	6.1	4.4	6.3	9.0	30	22	7.7	1.7	6.4	.70
18	.36	.80	5.6	4.0	6.0	9.9	28	25	7.3	4.6	6.3	.48
19	.36	.63	5.3	3.8	5.6	12	26	24	6.8	9.0	6.3	.41
20	.36	.52	5.2	3.8	5.8	12	23	24	6.4	8.9	6.2	.42
21	.36	.56	5.2	3.8	6.3	12	22	24	6.1	8.5	6.2	.39
22	.36	.59	5.3	3.7	6.7	11	21	22	5.9	8.1	6.1	.37
23	.52	.55	4.9	4.0	7.0	13	21	25	5.1	8.0	6.2	.37
24	.79	.52	4.6	4.2	7.2	13	22	27	4.8	7.9	6.1	.37
25	.56	.54	4.4	4.3	7.3	14	23	25	5.2	7.9	6.1	.32
26	.52	.53	4.1	4.5	7.6	19	28	23	4.5	7.9	6.0	.32
27	.52	.52	4.1	4.7	8.4	17	34	22	4.3	8.0	5.9	.35
28	.52	.52	4.1	4.9	9.1	13	40	27	4.0	7.8	5.8	.31
29	.53	.52	4.0	4.7	10	12	42	26	3.8	7.7	5.7	.29
30	.49	.55	3.7	4.5	---	12	36	22	3.5	7.7	5.6	.28
31	.46	---	3.7	4.3	---	12	---	21	---	7.6	5.5	---
TOTAL	13.09	19.59	249.5	136.8	175.1	394.3	697	769	309.0	153.8	202.0	73.88
MEAN	.42	.65	8.05	4.41	6.04	12.7	23.2	24.8	10.3	4.96	6.52	2.46
MAX	.79	1.6	29	8.1	10	20	42	30	24	9.0	7.6	5.4
MIN	.31	.46	3.7	3.6	3.7	8.8	12	20	3.5	1.7	5.5	.28
AC-FT	26	39	495	271	347	782	1380	1530	613	305	401	147

CAL YR 1987 TOTAL 3025.61 MEAN 8.29 MAX 46 MIN .26 AC-FT 6000
WTR YR 1988 TOTAL 3193.06 MEAN 8.72 MAX 42 MIN .28 AC-FT 6330

SACRAMENTO RIVER BASIN

11403500 BUCKS LAKE NEAR BUCKS LODGE, CA

LOCATION.--Lat 39°53'45", long 121°12'08", in SE 1/4 NW 1/4 sec.33, T.24 N., R.7 E., Plumas County, Hydrologic Unit 18020121, Plumas National Forest, in outlet structure 100 ft upstream from dam on Bucks Creek, 2.0 mi northwest of Bucks Lodge, and 15 mi west of Quincy.

DRAINAGE AREA.--28.6 mi².

PERIOD OF RECORD.--1927-28 (year-end contents only, published in WSP 1315-A), October 1928 to current year.

Prior to October 1954, published as Bucks Creek Reservoir near Bucks Ranch.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Feather River Power Co.).

REMARKS.--Reservoir is formed by concrete-faced, rockfill dam, completed in 1927; storage began in May 1927.

Capacity, 101,400 acre-ft between elevations 5,064.75 ft, sill of outlet gate, and 5,154.85 ft, spillway crest. Storage of 274 acre-ft is not available for release. Released water flows down Bucks Creek to Lower Bucks Lake (station 11403520), where most of the water is diverted to Bucks Creek tunnel (station 11404100) that discharges into Grizzly Creek. Figures given herein, including extremes, represent total contents at 2400 hours. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 106,720 acre-ft, June 8-10, 1982, elevation, 5,157.6 ft; minimum, 12,330 acre-ft, Feb. 27, 1929, elevation, 5,090.7 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 69,875 acre-ft, July 26-29, elevation, 5,136.3 ft; minimum, 43,156 acre-ft, Jan. 21, elevation, 5,118.3 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)
(Based on survey by Feather River Power Co. in 1927)

5,090	11,742	5,130	59,997
5,095	16,183	5,140	75,894
5,100	21,180	5,150	92,950
5,110	32,519	5,160	111,220
5,120	45,472		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53714	44512	45888	45611	44101	46166	51100	59086	66844	69553	68594	64637
2	53276	44375	47278	45472	44101	46443	51245	59845	67171	69553	68114	64325
3	52837	44375	47558	45335	44238	46582	51534	60150	67320	69553	67795	64325
4	52256	44375	47698	45061	44375	46720	51678	60304	67478	69553	67637	64325
5	51823	44375	47698	44924	44375	46859	51967	60457	67478	69553	67161	64325
6	51389	44375	48117	45061	44375	46999	52112	60610	67637	69553	67320	64169
7	50957	44375	49398	44924	44512	47139	52401	60917	67955	69553	67320	63701
8	50528	44375	48257	44619	44619	47278	52545	61223	68114	69553	67320	63389
9	50100	44512	48257	44787	44619	47558	52837	61530	68274	69714	67161	63077
10	49671	44512	48823	44924	44787	47838	52984	61685	68434	69714	67161	62768
11	49105	44512	49105	44924	44924	47838	53276	61994	68594	69714	67161	62304
12	48823	44787	48823	45198	44924	47838	53422	62304	68753	69714	67003	61839
13	48398	44619	48398	45335	44924	47977	53714	62613	68753	69714	67003	61689
14	47698	44619	48117	44924	45061	48117	54007	62922	68915	69714	67003	61377
15	47418	44619	47698	44924	45061	48257	54302	63233	69073	69714	67003	61070
16	47139	44787	47558	44787	45198	48398	54745	63545	69073	69714	67003	60610
17	46999	44787	47278	44375	45335	48540	54597	63857	69232	69714	67003	60150
18	46999	44924	47139	44238	45335	48681	54893	64169	69232	69714	67003	59693
19	46859	45061	46859	43561	45472	48823	55188	64481	69392	69714	67003	59238
20	46720	44924	46582	43291	45611	48984	55335	64794	69392	69714	66844	58782
21	46582	45061	46166	43156	45611	49105	55632	64952	69392	69714	66844	58348
22	46166	45061	45749	43291	45611	49338	56526	65109	69392	69714	66844	57726
23	45888	45061	45335	43291	45061	49530	56824	65424	69232	69714	66527	57425
24	45888	45061	44924	43291	44787	49671	57124	65581	69392	69714	66210	57425
25	45888	45061	44924	43426	45198	49957	57425	65738	69392	69714	65895	57425
26	45888	45061	44924	43426	45335	50386	57726	65895	69392	69875	65581	57425
27	45888	45061	44924	43561	45472	50386	58027	66053	69392	69875	65581	57425
28	45611	45061	45335	43696	45611	50528	58328	66210	69392	69875	65581	57425
29	45611	45061	44924	43831	45749	50671	58630	66369	69392	69875	65581	57425
30	45335	45198	45335	43966	---	50814	58782	66686	69553	69232	65266	57425
31	44924	---	45472	43966	---	50957	---	66686	---	68913	64952	---
MAX	53714	45198	49398	45611	45749	50957	58782	66686	69553	69875	68594	64637
MIN	44924	44375	44924	43156	44101	46166	51100	59086	66844	68913	64952	57425
a	5119.6	5119.8	5120.0	5118.9	5120.2	5123.9	5129.2	5134.3	5136.1	5135.7	5133.2	5128.3
b	-9231	+274	+274	-1506	+1783	+5208	+7825	+7904	+2867	-640	-3961	-7527

CAL YR 1987 MAX 84107 MIN 44375 b -7512

WTR YR 1988 MAX 69875 MIN 43156 b +3270

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

SACRAMENTO RIVER BASIN

11403520 LOWER BUCKS LAKE NEAR BUCKS LODGE, CA.

LOCATION.--Lat 39°53'59", long 121°13'32", in NE 1/4 NW 1/4 sec.32, T.24 N., R.7 E., Plumas County, Hydrologic Unit 18020121, Plumas National Forest, in outlet tower for Bucks Creek tunnel 900 ft upstream from Buck Diversion Dam, 1.3 mi downstream from Bucks Lake Dam, and 3.2 mi northwest of Bucks Lodge.

DRAINAGE AREA.--31.3 mi².

PERIOD OF RECORD.--October 1985 to current year. Unpublished records for water years 1981-85 available in files of U.S. Geological Survey.

GAGE.--Nonrecording gage read once daily. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Pacific Gas & Electric Co.).

REMARKS.--Lake is formed by concrete dam. Storage began in October 1929. Usable capacity, 5,796 acre-ft between elevations 4,952 ft, point of lowest drawdown, and 5,021.95 ft, crest of spillway. Water is received from Milk Ranch Conduit and release from Bucks Lake (station 11403500). Most of the water is diverted through Buck Creek tunnel (station 11404100) and discharges into Grizzly Creek for power development downstream. Figures given herein, including extremes, represent total contents at 2400 hours. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 6,091 acre-ft, Mar. 8, 1986, elevation, 5,023.8 ft; minimum, 648 acre-ft, Oct. 28, 1986, elevation, 4,970.4 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 5,613 acre-ft, May 28, elevation, 5,020.3 ft; minimum, 3,154 acre-ft, Sept. 19, elevation, 4,999.8 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)
(Based on survey by Feather River Power Co. in 1928)

4,970	624	5,010	4,307
4,980	1,314	5,020	5,573
4,990	2,171	5,030	6,981
5,000	3,175	5,040	8,524

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3726	4319	3851	3579	3771	4200	5063	5375	5388	5089	3714	3535
2	3908	4648	3966	3624	3771	4224	5089	5296	5401	5101	3714	3591
3	3839	4648	4013	3714	3782	4236	5127	5179	5309	5101	3714	3602
4	3794	4635	3524	3782	3794	4260	5166	5050	5179	5101	3714	3602
5	3748	4623	3446	3987	3794	4296	5192	4923	5037	5101	3737	3602
6	3703	4623	3658	3692	3805	4307	5231	4898	4999	5101	3748	3591
7	3658	4623	3491	3502	3817	4331	5283	4948	5037	5101	3760	3591
8	3624	4623	3359	3579	3828	4355	5309	5012	5063	5101	3726	3602
9	3624	4501	3381	3636	3828	4392	5348	5063	5089	5114	3794	3602
10	3591	4296	3703	3669	3239	4416	5375	5127	5114	5114	3805	3602
11	3591	4094	3557	3692	3862	4464	5427	5179	5140	5114	3760	3611
12	3591	3897	3513	3669	3874	4513	5547	5244	5166	5114	3771	3613
13	3591	3771	3535	3218	3897	4549	5560	5296	5179	5114	3782	3535
14	3579	3771	3524	3240	3908	4586	5533	5335	5205	5114	3794	3557
15	3579	3771	3468	3261	3920	4611	5440	5375	5218	5114	3794	3557
16	3557	3771	3424	3294	3931	4623	5309	5427	5179	5114	3805	3457
17	3624	3782	3359	3315	3943	4635	5309	5454	5153	5025	3817	3337
18	3624	3782	3315	3326	3943	4660	5153	5427	5166	4722	3828	3218
19	3726	3782	3315	3348	3966	4697	5114	5414	5179	4574	3636	3154
20	3669	3782	3315	3468	3989	4722	5166	5388	5179	4562	3647	3240
21	3658	3782	3315	3647	3989	4747	5153	5375	5166	4574	3647	3348
22	3613	3782	3315	3658	4013	4772	5140	5335	5231	4586	3535	3479
23	3908	3782	3315	3669	4024	4797	5192	5348	5127	4586	3591	3613
24	3897	3782	3513	3669	4036	4822	5244	5414	5063	4611	3602	3624
25	3897	3782	3613	3680	4048	4860	5296	5454	5063	4488	3591	3624
26	3794	3782	3613	3692	4071	4898	5361	5507	5076	4200	3602	3624
27	3602	3782	3613	3703	4083	4936	5388	5547	5076	3908	3602	3624
28	3647	3782	3613	3714	4118	4961	5388	5613	5076	3624	3613	3624
29	3568	3782	3602	3737	4153	4999	5388	5600	5076	3479	3568	3624
30	3491	3794	3613	3748	---	5025	5375	5600	5089	3624	3568	3624
31	3491	---	3613	3760	---	5037	---	5335	---	3771	3557	---
MAX	3908	4648	4013	3987	4153	5037	5560	5613	5401	5114	3828	3624
MIN	3491	3771	3315	3218	3239	4200	5063	4898	4999	3479	3535	3154
a	5002.9	5005.6	5004.0	5005.3	5008.7	5015.9	5018.5	5018.2	5016.3	5005.4	5003.5	5004.1
b	-246	+303	-181	+147	+393	+884	+338	-40	-246	-1318	-214	+67

CAL YR 1987 MAX 5721 MIN 3315 b -113

WTR YR 1988 MAX 5613 MIN 3154 b -1097

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

SACRAMENTO RIVER BASIN

11404100 BUCKS CREEK TUNNEL OUTLET NEAR STORRIE, CA

LOCATION.--Lat 39°53'03", long 121°13'42", in NW 1/4 NW 1/4 sec.5, T.23 N., R.7 E., Plumas County, Hydrologic Unit 18020121, Plumas National Forest, on right bank near outlet of Bucks Creek tunnel 0.3 mi upstream from Grizzly Creek, 1.1 mi south of Lower Bucks Lake, and 5.5 mi southeast of Storrie.

PERIOD OF RECORD.--October 1985 to current year. Unpublished records for water years 1977-85 available in files of U.S. Geological Survey.

GAGE.--Water-stage recorder. Elevation of gage is 4,900 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Tunnel diverts from Lower Bucks Lake (station 11403520). Water is used for power at Bucks Creek powerplant (station 11403700). See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 472 ft³/s, Mar. 9, 10, 1986; minimum daily, 0.27 ft³/s, Aug. 18, 1988.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	203	.64	.58	113	.55	.48	.48	33	.64	.64	149	155
2	128	.64	.63	.55	.55	.48	.48	54	20	.64	154	119
3	215	.64	2.0	.55	.55	.48	.48	79	52	.63	154	.72
4	215	.64	257	.55	.55	.48	.48	78	75	.55	105	.72
5	215	.64	243	.55	.55	.48	.48	77	75	.55	64	.72
6	215	.64	86	112	.55	.48	.48	27	24	.55	.36	104
7	215	.64	117	199	.55	.48	.48	.64	.64	.55	.35	156
8	214	.64	293	154	.55	.48	.48	.64	.64	.55	15	156
9	211	54	216	.55	.55	.48	.48	.64	.64	.55	26	156
10	205	89	.83	.55	.50	.48	.48	.64	.64	.55	26	156
11	206	88	91	.57	.48	.48	.48	.64	.64	.55	8.5	156
12	206	86	196	38	.48	.48	.48	.64	.64	.55	.35	156
13	206	58	197	193	.48	.48	14	.64	.64	.55	.35	156
14	207	.64	215	188	.48	.48	30	.64	.64	.55	.35	156
15	207	.64	225	189	.48	.48	30	.64	.64	.55	.33	157
16	149	.64	223	190	.48	.48	64	.64	17	.55	.30	259
17	.64	.64	221	191	.48	.48	79	17	14	51	.30	277
18	.64	.59	215	192	.48	.48	87	28	.66	153	.27	279
19	56	.55	206	192	.48	.48	59	30	.64	87	96	245
20	88	.55	206	134	.48	.48	.62	31	6.4	9.5	88	164
21	88	.55	205	.55	.48	.48	27	31	10	.72	.30	159
22	88	.55	206	.55	.48	.48	53	31	4.4	.72	65	161
23	80	.55	206	.55	.48	.48	.71	14	48	.72	157	111
24	.64	.55	93	.55	.48	.48	.64	.64	25	.72	157	.72
25	.64	.55	.55	.55	.48	.48	.59	.64	.69	60	157	.72
26	52	.55	.55	.55	.48	.48	.55	.64	.64	148	129	.72
27	85	.55	.55	.55	.48	.48	21	.64	.64	148	.72	.65
28	85	.55	93	.55	.48	.48	33	.64	.64	144	.72	.64
29	83	.55	156	.55	.48	.48	33	33	.64	146	29	.64
30	70	.55	151	.55	---	.48	33	76	.64	148	94	.64
31	.64	---	147	.55	---	.48	---	56	---	148	154	---
TOTAL	3995.20	389.87	4469.69	2094.92	14.57	14.88	571.87	704.60	382.39	1254.44	1832.20	3444.89
MEAN	129	13.0	144	67.6	.50	.48	19.1	22.7	12.7	40.5	59.1	115
MAX	215	89	293	199	.55	.48	87	79	75	153	157	279
MIN	.64	.55	.55	.55	.48	.48	.48	.64	.64	.55	.27	.64
AC-FT	7920	773	8870	4160	29	30	1130	1400	758	2490	3630	6830

CAL YR 1987 TOTAL 26217.43 MEAN 71.8 MAX 297 MIN .55 AC-FT 52000
WTR YR 1988 TOTAL 19169.52 MEAN 52.4 MAX 293 MIN .27 AC-FT 38020

SACRAMENTO RIVER BASIN

11404250 GRIZZLY FOREBAY NEAR STORRIE, CA

LOCATION.--Lat 39°53'32", long 121°17'25", in SW 1/4 NE 1/4 sec.34, T.24 N., R.6 E., Plumas County, Hydrologic Unit 18020121, Plumas National Forest, in outlet tower for Bucks Creek powerplant 100 ft upstream from Grizzly Diversion Dam, 2.4 mi southeast of Storrie, and 6.2 mi west of Bucks Lodge.

DRAINAGE AREA.--14.4 mi².

PERIOD OF RECORD.--October 1986 to current year. Unpublished records for water years 1981-86 available in files of U.S. Geological Survey.

GAGE.--Nonrecording gage read once daily. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Pacific Gas & Electric Co.).

REMARKS.--Lake is formed by concrete dam. Storage began in July 1928. Usable capacity, 1,033 acre-ft between elevations 4,271 ft, bottom of diversion tunnel, and 4,316.0 ft, crest of spillway. Water is received from Bucks Creek via Bucks Creek tunnel (station 11404100) which enters Grizzly Creek upstream. Most of the water is diverted through tunnel to Bucks Creek powerplant (station 11403700) for power development downstream on North Fork Feather River. Figures given herein, including extremes, represent total contents at 2400 hours. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,169 acre-ft, Mar. 5, 1987, elevation, 4,317.5 ft; minimum, 688 acre-ft, June 13, 1988, elevation, 4,303.4 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,124 acre-ft, Dec. 2, elevation, 4,316.3 ft; minimum, 688 acre-ft, June 13, elevation, 4,303.4 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)
(Based on survey by Feather River Power Co. in 1928)

4,290	350	4,305	736
4,295	464	4,310	898
4,300	592	4,320	1,268

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	977	946	1017	901	1013	995	960	925	960	984	977	949
2	995	967	1124	901	991	925	963	946	898	1006	942	970
3	1006	974	761	949	904	894	991	1002	898	977	946	898
4	1053	981	780	925	911	874	1002	956	953	988	960	905
5	1038	988	844	904	956	995	995	925	1042	1009	984	911
6	928	999	967	946	1002	974	967	925	984	1031	967	904
7	932	1009	767	988	1046	942	935	857	921	988	977	1017
8	967	1017	821	925	925	956	970	935	953	949	935	970
9	908	928	904	991	844	960	953	942	1038	970	946	898
10	932	967	1009	891	898	939	977	928	928	991	963	995
11	939	963	908	904	953	953	977	946	864	1009	1009	932
12	908	963	921	904	900	949	1002	887	792	921	970	967
13	956	981	884	911	901	915	1024	891	688	939	939	1038
14	891	1002	963	898	963	908	970	877	709	956	946	1082
15	942	1013	887	974	1013	977	904	918	761	974	960	981
16	1082	857	991	928	999	981	891	967	811	991	935	1002
17	1075	871	925	864	956	953	871	995	904	921	935	960
18	1075	877	932	930	932	960	881	911	887	995	946	995
19	932	891	904	911	921	953	946	956	891	939	915	995
20	898	901	1002	946	974	977	795	967	935	960	991	1024
21	956	911	932	1002	1031	995	799	988	977	970	1002	1002
22	925	921	960	891	1006	974	828	999	1020	974	932	981
23	995	928	953	942	925	999	877	904	967	988	977	935
24	1009	932	974	999	867	1009	844	935	1006	988	946	939
25	1017	942	988	904	887	995	805	963	1031	974	981	946
26	904	953	1006	949	967	999	854	967	1031	974	974	953
27	932	960	977	1002	942	963	949	960	995	1031	991	925
28	974	967	901	981	956	935	956	949	928	1031	999	932
29	1002	974	881	851	977	949	1017	898	956	1020	915	932
30	928	995	925	908	---	908	925	928	977	1009	942	925
31	935	---	1024	956	---	988	---	988	---	1020	939	---
MAX	1082	1017	1124	1002	1046	1009	1024	1002	1042	1031	1009	1082
MIN	891	857	761	851	844	874	795	857	688	921	915	898
a	4311.1	4312.8	4313.6	4311.7	4312.3	4312.6	4310.8	4312.6	4312.3	4313.5	4311.2	4310.8
b	-35	+60	+29	-68	+21	+11	-63	+63	-11	+43	-81	-14

CAL YR 1987 MAX 1169 MIN 761 b -18

WTR YR 1988 MAX 1124 MIN 688 b -45

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

SACRAMENTO RIVER BASIN

11404300 GRIZZLY CREEK BELOW DIVERSION DAM, NEAR STORRIE, CA

LOCATION.--Lat 39°53'29", long 121°17'35", in SW 1/4 NE 1/4 sec.34, T.24 N., R.6 E., Plumas County, Hydrologic Unit 18020121, Plumas National Forest, on right bank 0.2 mi downstream from diversion dam, and 2.4 mi southeast of Storrie.

DRAINAGE AREA.--14.4 mi².

PERIOD OF RECORD.--October 1985 to current year. Unpublished records for water years 1976-85 available in files of U.S. Geological Survey.

GAGE.--Water-stage recorder and concrete control with V-notch sharp-crested weir, since Oct. 8, 1987. Elevation of gage is 4,320 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Oct. 8, 1987, at datum 1.79 ft higher.

REMARKS.--Estimated daily discharges: Oct. 1-8. Flow regulated by diversion dam 0.2 mi upstream. There is considerable inflow upstream from the diversion dam from Bucks Creek tunnel outlet (station 11404100). Most of the flow is diverted to Bucks Creek powerplant (station 11403700) on North Fork Feather River. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,870 ft³/s, Feb. 17, 1986, gage height, 9.54 ft, datum then in use, from rating curve extended above 260 ft³/s on basis of computation of spill over dam of peak flow; minimum daily, 1.9 ft³/s, June 14, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 459 ft³/s, Dec. 2, gage height, 2.88 ft; minimum daily, 1.9 ft³/s, June 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	2.0	2.4	2.1	2.2	2.4	2.1	2.1	2.1	2.0	2.4	2.1
2	2.1	2.0	187	2.1	2.2	2.3	2.1	2.1	2.1	2.0	2.1	2.1
3	2.1	2.0	5.8	2.2	2.2	2.3	2.1	2.1	2.0	2.0	2.1	2.1
4	2.1	2.0	2.1	2.3	2.2	2.3	2.1	2.1	2.1	2.0	2.1	2.1
5	2.1	2.0	2.1	2.2	2.2	2.3	2.1	2.1	2.1	2.0	2.1	2.1
6	2.1	2.0	2.6	2.2	2.2	2.3	2.1	2.1	2.1	2.0	2.1	2.1
7	2.1	2.0	2.4	2.2	2.2	2.3	2.1	2.1	2.2	2.1	2.1	2.1
8	2.2	2.0	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.0	2.1	2.1
9	2.0	2.0	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.0	2.1	2.1
10	2.0	2.0	2.5	2.2	2.2	2.2	2.1	2.1	2.1	2.0	2.1	2.1
11	2.0	2.0	2.4	2.3	2.2	2.2	2.1	2.1	2.1	2.0	2.1	2.1
12	2.1	2.0	2.3	2.2	2.2	2.2	2.1	2.1	2.0	2.1	2.1	2.1
13	2.0	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.0	2.2	2.1	2.1
14	2.0	2.0	2.2	2.2	2.2	2.2	2.1	2.1	1.9	2.2	2.1	2.1
15	2.0	2.0	2.1	2.2	2.2	2.2	2.1	2.1	2.0	2.2	2.1	2.1
16	2.0	2.0	2.1	2.2	2.3	2.2	2.1	2.1	2.0	2.2	2.1	2.1
17	2.1	2.0	2.1	2.2	2.2	2.2	2.1	2.1	2.0	2.2	2.1	2.1
18	2.0	2.0	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.1	2.1
19	2.0	2.0	2.1	2.1	2.2	2.2	2.3	2.1	2.0	2.7	2.1	2.1
20	2.0	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.1	3.1	2.1	2.1
21	2.0	2.0	2.1	2.1	2.2	2.2	2.1	2.1	2.1	3.1	2.1	2.1
22	2.0	2.0	2.1	2.1	2.3	2.2	2.1	2.1	2.1	3.1	2.1	2.1
23	2.1	2.0	2.1	2.1	2.2	2.2	2.1	2.1	2.1	3.2	2.1	2.1
24	2.0	2.0	2.1	2.1	2.2	2.2	2.1	2.1	2.1	3.2	2.1	2.1
25	2.0	2.0	2.1	2.2	2.2	2.1	2.1	2.1	2.1	3.2	2.1	2.1
26	2.0	2.0	2.1	2.1	2.2	2.1	2.1	2.1	2.1	3.2	2.1	2.1
27	2.0	2.0	2.1	2.2	2.2	2.1	2.1	2.1	2.1	3.0	2.1	2.1
28	2.0	2.0	2.1	2.2	2.2	2.1	2.1	2.1	2.0	2.8	2.1	2.1
29	2.0	2.0	2.1	2.2	2.3	2.1	2.2	2.1	2.0	2.7	2.1	2.1
30	2.0	2.1	2.1	2.2	---	2.1	2.1	2.1	2.0	2.7	2.1	2.1
31	2.0	---	2.1	2.2	---	2.1	---	2.1	---	2.7	2.1	---
TOTAL	63.2	60.3	256.1	67.5	64.1	68.3	63.4	65.1	61.9	76.1	65.4	63.0
MEAN	2.04	2.01	8.26	2.18	2.21	2.20	2.11	2.10	2.06	2.45	2.11	2.10
MAX	2.2	2.1	187	2.3	2.3	2.4	2.3	2.1	2.2	3.2	2.4	2.1
MIN	2.0	2.0	2.1	2.1	2.2	2.1	2.1	2.1	1.9	2.0	2.1	2.1
AC-FT	125	120	508	134	127	135	126	129	123	151	130	125
a	8520	1150	14220	6230	2100	4430	6220	5450	2700	3080	4340	6850

CAL YR 1987 TOTAL 1817.6 MEAN 4.98 MAX 413 MIN 2.0 AC-FT 3610 AC-FT a 78910
WTR YR 1988 TOTAL 974.4 MEAN 2.66 MAX 187 MIN 1.9 AC-FT 1930 AC-FT a 65300

a Diversion, in acre-feet, to Bucks Creek powerplant, provided by Pacific Gas & Electric Co.

SACRAMENTO RIVER BASIN

11404330 NORTH FORK FEATHER RIVER BELOW GRIZZLY CREEK, CA

LOCATION.--Lat 39°51'09", long 121°23'29", in NE 1/4 NW 1/4 sec.14, T.23 N., R.5 E., Butte County, Hydrologic Unit 18020121, Lassen National Forest, on left bank 0.7 mi upstream from Bear Ranch Creek, 1.6 mi downstream from Grizzly Creek, and 2.1 mi downstream from Cresta Dam.

DRAINAGE AREA.--1,914 mi².

PERIOD OF RECORD.--October 1985 to February 1986, October 1986 to current year. Unpublished records for water years 1982-85 available in files of U.S. Geological Survey.

GAGE.--Water-stage recorder. Elevation of gage is 1,480 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Flow regulated by numerous reservoirs upstream, combined capacity, 1,386,000 acre-ft. Most of the flow bypasses this station through Cresta powerplant (station 11404360). Diversion through Cresta powerplant began in 1949. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 86,000 ft³/s, Feb. 19, 1986, gage height, unknown, on the basis of flood routing the peak discharge between North Fork Feather River below Rock Creek diversion dam and North Fork Feather River at Pulga (stations 11403200, 11404500); minimum daily, 48 ft³/s, Oct. 1, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,120 ft³/s, Dec. 2, gage height, 10.35 ft; minimum daily, 52 ft³/s, May 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	59	234	81	121	188	63	82	57	54	56	55
2	58	69	1930	79	114	129	63	79	54	53	55	55
3	59	60	236	126	110	112	63	78	53	55	57	56
4	59	59	116	254	108	116	63	75	53	55	56	56
5	59	59	136	206	105	103	62	72	54	55	55	55
6	59	59	369	158	102	102	62	72	53	55	56	56
7	58	59	238	139	100	100	62	80	69	55	56	55
8	58	60	168	141	100	96	60	91	62	55	55	55
9	58	65	219	149	101	97	59	79	58	55	55	56
10	58	61	748	166	99	85	59	76	55	55	55	56
11	59	60	231	219	80	82	62	73	54	55	56	55
12	60	60	168	162	64	81	60	74	55	54	55	60
13	60	82	139	145	66	79	58	76	55	57	55	55
14	59	67	124	138	67	77	64	71	55	57	55	56
15	59	62	115	161	66	76	59	69	55	55	55	56
16	59	61	115	168	66	75	58	78	55	56	56	55
17	56	62	108	154	64	73	58	82	55	57	56	55
18	56	61	101	134	63	73	59	68	55	54	55	56
19	57	57	97	127	63	74	174	65	55	56	56	62
20	58	59	91	120	62	73	134	62	55	61	56	65
21	57	61	91	117	63	73	108	60	55	55	55	60
22	57	56	105	114	63	73	103	59	55	55	55	56
23	60	56	91	113	62	74	101	57	54	56	56	56
24	63	56	86	112	63	73	92	55	55	55	55	56
25	60	56	85	110	63	72	88	54	55	55	56	56
26	59	56	83	110	64	69	89	53	55	55	55	56
27	59	56	81	110	67	70	89	52	55	55	56	55
28	59	56	94	109	71	71	87	62	55	55	56	59
29	59	56	93	130	87	70	93	69	56	56	55	56
30	59	74	84	150	---	67	89	60	55	55	55	67
31	58	---	81	125	---	64	---	56	---	56	55	---
TOTAL	1818	1824	6657	4327	2324	2667	2341	2139	1667	1717	1720	1707
MEAN	58.6	60.8	215	140	80.1	86.0	78.0	69.0	55.6	55.4	55.5	56.9
MAX	63	82	1930	254	121	188	174	91	69	61	57	67
MIN	56	56	81	79	62	64	58	52	53	53	55	55
AC-FT	3610	3620	13200	8580	4610	5290	4640	4240	3310	3410	3410	3390
a	110200	136300	186700	134000	49290	69060	65480	62280	39040	54340	61260	84530

CAL YR 1987 TOTAL 50532 MEAN 138 MAX 5510 MIN 51 AC-FT 100200 AC-FT a 1000000
WTR YR 1988 TOTAL 30908 MEAN 84.4 MAX 1930 MIN 52 AC-FT 61310 AC-FT a 1053000

a Diversion, in acre-feet, to Cresta powerplant, provided by Pacific Gas & Electric Co.

SACRAMENTO RIVER BASIN

11404500 NORTH FORK FEATHER RIVER AT PULGA, CA

LOCATION.--Lat 39°47'40", long 121°27'02", in SE 1/4 NE 1/4 sec.6, T.22 N., R.5 E., Butte County, Hydrologic Unit 18020121, Plumas National Forest, on left bank between railroad and highway bridges, 0.6 mi downstream from Flea Valley Creek and Pulga, and 1.6 mi downstream from Poe Dam.

DRAINAGE AREA.--1,953 mi².

PERIOD OF RECORD.--October 1910 to current year. Monthly discharge only for some periods and yearly estimates for water years 1911 and 1938, published in WSP 1315-A. Prior to October 1960, published as "at Big Bar."

CHEMICAL DATA: Water years 1963-66, 1972, 1977.

WATER TEMPERATURE: Water years 1963-83.

REVISED RECORDS.--WSP 931: 1938(M), 1940. WSP 1515: 1935. WDR CA-77-4: 1976 (yearly summaries).

GAGE.--Water-stage recorder. Datum of gage is 1,305.62 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1937, at site 1.1 mi upstream at different datum. Oct. 1, 1937, to Sept. 30, 1958, at present site at datum 5.00 ft higher.

REMARKS.--No estimated daily discharges. Flow regulated by Lake Almanor, Bucks Lake, Butt Valley Reservoir (stations 11399000, 11403500, 11401050), Mountain Meadows Reservoir, and five forebays, combined capacity, 1,386,000 acre-ft. Diversion through Poe powerplant (station 11404900) began on May 29, 1958. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE (adjusted for diversion to Poe powerplant).--78 years, 2,988 ft³/s, 2,165,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 87,900 ft³/s, Feb. 19, 1986, gage height, 39.86 ft, from rating curve extended above 32,000 ft³/s on basis of slope area measurement of peak discharge; minimum daily, 5.4 ft³/s, Sept. 18, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,030 ft³/s, Dec. 2, gage height, 12.53 ft; minimum daily, 61 ft³/s, June 15, 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	67	157	72	92	157	66	71	67	62	70	70
2	69	71	2360	68	88	96	67	68	64	64	71	71
3	69	64	309	108	85	86	66	71	62	64	71	70
4	69	64	88	195	83	85	67	69	64	63	70	70
5	68	62	89	165	81	83	66	71	67	63	71	131
6	64	63	140	125	79	81	64	73	69	64	70	69
7	62	64	127	111	77	80	63	80	74	65	68	70
8	64	65	108	113	76	77	66	84	71	68	72	70
9	65	67	147	115	75	78	62	79	69	68	70	71
10	63	64	888	120	68	77	62	76	67	69	71	75
11	66	65	173	144	525	75	63	75	66	78	68	73
12	64	64	100	118	126	74	62	75	64	65	68	69
13	65	75	89	105	131	73	64	76	63	66	68	64
14	65	68	85	97	126	74	66	73	62	66	70	68
15	66	66	80	113	126	72	65	72	61	64	69	69
16	67	66	79	131	126	71	64	73	63	66	70	69
17	66	64	76	135	123	71	65	75	62	67	68	67
18	67	66	74	120	123	71	65	72	62	66	70	68
19	64	68	70	111	119	70	110	70	62	67	71	65
20	67	67	69	102	117	69	104	68	62	70	69	72
21	69	68	69	97	121	71	86	68	63	71	71	74
22	69	66	75	90	104	71	82	67	61	73	70	83
23	69	67	72	85	87	71	82	66	63	71	69	65
24	63	66	71	84	76	70	79	67	63	70	69	66
25	66	64	69	84	95	70	75	66	62	70	69	69
26	67	63	70	82	92	69	74	66	62	67	72	69
27	68	62	68	81	89	69	74	65	63	67	71	68
28	68	65	80	80	93	67	74	69	67	66	68	66
29	69	66	84	95	93	68	74	72	69	68	70	64
30	69	82	79	107	---	67	74	67	65	70	69	66
31	68	---	75	95	---	67	---	66	---	69	68	---
TOTAL	2060	1989	6120	3348	3296	2380	2151	2210	1939	2087	2161	2121
MEAN	66.5	66.3	197	108	114	76.8	71.7	71.3	64.6	67.3	69.7	70.7
MAX	69	82	2360	195	525	157	110	84	74	78	72	131
MIN	62	62	68	68	68	67	62	65	61	62	68	63
AC-FT	4090	3950	12140	6640	6540	4720	4270	4380	3850	4140	4290	4210
a	111800	141700	198800	144500	57880	75430	70080	68480	40990	56720	58200	84000

CAL YR 1987 TOTAL 47854 MEAN 131 MAX 5940 MIN 48 AC-FT 94920 AC-FT a 1053000
WTR YR 1988 TOTAL 31862 MEAN 87.1 MAX 2360 MIN 61 AC-FT 63200 AC-FT a 1109000

a Diversion, in acre-feet, to Poe powerplant, provided by Pacific Gas & Electric Co.

SACRAMENTO RIVER BASIN

11405200 WEST BRANCH FEATHER RIVER BELOW HENDRICKS DIVERSION DAM, NEAR STIRLING CITY, CA

LOCATION.--Lat 39°56'03", long 121°31'03", in NW 1/4 SE 1/4 sec.16, T.24 N., R.4 E., Butte County, Hydrologic Unit 18020121, on right bank 200 ft upstream from road bridge, 1,800 ft downstream from Hendricks diversion dam, and 1.9 mi north of Stirling City.

DRAINAGE AREA.--46.1 mi².

PERIOD OF RECORD.--August 1986 to current year (low-flow records only).

GAGE.--Water-stage recorder. Elevation of gage is 3,210 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. No records computed above 50 ft³/s. Most of the water is diverted at Hendricks diversion dam to the Hendricks Canal and Toadtown Canal (station 11389800) and then to De Sabla powerplant (station 11389750) on Butte Creek.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	10	---	11	12	---	11	---	18	13	19	19
2	20	11	---	11	11	---	11	---	15	13	19	19
3	20	10	---	12	11	---	14	---	12	13	19	19
4	20	10	19	27	10	---	16	46	11	13	19	33
5	20	10	---	36	12	---	15	45	12	13	19	28
6	20	10	---	15	12	---	17	41	12	12	19	23
7	20	10	---	12	12	---	21	39	14	12	19	23
8	20	10	---	12	12	---	16	---	16	13	19	23
9	20	10	---	12	12	---	11	---	15	13	19	22
10	20	10	---	---	12	---	12	44	12	13	19	23
11	20	10	---	---	12	40	15	41	10	13	19	23
12	20	10	---	39	12	31	18	---	12	12	19	23
13	20	11	---	19	12	26	24	---	12	12	18	23
14	20	11	27	13	12	23	---	---	12	13	18	23
15	20	10	15	20	12	22	---	---	13	13	18	23
16	20	10	11	16	12	16	24	---	13	13	17	23
17	20	10	11	13	12	13	29	---	13	13	17	23
18	20	10	11	11	12	13	30	---	14	13	17	23
19	14	10	11	11	12	18	---	---	14	13	17	23
20	11	10	10	11	12	20	---	---	13	13	17	23
21	10	10	10	12	12	22	---	---	13	13	18	23
22	10	10	11	12	12	19	---	---	13	13	19	22
23	10	10	11	12	12	26	---	---	13	13	19	12
24	10	10	12	12	12	26	---	42	13	13	19	12
25	10	10	12	12	12	25	---	21	13	13	19	13
26	10	10	12	12	13	33	---	23	13	13	19	19
27	10	10	11	12	16	39	---	19	13	---	19	19
28	10	10	12	12	28	19	---	15	13	19	19	18
29	10	10	12	23	---	13	---	---	13	19	19	11
30	10	11	11	---	---	12	---	---	13	19	18	11
31	10	---	11	13	---	11	---	11	---	19	18	---
TOTAL	495	304	---	---	---	---	---	---	393	---	573	622
MEAN	16.0	10.1	---	---	---	---	---	---	13.1	---	18.5	20.7
MAX	20	11	---	---	---	---	---	---	18	---	19	33
MIN	10	10	---	---	---	---	---	---	10	---	17	11
AC-FT	982	603	---	---	---	---	---	---	780	---	1140	1230

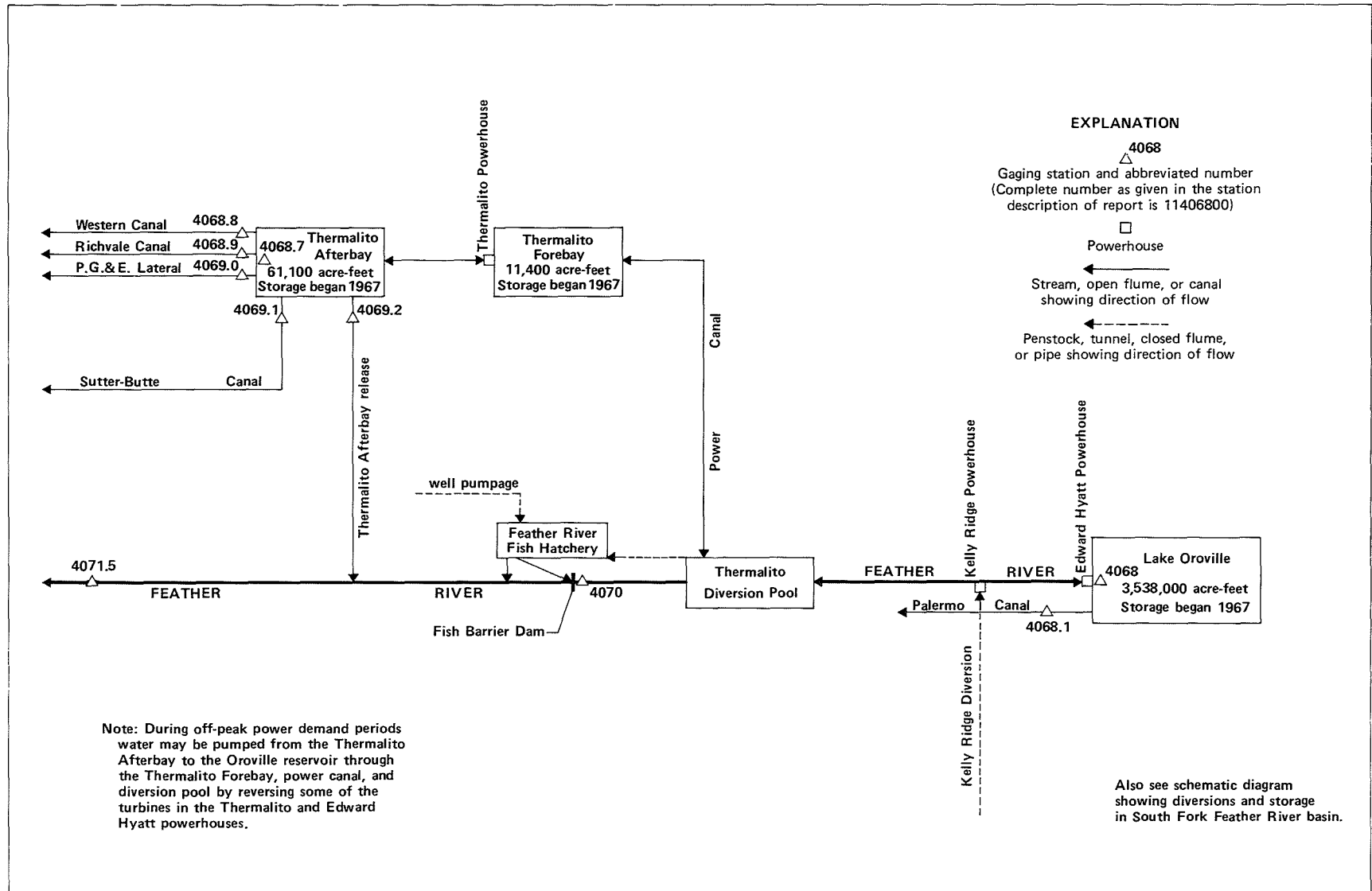


FIGURE 30--Schematic diagram showing diversions and storage from Feather River at Lake Oroville.

SACRAMENTO RIVER BASIN

11406800 LAKE OROVILLE NEAR OROVILLE, CA

LOCATION.--Lat 39°32'06", long 121°28'25", in NE 1/4 SW 1/4 sec.1, T.19 N., R.4 E., Butte County, Hydrologic Unit 18020123, near intake structure at left end of Oroville Dam on Feather River, 1.0 mi downstream from North Fork Feather River, and 4.2 mi east of Oroville.

DRAINAGE AREA.--3,607 mi².

PERIOD OF RECORD.--November 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 0.47 ft above National Geodetic Vertical Datum of 1929 (levels by California Department of Water Resources). Contents based on capacity table in use since Sept. 21, 1967.

REMARKS.--Reservoir is formed by an earthfill dam with concrete chute-type sidehill spillway completed May 13, 1968; storage began Nov. 14, 1967. Usable capacity, 2,685,385 acre-ft between elevations 640.0 ft, minimum power pool, and 900.0 ft, normal maximum pool. Dead storage, 852,192 acre-ft. Total capacity at normal maximum pool, 3,537,577 acre-ft; temporary detention storage occurred at times during construction; maximum was 155,200 acre-ft, Dec. 23, 1964. Water is released to Edward Hyatt powerplant through penstock in left abutment of dam and to Palermo Canal (station 11406810) through concrete tunnel also in left abutment of dam. Three of the total of six turbines in the Edward Hyatt powerplant are reversible and during periods of low power demand water is pumped at times from the river back into Lake Oroville. Records, including extremes, represent total contents at 2400 hours. See schematic diagram showing diversions and storage from Feather River at Lake Oroville. Maximum inflow of 266,000 ft³/s during a 2-hour period Feb. 17, 1986.

COOPERATION.--Records collected by California Department of Water Resources, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 3,536,000 acre-ft, June 4, 1973, gage height, 899.88 ft; minimum since initial storage began, 882,395 acre-ft, Sept. 7, 1977, gage height, 645.11 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 2,765,523 acre-ft, Mar. 13, gage height, 846.79 ft; minimum, 1,528,901 acre-ft, Sept. 30, gage height, 733.54 ft.

Capacity table (gage height, in feet NGVD, and contents, in acre-feet)
(Based on table dated Sept. 21, 1967, provided by California Department of Water Resources)

640	852,192	710	1,332,547	780	1,974,240	850	2,808,349
650	911,975	720	1,413,685	790	2,080,969	860	2,944,741
660	974,560	730	1,498,175	800	2,191,742	870	3,085,747
670	1,040,003	740	1,586,086	810	2,306,597	880	3,231,454
680	1,108,406	750	1,677,554	820	2,425,571	890	3,382,038
690	1,179,915	760	1,772,690	830	2,548,850	900	3,537,577
700	1,254,634	770	1,871,511	840	2,676,446		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1977280	1982212	2074127	2399883	2650578	2711623	2646327	2559024	2472282	2222121	1852337	1636496
2	1975603	1982632	2105869	2410233	2649934	2718173	2650063	2558018	2465536	2207008	1840263	1628352
3	1982632	1981476	2118397	2422427	2646584	2721320	2653415	2553996	2461495	2201119	1826167	1625431
4	1987994	1985995	2126447	2434186	2644396	2721189	2645683	2548223	2464066	2189374	1813822	1621056
5	1981791	1990205	2138064	2444889	2643624	2728412	2637582	2544463	2467007	2169822	1804677	1621876
6	1983787	1992734	2159981	2454037	2649032	2744085	2627447	2537579	2467497	2150839	1805561	1616145
7	1984103	1999490	2173521	2459659	2659095	2750821	2617467	2542209	2465414	2131863	1806838	1610881
8	1977280	2004779	2181044	2465169	2659741	2752672	2607386	2548474	2460271	2116526	1797425	1606534
9	1972043	2003826	2192080	2479410	2661421	2753863	2606622	2541207	2453304	2107734	1790974	1602195
10	1973613	2003826	2206895	2493709	2664784	2752276	2610191	2534455	2445132	2107514	1782398	1593002
11	1978748	2007321	2220299	2506578	2666466	2753466	2599875	2527839	2449643	2090555	1776374	1599577
12	1973718	2005202	2233874	2513651	2666725	2759291	2588574	2521859	2453792	2074236	1766975	1592912
13	1972566	2005944	2252104	2521112	2672037	2765523	2577686	2518126	2451717	2060706	1766491	1587343
14	1971311	2011882	2261545	2529710	2682288	2764859	2566956	2520738	2445376	2045197	1764363	1580982
15	1971834	2018365	2267201	2539706	2680859	2764461	2558143	2525595	2431272	2034905	1754232	1577227
16	1972043	2016982	2274486	2562925	2677485	2762339	2558772	2522108	2417230	2030734	1744813	1571429
17	1976441	2019216	2281788	2580848	2677096	2760881	2564814	2521112	2399403	2024543	1735527	1577406
18	1982211	2019322	2287595	2590984	2675537	2757702	2552740	2517504	2390763	2012413	1725514	1585549
19	1979797	2019003	2299239	2594284	2676186	2758629	2548474	2513155	2382981	1997166	1714783	1581966
20	1975708	2018897	2314438	2599621	2679691	2762737	2543711	2508190	2368900	1987527	1709767	1578210
21	1972043	2027530	2323239	2603693	2689828	2753334	2535329	2509927	2353097	1967861	1712321	1574371
22	1967965	2036832	2331238	2607132	2689828	2745933	2529960	2514645	2337486	1952338	1701838	1569915
23	1967234	2035868	2338194	2613380	2689308	2733541	2536704	2508811	2324296	1944869	1688118	1563781
24	1969324	2034584	2343154	2622710	2689568	2724602	2543085	2507074	2305427	1944765	1680541	1567602
25	1971415	2033300	2350372	2636550	2689958	2711885	2541959	2497540	2298189	1928345	1669173	1570539
26	1971311	2047239	2357842	2627831	2689197	2710969	2544212	2484458	2299122	1913970	1660451	1566179
27	1969637	2054234	2365924	2628985	2693995	2715158	2545340	2474247	2281556	1898961	1659525	1561651
28	1970578	2061138	2369376	2630523	2698558	2702473	2545340	2472650	2264545	1884442	1664715	1552466
29	1972252	2075104	2372951	2632062	2701689	2690479	2547471	2477565	2253254	1868691	1659618	1538799
30	1972148	2069358	2377604	2641180	---	2677096	2552740	2480764	2238794	1866478	1654069	1528901
31	1976965	---	2388007	2649289	---	2661680	---	2478918	---	1867685	1645219	---
MAX	1987994	2075104	2388007	2649289	2701689	2765523	2653415	2559024	2472282	2222121	1852337	1636496
MIN	1967234	1981476	2074127	2399883	2643624	2661680	2529960	2472650	2238794	1866478	1645219	1528901
a	780.26	788.99	816.88	837.90	841.94	838.86	830.31	824.37	804.14	769.62	746.51	733.54
b	-1573	+92393	+318649	+261282	+52400	-40009	-108940	-73822	-240124	-371109	-222466	-116318
c	4394	1212	741	862	2505	3733	3481	4934	6468	8068	6460	5447

CAL YR 1987 MAX 3139397 MIN 1967234 b -176051
WTR YR 1988 MAX 2765523 MIN 1528901 b -449637

a Gage height, in feet, at end of month.

b Change in contents, in acre-feet.

c Evaporation, in acre-feet: not reviewed by U.S. Geological Survey.

SACRAMENTO RIVER BASIN

11406810 PALERMO CANAL NEAR OROVILLE, CA

LOCATION.--Lat 39°31'59", long 121°28'54", in SW 1/4 SW 1/4 sec.1, T.19 N., R.4 E., Butte County, Hydrologic Unit 18020106, on right bank 50 ft downstream from Oroville Dam and 4.4 mi east of Oroville.

PERIOD OF RECORD.--April 1965 to current year. Daily discharge of diversion from Kelly Ridge penstock for period April 1965 to October 1968 when Kelly Ridge penstock supplied the entire flow of Palermo Canal are in files of U.S. Geological Survey.

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 547.67 ft above National Geodetic Vertical Datum of 1929 (levels by California Department of Water Resources). April 1965 to October 1968, water-stage recorder and Parshall flume at site of diversion from Kelly Ridge penstock, 0.4 mi downstream at different datum.

REMARKS.--Canal diverts from left end of Oroville Dam. Water is used for irrigation near Oroville. During period of construction of Oroville Dam, water was released from Kelly Ridge penstock to meet irrigation requirements.

COOPERATION.--Records collected by California Department of Water Resources, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--23 years, 11.2 ft³/s, 8,110 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 28 ft³/s, several days during July to September 1967; no flow at times in some years.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	10	2.0	2.3	2.3	3.6	15	2.4	16	18	18	18
2	18	10	1.1	2.3	2.3	3.6	16	3.5	16	18	18	18
3	18	7.4	1.1	2.3	2.3	3.6	16	8.2	16	18	18	18
4	17	5.3	1.1	2.3	2.3	3.6	18	10	16	18	18	19
5	17	5.3	1.1	2.3	2.3	3.6	19	14	16	17	18	19
6	17	5.5	1.1	2.3	2.3	3.6	19	16	16	17	18	18
7	17	5.5	1.2	2.3	2.3	3.6	19	16	16	17	18	18
8	16	5.5	1.2	2.3	2.3	3.6	18	16	16	17	18	18
9	16	5.5	1.2	2.3	2.3	3.6	18	16	16	17	18	19
10	16	5.5	1.2	2.3	2.3	3.6	19	16	16	17	18	18
11	16	5.5	1.2	2.3	2.3	3.6	19	16	16	17	18	18
12	16	5.5	1.2	2.3	2.3	3.9	18	16	16	17	18	19
13	16	3.3	1.2	2.3	2.3	4.1	18	16	16	17	18	19
14	16	2.4	1.2	2.3	3.4	4.1	18	16	17	17	18	19
15	16	2.4	1.2	2.4	3.6	4.0	18	16	18	19	18	19
16	16	2.4	1.2	2.4	3.6	5.5	18	16	18	19	18	19
17	16	2.4	1.2	2.4	3.6	6.5	18	16	18	19	18	19
18	16	2.3	1.2	2.4	3.6	6.5	18	16	18	19	18	19
19	15	2.3	1.2	2.4	3.6	6.6	11	16	18	19	18	19
20	15	2.3	1.9	2.4	3.6	6.6	3.8	16	18	19	18	19
21	14	2.3	2.3	2.4	3.6	6.5	2.4	16	18	19	18	19
22	13	2.7	2.3	2.4	3.6	6.5	2.3	16	18	19	18	19
23	13	3.3	2.3	2.4	3.6	6.5	2.4	16	18	19	18	19
24	12	3.3	2.3	2.4	3.7	8.2	2.4	16	18	19	18	19
25	12	3.1	2.3	2.3	3.7	9.6	2.4	16	18	19	18	19
26	12	3.4	2.3	2.3	3.7	9.6	2.4	16	18	19	18	19
27	11	3.4	2.3	2.3	3.7	9.6	2.4	16	18	19	18	19
28	10	3.5	2.3	2.3	3.6	11	2.4	16	18	19	18	19
29	10	3.5	2.3	2.3	3.6	12	2.4	16	18	18	18	19
30	10	3.5	2.3	2.3	---	12	2.4	16	18	18	18	19
31	10	---	2.3	2.3	---	14	---	16	---	18	18	---
TOTAL	455	128.3	50.3	72.3	87.7	192.9	360.7	454.1	513	562	558	562
MEAN	14.6	4.27	1.62	2.33	3.02	6.22	12.0	14.6	17.1	18.1	18.0	18.7
MAX	18	10	2.3	2.4	3.7	14	19	16	18	19	18	19
MIN	10	2.3	1.1	2.3	2.3	3.6	2.3	2.4	16	17	18	18
AC-FT	902	254	100	143	174	383	715	901	1020	1110	1110	1110

CAL YR 1987 TOTAL 4342.1 MEAN 11.8 MAX 21 MIN 1.1 AC-FT 8610
WTR YR 1988 TOTAL 3996.3 MEAN 10.9 MAX 19 MIN 1.1 AC-FT 7930

SACRAMENTO RIVER BASIN

11406870 THERMALITO AFTERBAY NEAR OROVILLE, CA

LOCATION.--Lat 39°27'30", long 121°38'17", in NE 1/4 SE 1/4 sec.33, T.19 N., R.3 E., Butte County, Hydrologic Unit 18020106, at dam 195 ft northeast of centerline of outlet structure and 5.7 mi southwest of Oroville.

PERIOD OF RECORD.--October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 100.47 ft above National Geodetic Vertical Datum of 1929 (levels by California Department of Water Resources). Auxiliary water-stage recorder 90 ft southwest of centerline of Western Canal outlet, and 7.2 mi west of Oroville. Contents based on capacity table in use since Oct. 10, 1968.

REMARKS.--Reservoir is formed by an earthfill dam completed in 1967. Diversion from the reservoir began Oct. 12, 1967. Usable capacity, 61,144 acre-ft between gage heights 120.0 and 139.0 ft, extreme operating levels. Normal operating range is 123 to 136.5 ft. Water is released to four canals (stations 11406880, 11406890, 11406900, and 11406910) and to the Feather River (station 11406920) from the reservoir. Total maximum release to the four canals is approximately 4,000 ft³/s. Water is pumped, at times, from Thermalito Afterbay back into Thermalito Forebay during off-peak periods to be re-released through Thermalito powerplant for power generation during peak demand periods. Records, including extremes, represent total contents at 2400 hours. See schematic diagram showing diversions and storage from Feather River at Lake Oroville.

COOPERATION.--Records collected by California Department of Water Resources, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 57,300 acre-ft, May 24, 1969, gage height, 136.56 ft; minimum since initial operation began, 5,590 acre-ft, Mar. 1, 1968, gage height, 119.09 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 56,098 acre-ft, Oct. 23, gage height, 136.28 ft; minimum, 18,778 acre-ft, Apr. 17, gage height, 125.47 ft.

Capacity table (gage height, in feet NGVD, and contents, in acre-feet)
(Based on table dated Oct. 10, 1968, provided by California Department of Water Resources)

119	5,465	128	25,832	130	32,150
120	7,054	124	15,157	134	46,719
122	10,792	126	20,171	139	68,198

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49639	41671	38322	26131	24680	36927	51149	34243	35382	33765	39412	35451
2	49437	42804	39266	21060	28312	39266	40961	31227	40961	34346	43261	39266
3	40294	45384	41671	20252	33867	42198	31293	32752	41746	25146	49073	37568
4	34655	42538	41934	25921	39266	46011	28972	34346	37425	21332	51644	37318
5	38430	39778	38430	30478	41297	44840	30058	33765	32920	26131	51644	32752
6	35940	38756	31391	32385	38938	33088	32451	34824	27906	30316	40701	35208
7	32752	34655	30542	36256	29513	30835	35069	27596	28972	35940	31227	36502
8	38430	32052	34827	41222	31490	28312	37675	20119	31490	40109	30705	38938
9	43490	35208	39156	37568	32285	29131	30478	24208	36361	37175	29417	39412
10	41822	37425	47751	35382	32752	32518	20066	29067	41484	25205	30542	44143
11	38250	37425	50944	35695	32518	32853	22355	34655	34966	30933	30998	35277
12	44413	41036	48993	41409	32518	32835	26615	38503	26737	34175	34483	38684
13	46839	44143	37675	44491	30380	28909	30025	41409	23059	35208	29577	41559
14	50576	41409	40887	46286	23059	28249	33392	34827	23458	40368	24005	45228
15	52680	37998	42463	46839	25981	29801	36998	28093	28312	41297	26464	45228
16	54610	43682	43951	40887	30154	31985	29194	27689	30316	33392	29577	48430
17	52763	46208	44143	34827	32752	34106	18778	27104	35695	28688	32685	42198
18	49802	48230	44413	33088	36010	36750	23717	28846	32285	32218	36502	32385
19	50208	49073	40738	36432	37496	32853	29353	30835	28031	36010	41148	31457
20	51644	52389	31227	35277	36361	25146	37747	33223	29067	40553	37747	32518
21	53264	48030	29067	35940	29131	26131	47314	28581	29067	42804	28531	34586
22	55927	40961	28751	35625	32451	25621	52098	21442	32752	46011	30750	36010
23	56098	43951	28093	33936	35069	30251	47592	23059	31490	42085	38756	40368
24	52763	46011	29290	28031	34827	32451	43682	21689	36010	29641	40553	34586
25	49558	49073	27751	25921	37247	39011	43759	27689	31227	34414	43951	27473
26	47870	36361	26041	28093	39266	32518	41822	39011	20439	38322	47037	25831
27	48030	33867	24470	29705	38178	27692	41822	46681	28312	42880	40627	27473
28	46286	30090	27165	30542	37747	27165	42842	44220	33460	46681	28249	32385
29	46129	19273	31227	32285	36256	32618	42311	38070	30542	52971	27968	40887
30	47314	28249	33629	27473	---	38070	38322	32218	30478	46405	27689	44491
31	44298	---	29865	22216	---	45384	---	30770	---	35695	32285	---
MAX	56098	52389	50944	46839	41297	46011	52098	46681	41746	52971	51644	48430
MIN	32752	19273	24470	20252	23059	25146	18778	20119	20439	21332	24005	25831
a	133.38	128.79	129.30	126.75	131.20	133.66	131.78	129.58	129.49	131.04	130.04	133.43
b	-4574	-16049	+1616	-7649	+14040	+8128	-7062	-7552	-292	+5217	-3410	+12206
c	1225	458	495	348	562	1110	1241	1580	1864	2556	2164	1876

CAL YR 1987 MAX 56098 MIN 18675 b -5343

WTR YR 1988 MAX 56098 MIN 18778 b -4381

a Gage-height, in feet, at end of month.

b Change in contents, in acre-feet.

c Evaporation, in acre-feet; not reviewed by U.S. Geological Survey.

SACRAMENTO RIVER BASIN

11406880 WESTERN CANAL AT INTAKE, NEAR OROVILLE, CA

LOCATION.--Lat 39°30'19", long 121°41'06", in SW 1/4 NW 1/4 sec.18, T.19 N., R.3 E., Butte County, Hydrologic Unit 18020105, on left bank 500 ft downstream from Thermalito Afterbay Dam and 7.3 mi west of Oroville.

PERIOD OF RECORD.--October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 100.47 ft above National Geodetic Vertical Datum of 1929 (levels by California Department of Water Resources).

REMARKS.--Water is diverted from Thermalito Afterbay and is used for irrigation. See schematic diagram showing diversions and storage from Feather River at Lake Oroville.

COOPERATION.--Records collected by California Department of Water Resources, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--20 years, 316 ft³/s, 228,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 1,200 ft³/s, May 12, 1981, May 6, 7, 1984; no flow at times each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	147	298	43	54			0	588	345	1040	870	319
2	163	299	35	53			0	779	361	1040	863	332
3	173	299	18	55			0	1030	397	1040	828	298
4	173	299	33	.30			0	976	411	1040	821	288
5	173	300	46	0			0	941	420	1020	821	298
6	174	298	40	0			0	1010	413	978	821	285
7	173	300	57	0			0	987	380	958	821	256
8	186	299	74	0			0	896	371	947	819	220
9	198	299	58	0			0	793	410	941	821	189
10	196	299	49	0			0	746	482	935	820	178
11	197	299	50	0			19	786	561	913	820	177
12	199	299	50	0			57	920	629	903	812	157
13	213	299	53	0			88	1040	763	897	782	133
14	223	300	51	0			99	1080	871	893	762	115
15	250	300	53	0			98	1090	896	901	746	98
16	275	300	54	0			97	1120	944	914	721	97
17	274	300	56	0			120	1060	921	911	708	96
18	274	300	56	0			148	976	896	904	694	97
19	273	299	55	0			139	851	880	917	682	92
20	274	299	48	0			99	881	872	931	663	78
21	274	300	55	0			130	943	905	932	642	65
22	283	299	54	0			150	921	920	928	637	59
23	297	300	53	0			141	819	935	919	624	53
24	298	299	53	0			115	701	971	922	604	44
25	298	285	53	0			101	620	978	915	576	45
26	298	275	52	0			112	579	993	911	559	46
27	298	276	49	0			122	554	1000	911	543	44
28	299	275	47	0			173	516	1030	897	537	40
29	298	275	53	0			253	468	1040	890	503	34
30	298	162	58	0	---		323	402	1040	881	455	33
31	299	---	60	0	---		---	354	---	870	422	---
TOTAL	7448	8731	1566	162.30	0	0	2584	25427	22035	28999	21797	4266
MEAN	240	291	50.5	5.23	0	0	86.1	820	734	935	703	142
MAX	299	300	74	55	0	0	323	1120	1040	1040	870	332
MIN	147	162	18	0	0	0	0	354	345	870	422	33
AC-FT	14770	17320	3110	322	0	0	5130	50430	43710	57520	43230	8460
CAL YR 1987	TOTAL	120677.00	MEAN	330	MAX	1120	MIN	0	AC-FT	239400		
WTR YR 1988	TOTAL	123015.30	MEAN	336	MAX	1120	MIN	0	AC-FT	244000		

SACRAMENTO RIVER BASIN

11406890 RICHVALE CANAL AT INTAKE, NEAR OROVILLE, CA

LOCATION.--Lat 39°30'19", long 121°41'06", in SW 1/4 NW 1/4 sec.18, T.19 N., R.3 E., Butte County, Hydrologic Unit 18020105, on right bank 500 ft downstream from axis of Thermalito Afterbay Dam and 7.3 mi west of Oroville.

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

GAGE.--Water-stage recorder. Datum of gage is 100.47 ft above National Geodetic Vertical Datum of 1929 (levels by California Department of Water Resources).

REMARKS.--Canal diverts from Thermalito Afterbay; water is used for irrigation. See schematic diagram showing diversions and storage from Feather River at Lake Oroville.

COOPERATION.--Records collected by California Department of Water Resources, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--20 years, 116 ft³/s, 84,040 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 511 ft³/s, May 16, 1974; no flow for many days each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	135	58	48			0	134	122	360	227	135
2	0	137	58	44			0	159	125	359	226	116
3	0	145	58	41			0	212	125	359	225	109
4	0	147	28	14			15	227	124	360	225	113
5	0	136	21	0			26	245	124	334	225	113
6	0	120	28	0			27	271	142	324	225	113
7	0	117	21	0			15	292	162	323	225	103
8	0	104	28	0			10	272	166	322	225	97
9	0	85	32	0			0	216	166	321	225	97
10	0	67	41	0			0	195	166	322	235	76
11	0	63	38	0			0	230	190	322	239	62
12	0	63	41	0			0	200	218	289	239	49
13	0	71	41	0			0	206	270	276	236	43
14	0	73	37	0			0	241	329	266	235	40
15	0	72	41	0			17	267	351	262	235	36
16	0	72	46	0			82	294	356	261	207	34
17	0	73	41	0			108	261	355	262	197	31
18	0	63	41	0			168	210	356	262	196	31
19	64	58	41	0			213	192	356	262	196	31
20	139	63	40	0			142	191	355	261	196	32
21	157	70	43	0			96	214	355	261	196	26
22	153	68	41	0			88	224	342	272	196	8.5
23	141	66	41	0			89	225	318	285	195	0
24	123	68	45	0			89	217	309	287	196	0
25	94	62	46	0			90	189	327	287	197	0
26	76	59	45	0			96	180	352	277	197	0
27	88	58	45	0			111	181	360	266	180	0
28	115	57	44	0			166	180	359	263	156	0
29	133	57	46	0			175	166	359	238	151	0
30	136	58	50	0	---		165	127	359	227	150	0
31	136	---	50	0	---		---	110	---	227	139	---
TOTAL	1555	2487	1276	147	0	0	1978.10	6528	7998	8997	6392	1495.5
MEAN	50.1	82.9	41.1	4.74	0	0	65.9	210	266	290	206	49.8
MAX	157	147	58	48	0	0	213	294	360	360	239	135
MIN	0	57	21	0	0	0	0	110	122	227	139	0
AC-FT	3080	4930	2530	292	0	0	3920	12950	15860	17850	12680	2970
CAL YR 1987	TOTAL	43369.10	MEAN 118	MAX 365	MIN 0	AC-FT	86020					
WTR YR 1988	TOTAL	38853.60	MEAN 106	MAX 360	MIN 0	AC-FT	77070					

SACRAMENTO RIVER BASIN

11406900 PACIFIC GAS & ELECTRIC CO. LATERAL AT INTAKE, NEAR OROVILLE, CA

LOCATION.--Lat 39°29'22", long 121°41'12", in SE 1/4 NW 1/4 sec.19, T.19 N., R.3 E., Butte County, Hydrologic Unit 18020106, on right bank 82 ft downstream from axis of Thermalito Afterbay Dam and 7.2 mi west of Oroville.

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

GAGE.--Water-stage recorder. Datum of gage is 113.47 ft above National Geodetic Vertical Datum of 1929 (levels by California Department of Water Resources).

REMARKS.--Flow regulated at outlet works from Thermalito Afterbay; water is used for irrigation.

COOPERATION.--Records collected by California Department of Water Resources, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--20 years, 4.86 ft³/s, 3,520 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 46 ft³/s, Apr. 24, 1977, May 16, 1978; no flow for many days each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	0	1.0	2.9			0	35	13	16	12	1.8
2	1.1	0	.40	3.2			0	37	13	15	12	1.0
3	1.2	0	0	3.1			0	37	11	14	12	.40
4	.60	0	0	1.0			0	38	9.2	14	12	0
5	.50	0	0	0			0	39	7.8	13	11	0
6	0	0	0	0			0	38	6.8	13	11	0
7	0	0	0	0			0	27	6.9	14	11	0
8	0	0	0	0			0	15	6.8	16	10	0
9	0	0	0	0			0	12	12	16	9.1	0
10	0	0	0	0			0	12	15	15	9.0	0
11	0	0	0	0			0	8.5	19	15	9.0	0
12	0	0	0	0			0	7.9	17	15	9.6	0
13	0	0	0	0			0	6.1	14	15	8.9	0
14	0	0	0	0			0	3.2	16	15	7.9	0
15	0	0	0	0			0	2.1	14	14	8.1	0
16	0	0	0	0			0	4.0	11	13	8.1	0
17	0	15	0	0			0	4.9	11	13	7.3	0
18	0	12	0	0			0	4.8	12	13	7.6	0
19	0	22	0	0			0	3.3	12	14	8.1	0
20	0	22	0	0			0	.90	11	15	8.1	0
21	0	22	0	0			0	.70	14	15	8.1	1.0
22	0	20	0	0			0	0	17	14	5.9	2.0
23	0	12	0	0			0	0	20	14	2.9	2.0
24	0	3.1	0	0			0	0	21	14	1.4	1.0
25	0	1.9	0	0			0	1.1	18	15	1.0	0
26	0	.90	0	0			0	4.7	15	14	1.1	0
27	0	1.0	0	0			0	9.8	15	12	1.0	0
28	0	1.0	0	0			0	11	15	11	.90	0
29	0	.90	2.5	0			6.7	10	14	11	1.8	0
30	0	.90	4.2	0	---		24	11	15	11	2.0	0
31	0	---	3.4	0	---		---	13	---	11	2.7	---
TOTAL	4.50	134.70	11.50	10.2	0	0	30.7	397.00	402.5	430	220.60	9.20
MEAN	.14	4.49	.37	.32	0	0	1.02	12.8	13.4	13.8	7.11	.30
MAX	1.2	22	4.2	3.2	0	0	24	39	21	16	12	2.0
MIN	0	0	0	0	0	0	0	0	6.8	11	.90	0
AC-FT	8.9	267	23	20	0	0	61	787	798	853	438	18
CAL YR 1987	TOTAL	1870.30	MEAN 5.12	MAX 36	MIN 0	AC-FT 3710						
WTR YR 1988	TOTAL	1650.90	MEAN 4.51	MAX 39	MIN 0	AC-FT 3270						

SACRAMENTO RIVER BASIN

11406910 SUTTER-BUTTE CANAL AT INTAKE, NEAR OROVILLE, CA

LOCATION.--Lat 39°27'01", long 121°39'27", in NW corner of Boga Fernandez Grant, T.18 N., R.3 E., Butte County, Hydrologic Unit 18020105, on left bank 675 ft downstream from Thermalito Afterbay Dam and 6.8 mi southwest of Oroville.

PERIOD OF RECORD.--November 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 109.97 ft above National Geodetic Vertical Datum of 1929 (levels by California Department of Water Resources). Prior to May 1, 1970, at datum 109.50 ft lower.

REMARKS.--Water is diverted from Thermalito Afterbay and is used for irrigation. See schematic diagram showing diversions and storage from Feather River at Lake Oroville.

COOPERATION.--Records collected by California Department of Water Resources, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--20 years, 649 ft³/s, 470,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 2,110 ft³/s, Apr. 22-24, 1968; no flow for many days each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	434	261	176	152		0	553	1050	1240	1600	1460	1160
2	429	265	167	45		0	539	1150	1190	1620	1450	1120
3	440	266	152	0		0	538	1330	1180	1620	1490	1070
4	450	258	151	0		0	561	1420	1210	1620	1490	1060
5	451	234	149	0		0	553	1450	1210	1620	1470	1020
6	452	223	150	0		0	566	1440	1200	1620	1450	1030
7	452	214	151	0		156	613	1380	1220	1600	1430	997
8	462	217	152	0		239	594	1270	1190	1600	1420	993
9	458	210	150	0		257	601	1200	1190	1610	1400	964
10	450	219	150	0		368	659	1180	1210	1590	1380	875
11	442	224	155	0		375	669	1240	1260	1590	1370	856
12	431	224	154	0		428	743	1330	1330	1590	1390	863
13	411	213	151	0		465	821	1420	1340	1550	1390	830
14	409	204	153	0		549	864	1470	1390	1560	1400	801
15	407	205	153	0		631	891	1520	1430	1580	1400	759
16	406	196	154	0		706	902	1570	1460	1580	1380	749
17	384	194	152	0		730	974	1550	1450	1570	1370	706
18	384	191	153	0		723	1030	1490	1440	1560	1350	659
19	415	191	151	0		704	942	1480	1450	1560	1320	625
20	457	192	150	0		701	881	1480	1480	1570	1340	613
21	472	193	150	0		707	844	1500	1460	1580	1320	571
22	476	192	152	0		611	763	1500	1460	1520	1330	523
23	452	186	154	0		578	659	1500	1450	1480	1310	476
24	433	182	155	0		578	613	1460	1480	1490	1290	450
25	433	182	150	0		566	591	1420	1500	1490	1250	449
26	432	181	150	0		538	575	1360	1560	1510	1230	451
27	421	182	153	0		513	767	1320	1570	1500	1220	450
28	422	185	153	0		517	981	1330	1570	1450	1220	450
29	424	182	152	0		527	1000	1270	1580	1450	1210	449
30	338	183	153	0	---	539	1050	1230	1570	1470	1210	459
31	262	---	154	0	---	554	---	1240	---	1470	1210	---
TOTAL	13189	6249	4750	197	0	13260	22337	42550	41270	48220	41950	22478
MEAN	425	208	153	6.35	0	427	744	1372	1375	1555	1353	749
MAX	476	266	176	152	0	730	1050	1570	1580	1620	1490	1160
MIN	262	181	149	0	0	0	538	1050	1180	1450	1210	449
AC-FT	26160	12390	9420	391	0	26300	44310	84400	81860	95640	83210	44590
CAL YR 1987	TOTAL	250158.00	MEAN 685	MAX 1820	MIN 0	AC-FT 496200						
WTR YR 1988	TOTAL	256450.00	MEAN 700	MAX 1620	MIN 0	AC-FT 508700						

SACRAMENTO RIVER BASIN

11406920 THERMALITO AFTERBAY RELEASE TO FEATHER RIVER NEAR OROVILLE, CA

LOCATION.--Lat 39°27'23", long 121°38'10", in NW 1/4 SE 1/4 sec.33, T.19 N., R.3 E., Butte County, Hydrologic Unit 18020106, on left bank of outlet channel 955 ft downstream from centerline of Thermalito Afterbay Dam and 5.7 mi southwest of Oroville.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 113.47 ft above National Geodetic Vertical Datum of 1929 (levels by California Department of Water Resources). Prior to May 1, 1970, at datum 13.00 ft lower.

REMARKS.--Flow regulated by gates of Thermalito Afterbay outlet 955 ft upstream. See schematic diagram showing diversions and storage from Feather River at Lake Oroville.

COOPERATION.--Records collected by California Department of Water Resources, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--20 years, 4,127 ft³/s, 2,990,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,600 ft³/s, Jan. 28, 1970, gage height, 23.30 ft, datum then in use; no flow for many days during 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,920 ft³/s, June 21, gage height, 4.67 ft; minimum daily, 479 ft³/s, May 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2030	811	846	625	643	606	4370	479	624	4360	2840	1730
2	2290	823	839	632	646	616	4340	824	576	4350	2840	1740
3	2270	841	839	638	645	618	4330	1350	578	4340	2850	1730
4	2280	817	838	644	653	615	4340	1370	570	4350	2840	1740
5	2290	798	831	641	656	625	4350	1400	590	4370	2830	1720
6	2110	820	822	641	644	1080	4370	1410	585	4350	2340	1740
7	1890	809	835	647	644	1070	4380	1360	586	3850	2330	1740
8	1690	810	866	643	639	1080	4410	1340	588	3330	2340	1740
9	1690	818	856	636	651	1070	4330	1260	583	3310	1860	1740
10	1470	822	856	646	652	895	4320	1070	574	3290	1680	1740
11	1290	815	847	638	651	679	4360	863	568	3320	1560	1730
12	1100	825	830	642	651	600	3850	662	572	3330	1650	1740
13	901	818	833	644	649	595	3830	578	573	3320	1640	1740
14	800	806	833	633	637	595	3830	575	1070	3320	1630	1740
15	806	805	835	644	646	603	3830	571	2670	3320	1660	1740
16	796	816	843	635	639	616	3830	581	3350	3310	1650	1750
17	800	835	847	627	650	616	3830	580	3840	3310	1650	1740
18	786	827	848	645	651	1330	3630	578	3810	2840	1710	1740
19	779	842	841	649	631	2330	2880	583	3800	2840	1770	1750
20	804	843	828	645	623	3030	2620	574	3840	3350	1760	1760
21	826	820	658	631	603	4380	1770	571	4360	3830	1750	1760
22	834	819	634	639	607	4370	1570	573	4680	3830	1760	1760
23	843	837	633	645	616	4380	1380	581	4390	3810	1770	1760
24	834	845	634	643	611	4380	1170	578	4390	3800	1760	1740
25	819	837	635	636	615	4340	968	572	3410	3830	1750	1740
26	816	833	630	647	612	4290	862	572	2470	3830	1740	1760
27	819	826	636	657	607	4300	856	570	2490	3830	1720	1760
28	819	820	638	654	612	4360	858	719	3170	3590	1720	1760
29	818	814	648	649	604	4360	668	872	4360	2840	1730	1750
30	821	840	642	641	---	4360	490	864	4360	2820	1740	1740
31	818	---	638	639	---	4360	---	771	---	2810	1740	---
TOTAL	37939	24692	23839	19876	18388	67149	90622	25251	68027	110980	60610	52320
MEAN	1223	823	769	641	634	2166	3020	814	2267	3580	1955	1744
MAX	2290	845	866	657	656	4380	4410	1410	4680	4370	2850	1760
MIN	779	798	630	625	603	595	490	479	568	2810	1560	1720
AC-FT	75250	48980	47280	39420	36470	133200	179700	50090	134900	220100	120200	103800
CAL YR 1987	TOTAL	562816	MEAN	1541	MAX	3620	MIN	630	AC-FT	1116000		
WTR YR 1988	TOTAL	599693	MEAN	1638	MAX	4680	MIN	479	AC-FT	1189000		

SACRAMENTO RIVER BASIN

11406920 THERMALITO AFTERBAY RELEASE TO FEATHER RIVER NEAR OROVILLE, CA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: May 1968 to current year.

INSTRUMENTATION.--Temperature recorder since May 1968.

REMARKS.--Temperature is listed only when water is released from Thermalito Afterbay. Because of the complete regulation of the Feather River below Oroville Dam, the temperature of the water released from Thermalito Afterbay affects the temperature of the Feather River downstream from the Oroville project.

COOPERATION.--Records provided by California Department of Water Resources and reviewed by the U.S. Geological Survey.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum recorded, 28.5 °C, June 23, 1977; minimum recorded, 1.5 °C, Dec. 13, 1972.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Maximum recorded, 25.5 °C, June 14; minimum recorded, 5.0 °C, several days during December and January.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	16.5	16.5	17.0	16.0	10.0	9.5	5.0	5.0	9.5	9.0	14.0	13.5
2	17.0	16.5	17.0	16.5	10.0	10.0	5.0	5.0	9.5	9.0	14.0	13.0
3	18.0	16.5	16.5	16.0	10.5	10.0	5.0	5.0	9.5	8.5	13.5	13.0
4	19.0	17.0	16.0	16.0	11.0	10.5	5.0	5.0	9.5	8.5	13.5	13.5
5	20.0	18.5	16.0	16.0	11.0	11.0	5.5	5.0	9.0	8.5	14.0	13.5
6	19.5	18.0	16.0	15.5	11.0	11.0	6.0	5.5	9.5	8.5	15.0	13.5
7	19.0	17.0	16.0	15.5	11.0	11.0	6.0	6.0	9.5	9.0	15.0	14.5
8	18.5	17.0	16.0	16.0	11.0	10.5	6.0	6.0	10.5	9.0	15.0	14.5
9	18.0	18.0	16.0	16.0	10.5	10.5	6.5	6.0	11.0	10.0	14.5	14.0
10	18.5	17.0	16.0	15.5	11.0	10.5	7.0	6.5	11.0	10.5	14.0	13.0
11	18.0	17.0	16.0	15.5	11.0	10.5	7.0	7.0	11.5	10.5	13.0	12.0
12	18.0	17.0	15.5	15.5	10.5	9.5	7.0	7.0	11.5	10.5	13.0	11.5
13	17.0	16.5	15.5	15.5	9.5	8.5	8.0	7.0	11.5	10.5	13.0	12.0
14	16.5	16.0	15.5	14.5	8.5	8.0	8.0	7.0	11.5	11.0	14.0	12.0
15	16.0	16.0	14.5	13.5	8.0	8.0	8.0	7.0	12.0	10.5	14.0	13.5
16	16.0	16.0	14.0	14.0	8.0	7.0	8.0	8.0	12.0	11.0	14.5	13.5
17	16.0	16.0	14.0	13.5	7.0	7.0	8.0	8.0	11.0	10.5	14.5	13.5
18	16.0	16.0	13.5	13.5	7.0	7.0	8.0	8.0	11.0	10.5	15.0	13.5
19	16.0	16.0	13.5	13.5	7.0	7.0	8.0	7.0	10.5	10.0	16.0	14.0
20	16.0	15.5	13.5	13.0	7.0	7.0	8.0	7.0	11.0	10.5	16.0	14.5
21	15.5	15.5	13.0	13.0	7.0	7.0	8.0	7.0	11.5	10.0	15.0	14.5
22	16.0	15.5	13.0	13.0	8.0	7.0	7.0	7.0	11.5	11.0	14.5	14.0
23	16.0	15.5	13.0	13.0	8.0	7.0	8.5	7.0	12.0	11.0	14.0	13.0
24	16.0	15.5	13.0	11.5	7.0	6.0	8.5	8.0	12.0	11.5	13.0	13.0
25	15.5	15.5	11.5	11.0	6.0	5.0	9.0	8.0	13.0	11.5	13.0	12.0
26	16.0	15.5	11.0	10.5	5.5	5.5	9.0	8.5	13.5	13.0	14.0	12.0
27	17.0	16.0	10.5	10.0	5.5	5.0	9.0	8.5	13.5	13.0	13.5	11.5
28	16.5	16.0	10.5	10.0	5.0	5.0	9.0	9.0	14.0	13.5	11.5	10.5
29	16.5	16.0	10.0	10.0	5.0	5.0	9.0	9.0	14.0	13.5	12.0	11.0
30	16.0	16.0	10.0	9.5	5.5	5.0	9.5	9.0	---	---	12.0	11.5
31	18.0	16.0	---	---	5.5	5.0	9.5	9.0	---	---	12.0	11.0
MONTH	20.0	15.5	17.0	9.5	11.0	5.0	9.5	5.0	14.0	8.5	16.0	10.5

SACRAMENTO RIVER BASIN

11406920 THERMALITO AFTERBAY RELEASE TO FEATHER RIVER NEAR OROVILLE, CA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988.

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	12.0	11.5	16.0	15.0	19.0	19.0	19.5	18.0	24.0	20.0	23.5	23.0
2	13.0	12.0	16.0	15.5	19.5	19.0	20.0	18.5	21.5	20.0	24.5	21.5
3	13.0	13.0	17.0	16.0	20.0	19.5	20.0	18.5	22.0	21.0	22.0	21.0
4	14.0	13.0	17.0	16.5	20.5	20.0	20.5	19.5	22.0	20.0	21.5	21.0
5	14.5	14.0	17.0	16.5	21.0	20.0	20.0	19.0	20.5	20.0	21.5	20.5
6	14.5	14.0	16.5	16.0	20.5	20.0	19.5	18.5	21.5	20.0	21.0	19.5
7	14.5	14.0	16.0	15.5	20.0	19.5	20.0	18.5	23.5	20.5	20.5	19.5
8	14.5	13.0	16.0	15.0	20.0	19.0	20.5	18.5	23.5	21.0	21.0	18.5
9	14.0	12.0	17.0	15.5	20.0	19.0	20.5	19.0	24.5	21.0	19.5	18.0
10	15.5	13.5	18.5	16.0	20.5	19.0	23.5	20.0	23.0	21.5	19.0	18.0
11	15.5	14.0	18.5	16.5	19.5	19.5	22.0	20.5	22.0	22.0	20.0	18.0
12	15.5	14.5	17.0	16.0	24.5	19.0	22.0	21.0	22.0	21.0	19.0	18.0
13	15.0	14.0	19.5	17.0	24.5	23.0	22.0	20.5	21.5	20.5	18.5	18.0
14	14.0	13.5	19.0	17.0	25.5	22.0	21.0	20.5	23.5	21.0	18.5	17.0
15	13.5	13.5	18.0	17.0	25.0	23.0	23.5	20.5	22.0	20.5	18.5	16.5
16	13.5	13.5	18.5	17.0	23.0	20.5	25.0	21.0	22.0	20.5	18.0	16.0
17	14.5	13.5	20.5	18.0	21.0	19.5	24.5	23.0	23.0	21.0	19.5	16.5
18	14.5	14.0	21.0	19.0	21.5	19.5	25.0	23.0	23.0	20.5	19.0	17.0
19	14.5	13.5	21.0	19.5	22.0	19.0	24.5	21.5	21.5	20.0	18.0	17.0
20	13.5	13.0	20.5	20.0	22.0	19.5	23.5	20.0	20.5	19.5	17.0	16.5
21	14.5	13.0	20.5	19.5	21.5	20.5	22.0	19.5	22.0	19.5	18.0	16.5
22	13.5	13.0	21.0	19.5	20.5	19.5	22.0	19.5	24.0	20.5	18.5	17.0
23	14.0	13.0	21.5	20.0	22.0	20.0	21.0	19.5	23.5	21.5	18.5	17.0
24	14.0	13.0	24.0	20.5	21.5	19.5	23.5	19.5	23.5	21.5	18.5	16.5
25	15.0	14.0	22.0	20.5	21.0	20.0	22.0	20.5	23.0	21.5	19.0	16.5
26	14.5	14.5	21.5	20.0	24.0	20.5	22.0	20.0	22.0	21.0	18.5	18.0
27	15.0	14.5	20.5	19.5	23.5	22.0	21.0	20.5	21.0	20.5	18.5	17.0
28	15.5	14.0	19.5	18.5	23.5	21.0	22.0	20.0	22.0	20.5	18.5	18.0
29	15.5	15.0	19.0	18.5	21.0	18.5	21.0	20.0	25.0	21.0	19.0	18.0
30	16.0	15.5	20.5	19.0	19.5	18.0	21.0	20.0	25.0	23.0	18.5	17.0
31	---	---	19.5	19.0	---	---	21.5	19.5	24.5	23.5	---	---
MONTH	16.0	11.5	24.0	15.0	25.5	18.0	25.0	18.0	25.0	19.5	24.5	16.0

11407000 FEATHER RIVER AT OROVILLE, CA

LOCATION.--Lat 39°31'18", long 121°32'48", in Boga Fernandez Grant, T.19 N., R.4 E., Butte County, Hydrologic Unit 18020106, on right bank 300 ft upstream from fish barrier dam on Feather River, 0.4 mi downstream from Thermalito diversion dam, 0.8 mi northeast of Oroville Post Office, and 4.8 mi downstream from Oroville Dam.
DRAINAGE AREA.--3,624 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1901 to current year. Monthly discharge only for some periods, published in WSP 1315-A. October 1934 to September 1961 published as "near Oroville."
REVISED RECORDS.--WSP 843: 1907(M), 1909(M), 1914-15(M), 1919(M), 1927-28(M). WSP 881: 1913-28 (yearly summaries). WSP 1515: 1906-8. WSP 1931: Drainage area. WDR CA-74-2: 1968-70, adjusted monthly discharge.
GAGE.--Water-stage recorder. Datum of gage is 148.97 ft above National Geodetic Vertical Datum of 1929 (levels by California Department of Water Resources). See WSP 1931 for history of changes prior to Oct. 1, 1964.
REMARKS.--Flow completely regulated by Lake Oroville (station 11406800) beginning Apr. 14, 1967, and Thermalito diversion pool (station 11406825), capacity 13,500 acre-ft. Diversions above station for power and irrigation. Feather River Fish Hatchery diverts up to 120 ft³/s at Thermalito diversion dam 0.4 mi upstream from gage. Daily figures shown are combined figures of river flow and diversion to fish hatchery. See schematic diagrams showing diversions and storage from Feather River at Lake Oroville.
COOPERATION.--Records collected by California Department of Water Resources under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.
AVERAGE DISCHARGE.--66 years (water years 1902-67) prior to storage and diversions, 5,836 ft³/s, 4,225,000 acre-ft/yr; 21 years (water years 1968-88), 6,335 ft³/s, 4,590,000 acre-ft/yr, adjusted for diversions, storage, and unreviewed evaporation from Lake Oroville, Thermalito diversion pool, Thermalito Forebay, and Thermalito Afterbay; unadjusted flow for same period was 1,061 ft³/s, 768,700 acre-ft/yr.
EXTREMES FOR PERIOD OF RECORD.--River only: Maximum discharge observed, 230,000 ft³/s Mar. 19, 1907, elevation, 167.5 ft above National Geodetic Vertical Datum of 1929 site and datum then in use; maximum stage, 23.22 ft, Feb. 18, 1986, present site and datum; minimum daily, 89 ft³/s, Sept. 19, 1972.
Combined flow (since completion of Oroville Dam): Maximum discharge, 134,000 ft³/s, Feb. 18, 1986; minimum daily, 222 ft³/s, Sept. 19, 1972.
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of February 1881 reached a stage of 25 ft from floodmarks, site and datum in use from Dec. 16, 1912, to Sept. 30, 1934.
EXTREMES FOR CURRENT YEAR.--River only: Maximum daily discharge, 626 ft³/s, Apr. 25; minimum daily, 329 ft³/s, Dec. 2.
Combined flow: Maximum daily discharge, 708 ft³/s, Sept. 29; minimum daily, 416 ft³/s, Dec. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	450	450	448	576	577	641	649	642	637	632	636	648
2	449	448	445	574	574	646	639	629	637	635	680	621
3	445	448	416	577	576	654	637	637	637	638	630	624
4	443	458	467	572	576	658	635	628	638	636	634	622
5	459	444	475	576	577	643	641	636	643	633	633	624
6	457	455	491	574	576	641	640	636	641	636	639	625
7	453	467	450	570	576	636	637	635	637	636	673	625
8	457	466	473	572	568	636	642	638	635	646	636	635
9	459	468	513	581	564	644	643	641	628	636	635	640
10	457	469	522	585	563	631	643	641	638	639	635	640
11	454	455	484	583	563	631	635	640	635	632	632	636
12	458	460	503	581	557	630	638	637	635	634	637	637
13	449	457	507	581	573	640	642	650	638	634	635	639
14	452	451	504	593	574	689	633	648	640	633	648	643
15	464	454	460	586	576	675	647	645	640	640	633	646
16	466	456	456	590	572	694	645	632	645	634	634	656
17	455	448	456	566	569	679	644	639	640	633	635	641
18	448	438	456	565	572	681	634	637	639	639	634	655
19	458	456	446	573	574	676	640	636	638	639	632	638
20	461	442	445	575	577	651	638	638	638	639	640	645
21	466	436	575	587	575	656	637	633	638	643	634	657
22	466	435	587	581	572	662	641	633	639	634	631	653
23	479	462	615	573	584	666	642	634	634	634	627	651
24	443	438	596	568	583	697	640	635	631	640	633	657
25	450	452	574	573	592	679	697	643	632	637	631	649
26	447	441	559	574	637	670	644	651	633	637	621	642
27	446	443	564	574	630	665	628	652	634	638	624	658
28	448	440	578	577	631	672	624	651	636	672	628	657
29	470	434	575	577	634	679	629	636	636	643	618	708
30	460	450	589	576	---	670	631	638	636	631	623	652
31	482	---	562	571	---	674	---	637	---	631	620	---
TOTAL	14151	13521	15771	17881	16872	20466	19215	19808	19108	19764	19681	19324
MEAN	456	450	508	576	581	660	640	638	636	637	634	644
MAX	482	469	615	593	637	697	697	652	645	672	680	708
MIN	443	434	416	565	557	630	624	628	628	631	618	621
AC-FT	28070	26820	31280	35470	33470	40590	38110	39290	37900	39200	39040	38330
MEAN a	2425	3193	6747	5404	2423	2859	2712	2701	1440	1276	1386	1755
AC-FT a	149100	190000	414900	332300	139400	175800	161400	166100	85670	78470	85210	104400

CAL YR 1987 TOTAL 172630 MEAN 472 MAX 794 MIN 412 AC-FT 342400 MEAN a 3035 AC-FT a 2197000
WTR YR 1988 TOTAL 215562 MEAN 588 MAX 708 MIN 416 AC-FT 427600 MEAN a 2869 AC-FT a 2083000

a Adjusted for diversions in and out of, change in contents in, and unreviewed evaporation from Lake Oroville, Thermalito diversion pool, Thermalito Forebay, and Thermalito Afterbay.

SACRAMENTO RIVER BASIN

11407000 FEATHER RIVER AT OROVILLE, CA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1906-7, 1951 to current year.

CHEMICAL DATA: Water years 1906-7, 1951-77.

SPECIFIC CONDUCTANCE: Water years 1972-78.

WATER TEMPERATURE: Water years 1954 to current year.

SEDIMENT DATA: Water years 1957-79.

PERIOD OF DAILY RECORD.--

CHEMICAL DATA: January to December 1906.

SPECIFIC CONDUCTANCE: March 1972 to September 1978.

WATER TEMPERATURE: October 1953 to September 1954, November 1956 to current year.

SEDIMENT DATA: November 1956 to September 1979.

REVISED RECORDS.--WDR CA-74-2: 1966, sediment.

INSTRUMENTATION.--Temperature recorder October 1953 to September 1954, and since November 1956.

REMARKS.--Extremes affected by construction of Oroville Dam in 1967, and are given for two separate periods--water years 1954, 1957-67, and 1969 to current year.

COOPERATION.--Records provided by California Department of Water Resources and reviewed by the U.S. Geological Survey.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: (water years 1954, 1957-67) Maximum, 27.0 °C, Sept. 10, 12, 1959; minimum, 1.5 °C, Dec. 27, 1959, Jan. 23-25, 1962.

WATER TEMPERATURE: (water years 1969-88) Maximum recorded, 20.0 °C, several days in 1977; minimum recorded, 6.5 °C, many days in 1971-73, 1974-75, and 1979.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 16.5 °C, July 27, Aug. 1; minimum recorded, 8.0 °C, several days during January and February.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	11.5	11.5	11.0	10.0	11.0	10.5	8.5	8.5	9.0	8.5	10.0	9.5
2	12.0	11.5	11.5	10.5	10.5	10.5	8.5	8.0	8.5	8.5	10.0	9.5
3	12.0	11.5	11.5	10.5	11.5	10.5	8.0	8.0	8.5	8.0	9.5	9.0
4	13.0	12.0	11.0	11.0	11.0	11.0	8.5	8.0	8.0	8.0	9.5	9.5
5	13.5	11.5	11.0	11.0	11.0	10.5	8.5	8.5	8.5	8.0	9.5	9.5
6	13.0	11.5	11.5	11.0	11.0	10.5	8.5	8.5	8.5	8.0	10.5	9.5
7	13.0	11.5	11.0	11.0	11.0	9.5	8.5	8.5	8.5	8.0	11.0	10.5
8	11.5	11.0	11.0	11.0	10.5	10.0	8.5	8.5	8.5	8.5	11.0	10.5
9	11.5	11.0	11.5	11.0	11.0	10.5	8.5	8.5	9.0	8.5	11.0	10.5
10	11.5	11.0	11.5	11.0	11.5	10.0	8.5	8.5	9.0	8.5	11.0	10.0
11	12.0	11.5	11.0	11.0	10.0	8.5	9.0	8.5	9.0	8.5	10.0	10.0
12	12.0	11.0	11.0	11.0	9.5	9.0	9.0	8.5	9.0	9.0	10.0	10.0
13	12.0	11.5	11.0	11.0	9.5	9.5	8.5	8.5	9.5	9.0	10.0	10.0
14	12.0	12.0	11.0	11.0	10.0	9.5	8.5	8.5	9.5	9.0	10.5	10.0
15	13.0	11.5	11.0	11.0	10.0	9.5	8.5	8.5	10.0	9.5	10.5	10.0
16	13.0	11.5	11.0	11.0	9.5	9.5	8.5	8.5	9.5	9.0	10.0	9.5
17	12.0	11.0	11.5	11.0	9.5	9.5	8.5	8.5	9.0	9.0	10.0	10.0
18	11.5	11.0	11.0	11.0	9.5	9.0	8.5	8.5	9.0	9.0	10.5	10.0
19	11.5	10.0	11.0	11.0	9.5	9.0	8.5	8.5	9.0	9.0	10.0	10.0
20	11.5	10.0	11.0	11.0	9.5	9.0	8.5	8.5	9.5	9.0	10.5	10.0
21	11.0	10.0	11.0	11.0	9.0	9.0	8.5	8.0	10.0	9.5	10.5	10.0
22	10.5	10.5	11.0	11.0	9.0	9.0	8.5	8.0	10.0	9.5	10.0	9.5
23	10.5	10.5	11.0	11.0	9.0	8.5	8.0	8.0	10.0	9.0	10.0	9.5
24	11.0	10.5	11.0	11.0	8.5	8.5	8.5	8.0	9.5	9.0	10.0	9.0
25	11.0	10.5	11.0	11.0	8.5	8.5	8.5	8.5	9.5	9.0	10.0	10.0
26	13.0	10.5	11.0	10.5	8.5	8.5	8.5	8.5	9.5	9.0	11.0	10.0
27	11.5	10.5	10.5	10.5	8.5	8.5	8.5	8.0	9.5	9.0	11.0	10.5
28	11.5	10.5	10.5	10.5	8.5	8.5	8.0	8.0	9.5	9.0	11.0	10.5
29	11.5	10.5	10.5	10.5	8.5	8.5	8.5	8.0	10.0	9.5	11.0	10.5
30	11.5	10.5	10.5	10.0	8.5	8.5	8.5	8.0	---	---	11.0	10.5
31	11.5	10.5	---	---	8.5	8.5	8.5	8.5	---	---	11.0	10.5
MONTH	13.5	10.0	11.5	10.0	11.5	8.5	9.0	8.0	10.0	8.0	11.0	9.0

SACRAMENTO RIVER BASIN

11407000 FEATHER RIVER AT OROVILLE, CA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	11.0	10.5	12.0	11.5	13.5	13.0	15.0	13.5	16.5	14.5	11.5	10.0
2	10.5	10.5	13.5	11.5	14.0	13.5	15.0	14.0	15.0	14.5	10.5	10.0
3	10.5	10.5	13.5	11.5	14.0	13.0	15.0	14.5	15.5	14.5	10.5	10.0
4	11.0	10.5	13.0	12.0	13.5	13.0	15.0	13.5	14.5	13.0	10.5	10.0
5	11.0	10.0	12.0	11.5	14.0	13.5	15.0	13.5	14.5	14.0	10.5	10.0
6	11.0	10.5	12.0	11.5	14.5	13.5	15.0	13.5	14.0	14.0	10.5	10.5
7	11.0	10.5	11.5	11.5	14.5	13.5	15.5	14.5	14.5	14.0	10.5	10.5
8	11.5	10.5	11.5	11.0	13.5	13.0	15.5	15.0	14.5	13.5	10.5	10.5
9	12.0	11.5	12.0	11.5	14.0	13.5	15.5	15.5	14.5	13.0	11.0	10.5
10	12.0	12.0	13.0	12.0	14.0	14.0	16.0	15.5	14.0	13.5	11.0	11.0
11	12.0	11.5	13.0	12.0	14.0	14.0	16.0	15.5	14.5	13.5	12.0	11.0
12	11.5	11.0	13.0	12.0	15.0	14.0	15.5	15.0	14.5	14.0	12.0	11.0
13	11.5	11.0	13.0	11.5	15.5	14.5	16.0	15.5	14.5	13.5	12.0	11.0
14	11.0	11.0	13.0	12.0	15.0	14.0	16.0	15.5	14.0	13.0	11.5	11.0
15	11.0	11.0	13.0	12.0	14.5	14.0	16.0	14.0	15.0	13.0	12.0	11.5
16	11.0	11.0	13.5	12.0	14.5	14.0	14.5	13.5	15.5	14.0	11.5	10.5
17	11.5	11.0	13.0	12.0	14.5	14.0	14.0	12.0	15.5	15.0	11.5	11.0
18	11.5	11.0	13.5	12.0	15.0	14.5	14.5	13.0	15.5	15.0	13.0	11.5
19	11.0	10.5	13.5	13.0	15.0	14.0	14.5	13.5	15.5	15.0	13.5	11.5
20	11.5	10.0	14.0	13.5	15.0	14.0	15.0	13.5	15.5	15.0	12.0	11.0
21	11.5	11.0	14.0	13.5	15.0	14.5	15.0	14.0	15.5	15.0	11.5	10.5
22	11.5	11.0	14.0	13.5	15.5	15.0	15.5	14.5	16.0	15.0	11.5	10.5
23	11.0	10.5	14.5	13.5	15.5	15.0	15.5	15.0	15.5	14.5	12.0	11.0
24	11.0	10.5	14.0	13.5	16.0	13.5	15.0	14.5	15.0	14.0	12.0	11.5
25	11.5	10.5	14.0	13.0	14.0	12.0	16.0	14.0	14.5	14.5	12.0	11.5
26	12.0	11.0	13.5	12.0	13.0	11.5	16.0	15.0	15.0	14.0	13.0	12.0
27	12.0	11.5	13.5	13.0	14.0	11.5	16.5	14.5	15.0	15.0	13.0	11.5
28	12.0	11.5	13.5	13.5	14.0	13.0	14.5	14.0	16.0	15.0	12.0	11.0
29	13.0	11.5	13.5	13.0	14.0	13.5	15.0	14.5	16.5	14.0	11.5	10.5
30	13.0	11.5	13.5	13.5	14.0	13.5	16.0	14.5	15.0	13.5	11.5	11.0
31	---	---	14.0	13.0	---	---	16.0	15.5	14.0	10.0	---	---
MONTH	13.0	10.0	14.5	11.0	16.0	11.5	16.5	12.0	16.5	10.0	13.5	10.0

SACRAMENTO RIVER BASIN

11407150 FEATHER RIVER NEAR GRIDLEY, CA

LOCATION.--Lat 39°22'00", long 121°38'46", in Boga Fernandez Grant, T.18 N., R.3 E., Butte County, Hydrologic Unit 18020106, on right bank 300 ft upstream from highway bridge and 2.7 mi east of Gridley.

DRAINAGE AREA.--3,676 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1964 to current year. January 1944 to September 1964 are published in reports by California Department of Water Resources.

REVISED RECORDS.--WDR CA-80-4: 1967(M), 1968(M).

GAGE.--Water-stage recorder. Datum of gage is 2.91 ft below National Geodetic Vertical Datum of 1929. Prior to Mar. 13, 1966, water-stage recorder on left bank, at same datum. Mar. 14, 1966, to Sept. 30, 1973, gage at present location, with datum 47.09 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Lake Oroville since November 1967 (station 11406800) and Thermalito Afterbay release to the Feather River since December 1968 (station 11406920). See schematic diagram showing diversions and storage from Feather River at Lake Oroville.

AVERAGE DISCHARGE.--24 years, 5,149 ft³/s, 3,730,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 151,000 ft³/s, Dec. 23, 1964, gage height, 100.43 ft, present datum; minimum daily, 117 ft³/s, June 27, 1966. Since completion of Oroville Dam in 1967, maximum discharge, 150,000 ft³/s, Feb. 19, 1986, gage height, 100.06 ft; minimum daily, 366 ft³/s, July 26, 1968.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 23, 1955, reached a stage of 102.25 ft, present datum, discharge unknown.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,830 ft³/s, June 21, gage height, 77.47 ft; minimum daily, 963 ft³/s, Oct. 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2170	1060	1220	1190	1160	1120	5260	975	1170	5030	3330	2280
2	2540	1080	1220	1190	1140	1130	5190	1250	1080	5030	3370	2260
3	2540	1080	1160	1230	1150	1140	5170	1900	1080	5010	3330	2240
4	2530	1080	1170	1300	1150	1130	5160	1950	1060	5010	3340	2250
5	2540	1060	1180	1280	1150	1130	5170	1980	1070	5000	3340	2250
6	2350	1070	1220	1250	1130	1440	5200	2000	1080	4970	2940	2250
7	2100	1080	1200	1230	1210	1510	5180	2000	1090	4500	2890	2240
8	1890	1080	1230	1240	1180	1530	5160	1970	1080	4000	2880	2250
9	1870	1090	1280	1240	1140	1510	5150	1910	1080	3890	2480	2250
10	1660	1100	1300	1250	1140	1360	5140	1720	1090	3860	2240	2250
11	1480	1100	1230	1220	1140	1180	5150	1480	1070	3870	2080	2230
12	1310	1100	1220	1210	1130	1100	4680	1260	1080	3870	2170	2230
13	1120	1110	1230	1220	1120	1090	4630	1090	1090	3860	2150	2250
14	1020	1090	1240	1220	1110	1120	4600	1100	1450	3860	2160	2250
15	1000	1080	1230	1240	1130	1130	4590	1090	3130	3860	2170	2250
16	1000	1090	1230	1290	1100	1150	4540	1110	3950	3850	2170	2280
17	997	1130	1220	1270	1110	1170	4520	1090	4620	3840	2170	2260
18	982	1100	1220	1240	1110	1630	4360	1080	4630	3440	2210	2230
19	963	1130	1210	1240	1100	2700	3650	1090	4600	3360	2300	2250
20	990	1150	1190	1230	1110	3600	3390	1090	4620	3780	2300	2250
21	1020	1130	1150	1210	1090	5090	2550	1080	5060	4290	2280	2260
22	1030	1100	1170	1190	1090	5330	2270	1080	5660	4340	2290	2270
23	1070	1130	1180	1200	1090	5340	2060	1090	5230	4330	2290	2280
24	1040	1150	1200	1180	1080	5350	1890	1070	5200	4330	2300	2260
25	1020	1110	1180	1170	1070	5290	1710	1070	4230	4350	2290	2260
26	1020	1100	1180	1170	1130	5250	1510	1070	3210	4360	2280	2260
27	1030	1100	1160	1180	1120	5180	1490	1070	3080	4340	2260	2270
28	1050	1100	1180	1180	1130	5180	1470	1190	3590	4190	2240	2300
29	1050	1100	1220	1190	1120	5240	1290	1400	4930	3430	2260	2300
30	1070	1180	1210	1160	---	5230	1040	1400	5020	3340	2260	2310
31	1070	---	1200	1160	---	5210	---	1340	---	3310	2270	---
TOTAL	44522	33060	37430	37770	32630	86560	113170	41995	86330	128500	77040	67770
MEAN	1436	1102	1207	1218	1125	2792	3772	1355	2878	4145	2485	2259
MAX	2540	1180	1300	1300	1210	5350	5260	2000	5660	5030	3370	2310
MIN	963	1060	1150	1160	1070	1090	1040	975	1060	3310	2080	2230
AC-FT	88310	65570	74240	74920	64720	171700	224500	83300	171200	254900	152800	134400

CAL YR 1987 TOTAL 693162 MEAN 1899 MAX 4140 MIN 963 AC-FT 1375000
WTR YR 1988 TOTAL 786777 MEAN 2150 MAX 5660 MIN 963 AC-FT 1561000

SACRAMENTO RIVER BASIN

11407150 FEATHER RIVER NEAR GRIDLEY, CA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1965 to current year.

CHEMICAL DATA: Water years 1979-81.

WATER TEMPERATURE: Water years 1965 to current year.

SEDIMENT DATA: Water years 1965 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1964 to June 1978.

SUSPENDED-SEDIMENT DISCHARGE: October 1964 to current year.

REVISED RECORDS.--WDR CA-73-2: 1966, sediment. WDR CA-74-2: 1965, 1970, 1971, 1973, sediment.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE (water years 1965-69, 1971-78): Maximum recorded, 29.5 °C, June 25, 1977; minimum recorded, 4.0 °C, several days during December and January of most years.

SEDIMENT CONCENTRATION: Maximum daily mean, 1,340 mg/L, Dec. 25, 1964; minimum daily mean, 1 mg/L, most years.

SEDIMENT LOAD: Maximum daily, 527,000 tons, Dec. 23, 1964; minimum daily, 1.4 tons, Oct. 27, 1966.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATION: Maximum daily mean, 23 mg/L, Jan. 24; minimum daily mean, 1 mg/L, June 29.

SEDIMENT LOAD: Maximum daily, 245 tons, Mar. 22; minimum daily, 6.1 tons, Mar. 5.

WATER TEMPERATURE, DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	9.0	13.0	---	15.0	18.0	18.0	24.0	24.0
2	---	---	---	---	---	---	14.5	---	---	---	---	---
3	18.5	---	---	---	---	12.5	---	18.5	20.0	22.0	24.0	22.0
4	---	---	12.0	9.0	---	---	16.0	---	---	---	---	---
5	---	14.5	---	8.0	---	13.0	---	16.0	20.0	18.0	23.5	21.0
6	---	---	---	9.0	---	---	---	---	---	---	---	---
7	---	---	---	---	---	13.0	---	16.0	19.5	20.0	20.0	---
8	18.0	---	11.0	8.0	10.5	---	---	---	---	---	---	---
9	---	14.5	---	---	---	14.0	15.0	16.0	19.5	22.0	20.0	---
10	---	---	---	8.0	8.0	13.0	---	---	---	---	---	---
11	---	---	---	---	12.0	14.0	17.5	18.0	19.5	21.5	---	19.5
12	17.5	---	---	8.0	---	---	---	---	---	---	---	---
13	---	---	---	---	---	14.5	15.5	17.5	19.5	24.0	---	20.0
14	17.0	14.0	5.5	9.0	---	---	---	---	---	---	---	---
15	---	---	---	---	12.0	15.0	14.5	17.0	24.5	23.0	---	17.0
16	---	14.0	---	9.0	---	---	---	---	---	---	21.5	---
17	---	---	---	---	---	15.0	14.5	16.5	21.0	23.0	21.5	18.5
18	---	---	---	9.0	---	---	---	---	---	---	---	---
19	---	14.0	---	---	---	15.0	14.0	22.0	22.0	24.0	20.5	17.5
20	---	---	7.5	---	---	---	---	---	---	---	---	---
21	16.0	12.5	---	---	11.5	16.0	14.5	23.0	22.0	23.5	21.0	14.5
22	---	---	---	---	---	10.5	---	---	---	---	---	---
23	---	12.0	---	---	---	---	15.5	23.0	21.0	23.5	20.0	17.0
24	---	---	---	9.0	13.0	---	---	---	---	---	---	---
25	15.5	11.0	---	10.0	---	---	14.5	20.0	22.5	24.0	21.5	17.5
26	---	---	---	---	13.5	---	---	---	---	---	---	---
27	17.0	---	---	10.0	---	---	15.5	19.5	20.5	24.0	23.0	15.5
28	---	---	6.0	---	13.0	---	---	---	---	---	---	---
29	---	---	---	10.0	---	---	15.0	18.5	19.5	24.0	22.0	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	18.5	---	23.5	---	---

SACRAMENTO RIVER BASIN

11407150 FEATHER RIVER NEAR GRIDLEY, CA--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	2170	5	29	1060	5	14	1220	4	13
2	2540	6	41	1080	5	15	1220	4	13
3	2540	7	48	1080	5	15	1160	4	13
4	2530	8	55	1080	5	15	1170	4	13
5	2540	8	55	1060	5	14	1180	4	13
6	2350	9	57	1070	5	14	1220	4	13
7	2100	9	51	1080	6	17	1200	4	13
8	1890	10	51	1080	6	17	1230	4	13
9	1870	10	50	1090	6	18	1280	4	14
10	1660	10	45	1100	7	21	1300	4	14
11	1480	9	36	1100	8	24	1230	4	13
12	1310	9	32	1100	9	27	1220	4	13
13	1120	8	24	1110	10	30	1230	4	13
14	1020	8	22	1090	11	32	1240	4	13
15	1000	7	19	1080	8	23	1230	4	13
16	1000	7	19	1090	6	18	1230	5	17
17	997	6	16	1130	7	21	1220	5	16
18	982	6	16	1100	7	21	1220	5	16
19	963	5	13	1130	8	24	1210	6	20
20	990	5	13	1150	7	22	1190	6	19
21	1020	4	11	1130	6	18	1150	6	19
22	1030	4	11	1100	7	21	1170	7	22
23	1070	5	14	1130	8	24	1180	7	22
24	1040	6	17	1150	7	22	1200	8	26
25	1020	6	17	1110	6	18	1180	8	25
26	1020	5	14	1100	4	12	1180	8	25
27	1030	4	11	1100	4	12	1160	9	28
28	1050	4	11	1100	4	12	1180	9	29
29	1050	4	11	1100	4	12	1220	10	33
30	1070	4	12	1180	4	13	1210	11	36
31	1070	4	12	---	---	---	1200	12	39
TOTAL	44522	---	833	33060	---	566	37430	---	589
JANUARY			FEBRUARY			MARCH			
1	1190	13	42	1160	8	25	1120	6	18
2	1190	14	45	1140	8	25	1130	8	24
3	1230	15	50	1150	7	22	1140	11	34
4	1300	16	56	1150	7	22	1130	6	18
5	1280	4	14	1150	6	19	1130	2	6.1
6	1250	8	27	1130	6	18	1440	4	16
7	1230	6	20	1210	5	16	1510	5	20
8	1240	5	17	1180	5	16	1530	7	29
9	1240	6	20	1140	6	18	1510	9	37
10	1250	8	27	1140	6	18	1360	6	22
11	1220	7	23	1140	7	22	1180	4	13
12	1210	6	20	1130	8	24	1100	4	12
13	1220	6	20	1120	10	30	1090	4	12
14	1220	7	23	1110	11	33	1120	4	12
15	1240	10	33	1130	12	37	1130	5	15
16	1290	14	49	1100	12	36	1150	6	19
17	1270	12	41	1110	12	36	1170	7	22
18	1240	11	37	1110	12	36	1630	7	31
19	1240	13	44	1100	11	33	2700	7	51
20	1230	15	50	1110	11	33	3600	12	117
21	1210	7	23	1090	11	32	5090	16	220
22	1190	19	61	1090	10	29	5330	17	245
23	1200	21	68	1090	8	24	5340	16	231
24	1180	23	73	1080	6	17	5350	15	217
25	1170	8	25	1070	6	17	5290	14	200
26	1170	8	25	1130	6	18	5250	12	170
27	1180	8	25	1120	6	18	5180	11	154
28	1180	6	19	1130	6	18	5180	10	140
29	1190	4	13	1120	6	18	5240	9	127
30	1160	5	16	---	---	---	5230	7	99
31	1160	6	19	---	---	---	5210	6	84
TOTAL	37770	---	1025	32630	---	710	86560	---	2415.1

SACRAMENTO RIVER BASIN

11407150 FEATHER RIVER NEAR GRIDLEY, CA--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	5260	5	71	975	8	21	1170	10	32
2	5190	4	56	1250	8	27	1080	9	26
3	5170	6	84	1900	9	46	1080	8	23
4	5160	8	111	1950	10	53	1060	8	23
5	5170	8	112	1980	10	53	1070	7	20
6	5200	8	112	2000	9	49	1080	9	26
7	5180	8	112	2000	8	43	1090	11	32
8	5160	8	111	1970	9	48	1080	10	29
9	5150	8	111	1910	10	52	1080	10	29
10	5140	9	125	1720	9	42	1090	10	29
11	5150	10	139	1480	8	32	1070	10	29
12	4680	8	101	1260	7	24	1080	9	26
13	4630	7	88	1090	6	18	1090	8	24
14	4600	8	99	1100	6	18	1450	11	43
15	4590	8	99	1090	6	18	3130	14	118
16	4540	9	110	1110	5	15	3950	14	149
17	4520	10	122	1090	4	12	4620	15	187
18	4360	9	106	1080	5	15	4630	12	150
19	3650	8	79	1090	6	18	4600	10	124
20	3390	8	73	1090	6	18	4620	11	137
21	2550	8	55	1080	6	17	5060	12	164
22	2270	6	37	1080	6	17	5660	10	153
23	2060	4	22	1090	7	21	5230	8	113
24	1890	5	26	1070	7	20	5200	8	112
25	1710	6	28	1070	7	20	4230	8	91
26	1510	4	16	1070	8	23	3210	8	69
27	1490	2	8.0	1070	9	26	3080	7	58
28	1470	3	12	1190	12	39	3590	4	39
29	1290	4	14	1400	16	60	4930	1	13
30	1040	6	17	1400	13	49	5020	4	54
31	---	---	---	1340	10	36	---	---	---
TOTAL	113170	---	2256.0	41995	---	950	86330	---	2122
JULY			AUGUST			SEPTEMBER			
1	5030	8	109	3330	14	126	2280	6	37
2	5030	10	136	3370	14	127	2260	5	31
3	5010	12	162	3330	13	117	2240	4	24
4	5010	12	162	3340	10	90	2250	4	24
5	5000	12	162	3340	7	63	2250	4	24
6	4970	10	134	2940	6	48	2250	5	30
7	4500	9	109	2890	6	47	2240	6	36
8	4000	8	86	2880	6	47	2250	6	36
9	3890	8	84	2480	6	40	2250	6	36
10	3860	8	83	2240	6	36	2250	7	43
11	3870	8	84	2080	6	34	2230	8	48
12	3870	9	94	2170	6	35	2230	7	42
13	3860	10	104	2150	5	29	2250	6	36
14	3860	10	104	2160	5	29	2250	8	49
15	3860	9	94	2170	5	29	2250	9	55
16	3850	10	104	2170	5	29	2280	6	37
17	3840	10	104	2170	5	29	2260	4	24
18	3440	8	74	2210	5	30	2230	4	24
19	3360	7	64	2300	5	31	2250	4	24
20	3780	7	71	2300	4	25	2250	4	24
21	4290	7	81	2280	4	25	2260	5	31
22	4340	6	70	2290	4	25	2270	6	37
23	4330	6	70	2290	5	31	2280	6	37
24	4330	6	70	2300	6	37	2260	6	37
25	4350	6	70	2290	6	37	2260	7	43
26	4360	6	71	2280	9	55	2260	8	49
27	4340	6	70	2260	12	73	2270	8	49
28	4190	6	68	2240	9	54	2300	8	50
29	3430	6	56	2260	7	43	2300	7	43
30	3340	6	54	2260	4	24	2310	7	44
31	3310	6	54	2270	5	31	---	---	---
TOTAL	128500	---	2858	77040	---	1476	67770	---	1104
YEAR	786777		16904.1						

SACRAMENTO RIVER BASIN

11407150 FEATHER RIVER NEAR GRIDLEY, CA--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE WATER (DEG C)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM
MAR									
10...	1330	1330	13.0	7	25	96	--	--	--
22...	1415	5350	10.5	16	231	78	88	90	100

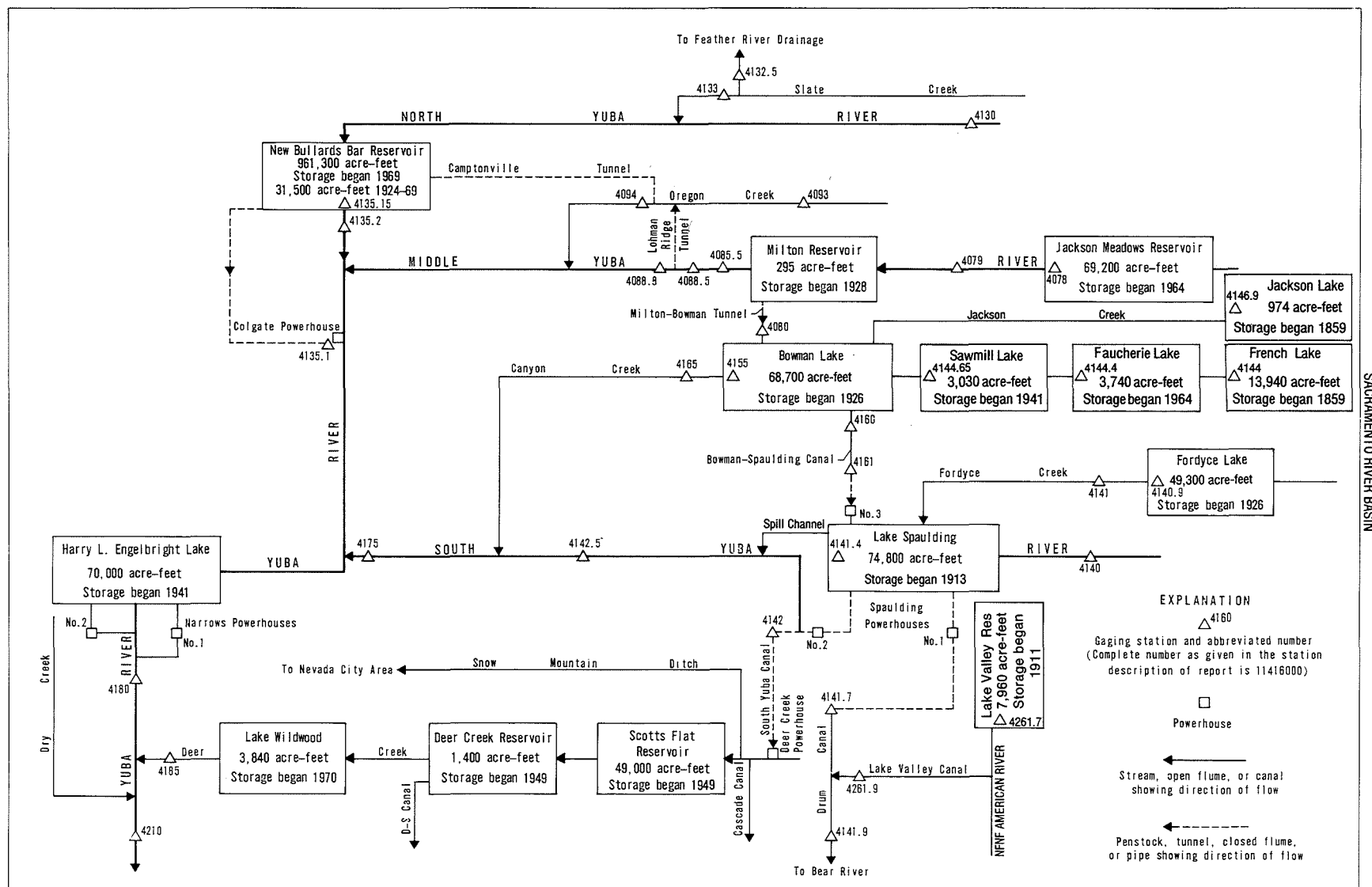


FIGURE 31--Schematic diagram showing diversions and storage in Yuba River basin.

SACRAMENTO RIVER BASIN

11407800 JACKSON MEADOWS RESERVOIR NEAR SIERRA CITY, CA

LOCATION.--Lat 39°30'33", long 120°33'08", in NW 1/4 SE 1/4 sec.18, T.19 N., R.13 E., Sierra County, Hydrologic Unit 18020125, Tahoe National Forest, on right bank at Jackson Meadows Dam on Middle Yuba River, 0.7 mi downstream from Pass Creek, and 5.7 mi southeast of Sierra City.

DRAINAGE AREA.--37.6 mi².

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Nevada Irrigation District).

REMARKS.--Reservoir is formed by an earthfill dam. Storage began Nov. 9, 1964. Usable capacity, 66,700 acre-ft between elevations 5,933.0 ft, bottom of intake tower, and 6,036.0 ft, top of radial spillway gates. Dead contents, 2,500 acre-ft. Records, including extremes, represent total contents. See schematic diagram of Yuba River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 71,000 acre-ft, several days in 1969-71, elevation, 6,037.7 ft; minimum since reservoir first filled, 2,500 acre-ft, Sept. 27-29, 1976, elevation, 5,933.1 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 34,400 acre-ft, June 1, 2, elevation, 5,998.8 ft; minimum, 17,000 acre-ft, Nov. 30, elevation, 5,973.0 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)
(Based on table provided by Nevada Irrigation District dated February 1965)

5,930	2,000	5,990	27,600
5,940	3,920	6,000	35,300
5,950	6,760	6,010	43,900
5,960	10,600	6,020	53,200
5,970	15,400	6,030	63,000
5,980	21,000	6,040	73,500

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20200	18100	17100	17600	18000	18500	22300	29800	34400	28500	23700	22900
2	20100	18000	17200	17600	18000	18500	22500	30000	34400	28200	23600	22900
3	20100	18000	17200	17700	18000	18600	22600	30200	34300	27900	23600	22900
4	20000	17900	17100	17700	18000	18700	22800	30300	34100	27600	23600	22800
5	19900	17900	17100	17700	18000	18700	23000	30400	34000	27400	23500	22800
6	19800	17800	17200	17700	18000	18800	23300	30600	33900	27100	23500	22800
7	19800	17800	17200	17800	18000	18900	23600	30700	33800	26800	23500	22800
8	19700	17700	17300	17800	18000	19000	23800	30900	33700	26600	23500	22700
9	19600	17700	17300	17800	18000	19100	24100	31000	33500	26300	23400	22700
10	19600	17700	17600	17800	18000	19200	24300	31200	33400	26000	23400	22700
11	19500	17700	17700	17900	18000	19300	24600	31400	33200	25700	23400	22600
12	19400	17600	17700	17900	18000	19400	24900	31700	33100	25500	23400	22600
13	19300	17700	17600	17900	18000	19500	25200	32000	32900	25200	23300	22500
14	19300	17600	17600	17900	18000	19500	25600	32200	32700	24900	23300	22500
15	19200	17600	17600	17900	18000	19600	25900	32500	32500	24600	23300	22500
16	19100	17600	17600	18000	18000	19600	26200	32800	32200	24400	23300	22500
17	19100	17600	17600	18000	18000	19700	26500	33100	32000	24200	23200	22400
18	19000	17500	17600	18000	18000	19800	26800	33300	31800	24100	23200	22400
19	18900	17500	17600	18000	18000	19900	27100	33500	31600	24000	23200	22400
20	18900	17500	17600	18000	18000	20100	27400	33600	31300	24000	23200	22400
21	18800	17400	17600	18000	18100	20200	27500	33700	31100	24000	23100	22400
22	18700	17400	17600	18000	18100	20400	27700	33900	30800	23900	23100	22300
23	18700	17400	17600	18000	18100	20600	27900	34000	30600	23900	23100	22300
24	18600	17300	17600	18000	18100	20800	28100	34100	30300	23900	23100	22300
25	18500	17200	17600	18000	18100	21000	28300	34100	30100	23800	23100	22300
26	18500	17200	17600	18000	18200	21300	28600	34200	29800	23800	23000	22200
27	18400	17200	17600	18000	18200	21500	28800	34100	29600	23800	23000	22200
28	18400	17100	17600	18000	18300	21700	29100	34200	29300	23800	23000	22100
29	18300	17100	17700	18000	18400	21900	29300	34300	29000	23700	23000	21800
30	18200	17000	17600	18000	---	22000	29600	34300	28700	23700	23000	21400
31	18200	---	17600	18000	---	22100	---	34300	---	23700	22900	---
MAX	20200	18100	17700	18000	18400	22100	29600	34300	34400	28500	23700	22900
MIN	18200	17000	17100	17600	18000	18500	22300	29800	28700	23700	22900	21400
a	5975.1	5973.0	5974.2	5974.8	5975.5	5981.8	5992.6	5998.7	5991.6	5984.2	5983.0	5980.7
b	-2100	-1200	+600	+400	+400	+3700	+7500	+4700	-5600	-5000	-800	-1500

CAL YR 1987 MAX 43900 MIN 17000 b -12400
WTR YR 1988 MAX 34400 MIN 17000 b +1100

a Elevation, in feet, at end of month.
b Change in contents, in acre-feet.

LOCATION.--Lat 39°27'37", long 120°36'37", in NW 1/4 NE 1/4 sec.3, T.18 N., R.12 E., Nevada County, Hydrologic Unit 18020125, on right bank 100 ft downstream from transect outlet near upper end of Bowman Lake, and 6.9 mi east of Graniteville.

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 5,592.51 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 22, 1964, at datum 0.56 ft higher.

REMARKS.--No estimated daily discharges. Records excellent. Tunnel diverts from Middle Yuba River at Milton Reservoir, in sec.12, T.19 N., R.12 E., and discharges into Bowman Lake. Nearly the entire flow of Middle Yuba River is diverted during low and medium flows. Middle Yuba River is regulated by Jackson Meadows Reservoir (station 11407800) since November 1964. See schematic diagram of Yuba River basin.

AVERAGE DISCHARGE.--60 years, 73.8 ft³/s, 53,470 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 492 ft³/s, Feb. 11, 1941; minimum daily, 0.4 ft³/s, Oct. 7, 1944.

[illegible]

SACRAMENTO RIVER BASIN

11408550 MIDDLE YUBA RIVER BELOW MILTON DAM, NEAR SIERRA CITY, CA

LOCATION.--Lat 39°31'19", long 120°34'57", in SW 1/4 SW 1/4 sec.12, T.19 N., R.12 E., Sierra County, Hydrologic Unit 18020125, Tahoe National Forest, on right bank 350 ft downstream from Milton Dam, and 4.1 mi southeast of Sierra City.

DRAINAGE AREA.--40.0 mi².

PERIOD OF RECORD.--October 1987 to September 1988. Unpublished records for water years 1965-87 available in files of U.S. Geological Survey.

GAGE.--Water-stage recorder, sharp-crested weir, and crest-stage gage. Elevation of gage is 5,690 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to October 1987, nonrecording gage 450 ft downstream at different datum.

REMARKS.--Estimated daily discharges: Oct. 1-30. Records good. Middle Yuba River is regulated by Jackson Meadows Reservoir (station 11407800) since November 1964 and Milton Dam. Tunnel diverts from Middle Yuba River at Milton Dam, in sec.12, T.19 N., R.12 E., and discharges into Bowman Lake. Practically the entire flow of Middle Yuba River is diverted during low and medium flows. See schematic diagram of Yuba River basin.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4.4 ft³/s, Aug. 23, gage height, 4.77 ft; minimum daily, 3.3 ft³/s, many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	3.9	3.8	3.9	4.0	4.2	3.8	3.5	3.7	3.4	3.3	3.7
2	3.8	3.9	3.9	3.9	4.0	4.2	3.8	3.5	3.7	3.4	3.3	3.7
3	3.8	3.9	3.9	3.9	4.0	4.2	3.8	3.5	3.7	3.4	3.3	3.7
4	3.8	3.9	3.9	3.9	4.0	4.2	3.8	3.5	3.9	3.4	3.3	3.7
5	3.7	3.9	3.9	3.9	4.0	4.2	3.8	3.5	4.2	3.4	3.3	3.7
6	3.7	3.8	4.0	3.9	4.0	4.2	3.8	3.5	4.2	3.4	3.3	3.7
7	3.7	3.8	3.9	3.9	4.0	4.2	3.8	3.5	4.2	3.4	3.3	3.7
8	3.7	3.8	3.9	3.9	4.0	4.2	3.8	3.5	4.2	3.4	3.3	3.7
9	3.7	3.8	3.9	3.9	4.0	4.2	3.7	3.5	4.2	3.4	3.4	3.7
10	3.7	3.8	4.1	3.9	4.0	4.2	3.7	3.6	4.2	3.4	3.4	3.7
11	3.7	3.8	4.1	3.9	4.0	4.2	3.7	3.6	4.1	3.4	3.4	3.7
12	3.8	3.8	4.0	3.9	4.0	4.2	3.7	3.6	4.0	3.4	3.4	3.7
13	3.8	3.9	3.9	3.9	4.0	4.2	3.7	3.6	4.0	3.4	3.4	3.7
14	3.8	3.9	3.9	3.9	4.0	4.1	3.8	3.6	4.0	3.4	3.4	3.7
15	3.8	3.9	3.9	4.0	4.0	4.1	3.8	3.6	4.0	3.4	3.4	3.7
16	3.8	3.9	3.9	4.0	4.0	4.1	3.7	3.6	4.0	3.4	3.4	3.7
17	3.7	3.9	3.9	4.0	4.0	4.1	3.7	3.6	4.0	3.4	3.4	3.7
18	3.7	3.9	3.9	4.0	4.0	4.1	3.7	3.6	3.9	3.4	3.4	3.7
19	3.7	3.9	3.9	4.0	4.0	4.1	3.6	3.6	3.9	3.3	3.4	3.7
20	3.6	3.9	3.9	4.0	4.0	4.1	3.6	3.6	3.9	3.3	3.4	3.7
21	3.6	3.9	3.9	4.0	4.0	4.1	3.6	3.7	3.7	3.3	3.4	3.7
22	3.6	3.9	3.9	4.0	4.0	4.1	3.6	3.7	3.3	3.3	3.4	3.7
23	3.6	3.8	3.9	4.0	4.0	4.0	3.6	3.7	3.3	3.3	3.7	3.7
24	3.6	3.8	3.9	4.0	4.0	4.0	3.6	3.7	3.3	3.3	3.7	3.7
25	3.6	3.8	3.9	4.0	4.0	4.0	3.6	3.7	3.3	3.3	3.7	3.7
26	3.6	3.8	3.9	4.0	4.0	4.0	3.6	3.7	3.3	3.4	3.7	3.7
27	3.6	3.8	3.9	4.0	4.0	4.0	3.6	3.7	3.3	3.4	3.7	3.7
28	3.6	3.8	3.9	4.0	4.1	3.8	3.5	3.7	3.3	3.4	3.7	3.7
29	3.6	3.8	3.9	4.0	4.2	3.8	3.5	3.7	3.3	3.3	3.7	3.7
30	3.9	3.8	3.9	4.0	---	3.8	3.5	3.7	3.4	3.3	3.7	3.7
31	3.9	---	3.9	4.0	---	3.8	---	3.7	---	3.3	3.7	---
TOTAL	115.0	115.5	121.4	122.6	116.3	126.7	110.5	111.8	113.5	104.4	107.3	111.0
MEAN	3.71	3.85	3.92	3.95	4.01	4.09	3.68	3.61	3.78	3.37	3.46	3.70
MAX	3.9	3.9	4.1	4.0	4.2	4.2	3.8	3.7	4.2	3.4	3.7	3.7
MIN	3.6	3.8	3.8	3.9	4.0	3.8	3.5	3.5	3.3	3.3	3.3	3.7
AC-FT	228	229	241	243	231	251	219	222	225	207	213	220

WTR YR 1988 TOTAL 1376.0 MEAN 3.76 MAX 4.2 MIN 3.3 AC-FT 2730

LOCATION.--Lat 39°25'01", long 120°57'06", in SW 1/4 SE 1/4 sec.15, T.18 N., R.9 E., Sierra County, Hydrologic Unit 18020125, Tahoe National Forest, on right bank 0.6 mi downstream from Kanaka Creek, and 5.8 mi southeast of Camptonville.

PERIOD OF RECORD.--August 1967 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2,170 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Natural flow of stream affected by Jackson Meadows Reservoir since November 1964 (station 11407800), Milton-Bowman tunnel (station 11408000) which diverts above station to Bowman Lake (station 11415500), and other small diversions above station. See schematic diagram of Yuba River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,600 ft³/s, Feb. 17, 1986, gage height, 17.90 ft, from crest-stage gage, from rating curve extended above 8,000 ft³/s; minimum daily, 11 ft³/s, July 29, Aug. 17, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,240 ft³/s, Dec. 10, gage height, 8.14 ft; minimum daily, 17 ft³/s, Sept. 12, 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	27	112	74	189	357	131	193	99	42	27	19
2	20	27	404	74	172	289	130	181	101	41	26	19
3	21	26	201	247	158	256	135	169	89	40	26	18
4	21	26	98	403	147	239	138	160	85	39	26	18
5	21	25	75	427	139	227	136	150	82	38	26	18
6	21	26	206	301	134	221	139	143	83	38	26	18
7	20	27	301	218	131	214	149	147	92	38	25	18
8	20	28	164	210	129	204	153	144	95	37	25	18
9	21	34	353	247	136	213	142	130	91	36	25	18
10	21	33	1010	321	145	203	141	123	85	36	25	18
11	22	29	536	566	164	188	147	122	80	35	25	18
12	26	27	263	341	168	175	154	131	77	34	24	17
13	24	46	181	251	167	165	160	148	74	34	24	17
14	23	60	142	212	163	158	196	139	72	33	24	18
15	22	37	122	258	163	154	183	135	68	33	23	19
16	22	31	118	251	164	147	166	136	66	33	23	18
17	22	32	111	237	154	139	164	162	63	32	23	18
18	21	34	98	199	147	136	158	140	61	31	22	18
19	21	31	94	172	139	140	267	123	58	30	22	18
20	21	32	85	155	134	147	293	116	56	29	21	20
21	21	45	81	147	135	153	235	112	54	29	21	20
22	22	36	138	143	137	149	210	111	52	28	21	20
23	29	32	120	146	141	154	206	107	51	28	20	19
24	33	31	98	162	141	166	206	100	49	29	21	19
25	29	31	89	170	141	160	199	95	52	29	20	19
26	26	29	84	180	145	164	204	91	53	31	19	19
27	24	28	78	182	152	175	218	87	47	32	19	19
28	26	28	86	184	159	163	221	93	45	34	19	19
29	37	28	92	198	200	152	211	126	44	29	19	19
30	31	33	85	245	---	145	205	110	43	28	18	18
31	28	---	76	210	---	138	---	99	---	28	18	---
TOTAL	738	959	5701	7131	4394	5691	5397	4023	2067	1034	703	554
MEAN	23.8	32.0	184	230	152	184	180	130	68.9	33.4	22.7	18.5
MAX	37	60	1010	566	200	357	293	193	101	42	27	20
MIN	20	25	75	74	129	136	130	87	43	28	18	17
AC-FT	1460	1900	11310	14140	8720	11290	10700	7980	4100	2050	1390	1100
CAL YR 1987	TOTAL 37960											
WTR YR 1988	TOTAL 38392											
			MEAN 104	MAX 1690	MIN 20	AC-FT 75290						
			MEAN 105	MAX 1								

SACRAMENTO RIVER BASIN

11408880 MIDDLE YUBA RIVER BELOW OUR HOUSE DAM, NEAR CAMPTONVILLE, CA

LOCATION.--Lat 39°24'42", long 120°59'49", in SW 1/4 NW 1/4 sec.20, T.18 N., R.9 E., Sierra County, Hydrologic Unit 18020125, Tahoe National Forest, on right bank 400 ft downstream from Our House Dam, and 4.0 mi southeast of Camptonville.

DRAINAGE AREA.--145 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 1,957.51 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 4, 1970, at datum 10.0 ft higher.

REMARKS.--No estimated daily discharges. Records good. Natural flow of stream affected by Jackson Meadows Reservoir (station 11407800), Milton-Bowman tunnel (station 11408000) which diverts above station to Bowman Lake (station 11415500), and Lohman Ridge tunnel which diverts 400 ft upstream to Oregon Creek and then to New Bullards Bar Reservoir via Camptonville tunnel. Other small diversions above station. See schematic diagram of Yuba River basin.

AVERAGE DISCHARGE.--20 years, 140 ft³/s, 101,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,600 ft³/s, Feb. 17, 1986, gage height, 27.4 ft, from floodmark, present datum, from rating curve extended above 8,600 ft³/s on basis of theoretical rating of Our House Dam spillway; minimum daily, 2.1 ft³/s, Jan. 10, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,940 ft³/s, Dec. 10, gage height, 13.80 ft; minimum daily, 18 ft³/s, for several days in September.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	26	38	39	40	36	34	54	52	35	25	19
2	20	26	265	39	40	35	34	54	53	35	24	19
3	21	26	271	42	39	35	34	54	53	35	24	19
4	21	25	121	44	38	34	33	53	53	35	23	19
5	21	24	84	44	38	34	33	53	53	35	23	19
6	21	24	209	42	38	34	33	52	53	35	23	18
7	20	26	350	40	38	34	33	53	53	35	22	18
8	20	26	215	40	38	34	33	53	53	35	22	18
9	20	31	396	40	38	34	33	53	54	35	22	18
10	20	34	1190	41	38	34	33	53	54	35	22	19
11	21	31	581	43	39	34	33	54	54	35	22	19
12	24	26	220	40	38	34	40	54	54	34	22	19
13	25	33	41	38	36	34	46	54	53	33	22	18
14	24	41	40	38	36	34	53	53	54	33	22	18
15	23	41	40	39	36	33	56	54	55	33	22	19
16	23	33	40	38	36	33	56	53	45	32	22	19
17	22	30	40	39	36	33	56	54	36	31	22	20
18	21	33	41	38	35	34	56	53	35	29	21	20
19	21	31	41	38	35	34	58	53	35	28	21	20
20	21	30	41	38	35	34	59	53	35	27	20	20
21	21	36	40	38	34	34	58	53	35	27	20	21
22	21	37	41	38	34	35	56	53	35	27	20	21
23	28	35	40	38	33	35	55	53	35	27	20	22
24	33	31	40	38	33	35	55	53	35	27	20	23
25	28	30	40	38	33	35	55	53	36	27	20	22
26	26	29	40	38	33	35	55	53	35	27	20	22
27	24	28	40	38	33	35	56	52	35	28	20	22
28	24	27	39	38	33	35	56	52	35	31	19	22
29	30	26	39	39	34	34	55	53	35	27	19	21
30	38	30	39	40	---	34	54	53	35	27	19	21
31	27	---	39	40	---	34	---	53	---	26	19	---
TOTAL	729	906	4701	1223	1047	1062	1401	1648	1338	966	662	595
MEAN	23.5	30.2	152	39.5	36.1	34.3	46.7	53.2	44.6	31.2	21.4	19.8
MAX	38	41	1190	44	40	36	59	54	55	35	25	23
MIN	20	24	38	38	33	33	33	52	35	26	19	18
AC-FT	1450	1800	9320	2430	2080	2110	2780	3270	2650	1920	1310	1180

CAL YR 1987 TOTAL 16181.2 MEAN 44.3 MAX 1190 MIN 7.1 AC-FT 32100 a 49110
WTR YR 1988 TOTAL 16278 MEAN 44.5 MAX 1190 MIN 18 AC-FT 32290 a 50860

a Lohman Ridge tunnel diversion, in acre-feet, to Oregon Creek. Flow through diversion is computed from upstream and downstream flow records adjusted for runoff from ungaged drainage area. Records poor.

SACRAMENTO RIVER BASIN

11409300 OREGON CREEK AT CAMPTONVILLE, CA

LOCATION.--Lat 39°26'46", long 121°02'43", in SE 1/4 NE 1/4 sec.11, T.18 N., R.8 E., Yuba County, Hydrologic Unit 18020125, Tahoe National Forest, on right bank 25 ft downstream from county bridge, 0.5 mi southeast of Camptonville, and 5.5 mi upstream from mouth.

DRAINAGE AREA.--23.0 mi².

PERIOD OF RECORD.--August 1967 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,230 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: July 16, 17, 19, 23, Aug. 11, 13-25, and Sept. 3. Records good. No regulation or diversion above station. Swimmers often build dams on control during summer months. See schematic diagram of Yuba River basin.

AVERAGE DISCHARGE.--21 years, 69.5 ft³/s, 50,350 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,550 ft³/s, Feb. 17, 1986, gage height, 11.56 ft, from rating curve extended above 1,600 ft³/s; minimum daily, 0.53 ft³/s, Aug. 14-16, 1977, Sept. 6, 1988.

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)
Dec. 10	1345	*406	*5.59				
Minimum daily, 0.53 ft ³ /s, Sept. 6.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.93	1.9	34	15	77	110	21	36	14	4.1	1.2	.59
2	.93	2.0	153	15	68	99	20	33	13	3.9	1.1	.57
3	.93	1.9	58	84	60	84	20	30	12	3.7	1.0	.57
4	.92	1.8	23	161	54	75	20	28	11	3.5	1.1	.55
5	.92	1.7	16	169	50	68	18	27	11	3.4	1.0	.54
6	.92	1.9	45	112	46	63	18	26	11	3.4	1.0	.53
7	.92	2.2	81	83	43	59	17	30	14	3.3	1.0	.55
8	.94	2.1	43	80	41	54	17	29	13	3.2	1.0	.55
9	.98	2.9	141	107	40	52	16	26	11	3.1	1.0	.58
10	1.0	3.1	318	133	40	49	15	24	11	2.9	.98	.60
11	1.1	2.3	159	260	42	47	15	22	9.9	2.8	.95	.59
12	1.2	2.1	89	152	44	45	14	21	9.4	2.7	.92	.57
13	1.3	10	60	111	44	42	14	22	8.8	2.6	.87	.55
14	1.3	10	45	92	42	39	18	20	8.3	2.6	.82	.55
15	1.3	4.0	37	114	42	37	16	19	7.8	2.5	.83	.59
16	1.2	2.9	35	104	41	34	15	18	7.6	2.4	.84	.63
17	1.2	3.0	31	90	40	32	15	21	7.2	2.3	.85	.65
18	1.2	3.1	25	76	38	31	14	19	6.9	2.2	.80	.65
19	1.2	2.7	23	65	36	29	44	17	6.5	1.9	.81	.65
20	1.2	3.1	20	58	34	29	65	16	6.1	1.9	.76	.69
21	1.2	6.7	19	53	33	29	52	15	5.8	1.7	.70	.76
22	1.3	4.3	40	50	33	29	44	14	5.8	1.6	.69	.93
23	2.2	3.4	37	50	32	29	44	14	5.6	1.6	.69	.82
24	2.7	2.9	30	52	32	29	43	13	5.3	1.6	.70	.81
25	2.2	2.8	25	54	31	28	40	12	5.6	1.6	.68	.81
26	1.8	2.7	22	55	31	27	39	12	5.4	1.7	.66	.84
27	1.6	2.5	20	56	32	27	38	11	4.9	1.7	.64	.88
28	1.7	2.5	21	57	34	27	39	13	4.7	1.6	.62	.90
29	1.8	2.4	21	68	42	25	38	19	4.4	1.3	.61	.82
30	3.1	4.9	18	103	---	23	38	15	4.2	1.3	.60	.77
31	2.2	---	16	88	---	22	---	13	---	1.3	.61	---
TOTAL	43.39	99.8	1705	2767	1222	1373	827	635	251.2	75.4	26.03	20.09
MEAN	1.40	3.33	55.0	89.3	42.1	44.3	27.6	20.5	8.37	2.43	.84	.67
MAX	3.1	10	318	260	77	110	65	36	14	4.1	1.2	.93
MIN	.92	1.7	16	15	31	22	14	11	4.2	1.3	.60	.53
AC-FT	86	198	3380	5490	2420	2720	1640	1260	498	150	52	40

CAL YR 1987 TOTAL 7657.45 MEAN 21.0 MAX 450 MIN .82 AC-FT 15190
WTR YR 1988 TOTAL 9044.91 MEAN 24.7 MAX 318 MIN .53 AC-FT 17940

SACRAMENTO RIVER BASIN

11409400 OREGON CREEK BELOW LOG CABIN DAM, NEAR CAMPTONVILLE, CA

LOCATION.--Lat 39°26'22", long 121°03'29", in SW 1/4 SW 1/4 sec.11, T.18 N., R.8 E., Yuba County, Hydrologic Unit 18020125, Tahoe National Forest, on left bank 500 ft downstream from Log Cabin Dam, 670 ft upstream from High Point Ravine, and 1.1 mi southwest of Camptonville.

DRAINAGE AREA.--29.1 mi².

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

REVISED RECORDS.--WDR CA-81-4: 1980(M).

GAGE.--Water-stage recorder. Datum of gage is 1,919.96 ft above National Geodetic Vertical Datum of 1929 (levels by Yuba County Water Agency). Prior to July 24, 1973, at site 470 ft downstream at datum 8.40 ft lower. July 24, 1973, to Sept. 30, 1986, at site on right bank at current datum.

REMARKS.--No estimated daily discharges. Records good. Lohman Ridge tunnel diverts water into the basin from the Middle Yuba River. Camptonville tunnel, maximum capacity, about 1,000 ft³/s, 520 ft upstream, diverts water out of the basin to New Bullards Bar Reservoir (station 11413515); diversion began October 1968. See schematic diagram showing diversions and storage in Yuba River basin.

AVERAGE DISCHARGE.--20 years, 33.1 ft³/s, 23,980 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,400 ft³/s, Feb. 17, 1986, gage height, 11.24 ft, datum then in use, from rating curve extended above 50 ft³/s based on flow-over-dam computation; minimum daily, 0.34 ft³/s, Sept. 18, 1972.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21 ft³/s, Jan. 11, gage height, 4.34 ft, from rating curve extended above 20 ft³/s based on flow-over-dam computation; minimum daily, 0.82 ft³/s, Sept. 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	3.6	16	16	12	11	9.7	13	14	9.0	2.2	1.1
2	2.0	3.6	19	16	12	11	9.4	13	14	8.9	2.0	1.0
3	2.0	3.4	17	18	11	11	9.3	13	14	8.7	2.0	1.1
4	2.0	3.2	16	20	12	10	9.3	13	13	8.1	1.9	.94
5	2.0	3.2	15	20	12	10	9.3	13	13	7.6	1.9	.89
6	2.0	3.3	16	19	11	10	9.3	13	13	7.4	1.9	.92
7	2.0	3.9	16	18	11	10	9.3	13	13	7.1	1.9	.86
8	2.0	3.7	16	17	11	9.9	9.2	13	14	6.6	2.0	.82
9	2.1	4.8	17	16	11	9.7	9.3	13	14	5.8	2.0	.93
10	2.1	5.3	19	16	11	9.8	9.4	13	13	5.1	1.9	.89
11	2.3	4.2	18	19	12	9.6	9.3	13	13	4.6	1.8	.92
12	2.3	3.8	18	16	11	9.7	9.9	12	13	4.0	1.8	.86
13	2.6	9.7	18	13	11	9.3	11	13	13	4.1	1.7	1.2
14	2.7	14	18	12	10	9.3	13	13	13	4.1	1.7	1.2
15	2.6	8.5	18	12	10	9.3	14	13	12	4.1	1.8	1.3
16	2.6	5.1	17	12	10	9.3	14	12	11	3.9	1.8	1.5
17	2.5	5.2	17	12	9.9	9.3	14	13	9.5	3.6	1.8	1.5
18	2.5	5.4	16	11	9.7	9.3	14	13	10	3.4	1.8	1.5
19	2.5	4.8	16	11	9.9	9.3	14	13	10	3.2	1.8	1.6
20	2.5	5.3	16	13	10	9.3	15	13	10	3.2	1.7	1.6
21	2.5	12	16	13	10	9.3	14	13	9.9	2.8	1.6	1.6
22	2.6	8.9	17	13	10	9.4	14	13	10	2.8	1.8	1.8
23	4.1	5.6	16	12	10	9.3	13	14	9.9	2.6	2.1	1.9
24	4.8	5.2	16	12	10	9.3	12	13	9.7	2.2	1.7	1.8
25	3.9	5.0	16	12	10	9.3	13	13	9.6	1.9	1.5	1.9
26	3.4	4.7	16	12	9.7	9.3	13	14	9.8	3.2	1.4	1.9
27	3.2	4.6	16	12	9.7	9.3	13	14	9.6	3.2	1.3	1.9
28	3.2	4.4	16	12	9.7	9.3	13	14	11	6.0	1.2	2.0
29	3.1	4.4	16	12	9.7	9.3	13	14	11	2.4	1.2	2.0
30	6.0	7.8	16	12	---	9.3	13	14	9.7	2.2	1.2	1.8
31	4.1	---	16	12	---	9.6	---	14	---	2.2	1.2	---
TOTAL	86.3	166.6	516	441	306.3	298.8	352.7	408	349.7	144.0	53.6	41.23
MEAN	2.78	5.55	16.6	14.2	10.6	9.64	11.8	13.2	11.7	4.65	1.73	1.37
MAX	6.0	14	19	20	12	11	15	14	14	9.0	2.2	2.0
MIN	2.0	3.2	15	11	9.7	9.3	9.2	12	9.5	1.9	1.2	.82
AC-FT	171	330	1020	875	608	593	700	809	694	286	106	82

CAL YR 1987 TOTAL 5007.2 MEAN 13.7 MAX 279 MIN 1.8 AC-FT 9930 a 58400
WTR YR 1988 TOTAL 3164.23 MEAN 8.65 MAX 20 MIN .82 AC-FT 6280 a 67270

a Camptonville tunnel diversion, in acre-feet, to New Bullards Bar Reservoir. Flow through diversion is computed from upstream and downstream flow records adjusted for runoff from ungaged drainage area. Records poor.

SACRAMENTO RIVER BASIN

11413000 NORTH YUBA RIVER BELOW GOODYEARS BAR, CA

LOCATION.--Lat 39°31'30", long 120°56'13", in NE 1/4 SW 1/4 sec.11, T.19 N., R.9 E., Sierra County, Hydrologic Unit 18020125, Tahoe National Forest, on right bank 200 ft downstream from St. Catherine Creek, 3.1 mi southwest of Goodyears Bar, and 6.4 mi southwest of Downieville.

DRAINAGE AREA.--250 mi².

PERIOD OF RECORD.--October 1930 to current year. Prior to October 1949, published as North Fork Yuba River below Goodyears Bar. Monthly and yearly discharge only for some periods, published in WSP 1315-A.

REVISED RECORDS.--WSP 1041: 1944. WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,453 ft above National Geodetic Vertical Datum of 1929 (river-profile survey).

REMARKS.--No estimated daily discharges. Records good. Several small diversions above station for irrigation and mining. See schematic diagram of Yuba River basin.

AVERAGE DISCHARGE.--58 years, 761 ft³/s, 551,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,000 ft³/s, Feb. 1, 1963, gage height, 25.8 ft, from floodmarks, from rating curve extended above 8,500 ft³/s on basis of one float measurement at 17,900 ft³/s and slope-area measurements at gage heights 19.15 and 23.8 ft; minimum daily, 60 ft³/s, Sept. 7-14, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 10	1715	*3,410	*8.08				

Minimum daily, 81 ft³/s, Sept. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	92	101	286	191	383	720	412	581	446	159	109	86
2	91	103	1190	194	350	595	438	547	418	155	107	85
3	91	102	620	288	323	554	485	524	351	152	105	85
4	91	99	317	500	306	534	466	519	327	150	105	84
5	91	98	260	563	293	531	476	493	312	148	105	83
6	91	99	696	440	285	540	521	462	313	147	104	82
7	91	102	698	354	278	521	574	463	337	145	104	82
8	92	98	407	340	279	509	563	451	336	142	102	82
9	92	120	593	372	291	575	500	429	343	140	101	83
10	93	110	2460	475	303	520	512	431	302	137	100	83
11	93	102	1350	789	330	475	559	476	281	135	100	82
12	103	98	691	535	349	441	593	541	269	133	99	81
13	106	175	483	431	356	419	619	606	258	132	98	83
14	99	199	387	383	349	411	730	552	249	131	98	84
15	97	130	342	434	357	413	646	560	240	129	98	85
16	97	119	326	439	364	391	616	575	233	128	99	84
17	96	123	291	407	343	381	626	647	226	124	98	84
18	95	132	265	356	332	389	612	544	218	120	96	83
19	95	121	256	321	315	425	739	500	209	118	94	84
20	94	122	240	300	311	467	694	476	202	116	93	90
21	94	135	235	290	320	495	601	464	194	115	92	91
22	96	123	294	280	329	448	562	463	191	115	92	90
23	109	118	259	285	340	490	532	443	184	115	91	88
24	124	115	226	300	349	515	567	412	179	114	91	89
25	109	115	219	314	359	514	568	386	196	117	90	89
26	102	109	218	328	372	556	616	363	188	136	89	90
27	100	109	210	339	404	615	678	342	175	140	88	90
28	105	109	219	347	431	516	704	355	169	122	88	88
29	113	109	226	394	518	475	684	483	166	115	87	86
30	107	123	208	485	---	464	648	400	163	113	87	85
31	103	---	194	423	---	424	---	369	---	112	86	---
TOTAL	3052	3518	14666	11897	9919	15323	17541	14857	7675	4055	2996	2561
MEAN	98.5	117	473	384	342	494	585	479	256	131	96.6	85.4
MAX	124	199	2460	789	518	720	739	647	446	159	109	91
MIN	91	98	194	191	278	381	412	342	163	112	86	81
AC-FT	6050	6980	29090	23600	19670	30390	34790	29470	15220	8040	5940	5080

CAL YR 1987 TOTAL 122441 MEAN 335 MAX 3370 MIN 91 AC-FT 242900
WTR YR 1988 TOTAL 108060 MEAN 295 MAX 2460 MIN 81 AC-FT 214300

SACRAMENTO RIVER BASIN

11413250 SLATE CREEK TUNNEL NEAR STRAWBERRY VALLEY, CA

LOCATION.--Lat 39°36'57", long 121°03'03", in SE 1/4 SW 1/4 sec.2, T.20 N., R.8 E., Plumas County, Hydrologic Unit 18020125, Plumas National Forest, on right bank 30 ft upstream from diversion dam on Slate Creek, 0.3 mi upstream from Fenev Ravine, and 4.5 mi northeast of town of Strawberry Valley.

PERIOD OF RECORD.--October 1966 to current year. Records of daily discharge for December 1961 to September 1966 are in files of U.S. Geological Survey. Monthly diversion used to adjust Slate Creek below diversion dam near Strawberry Valley (station 11413300) since February 1962.

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

REMARKS.--Estimated daily discharges: July 22 to Aug. 4. Tunnel diverts water from Slate Creek to Sly Creek Reservoir (station 11395400) for power development. See schematic diagrams of South Fork Feather and Yuba River basins.

COOPERATION.--Records provided by Oroville-Wyandotte Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--22 years, 93.9 ft³/s, 68,030 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 863 ft³/s, Apr. 6, 1963; no flow many days in each year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	143	31	125	606	117	197	95	14	.32	.00
2	.00	.00	502	33	105	458	119	175	80	13	.22	.00
3	.00	.00	231	44	93	369	130	161	65	12	.17	.00
4	.00	.00	87	95	85	330	128	150	58	12	.07	.00
5	.00	.00	81	159	81	307	126	138	54	11	.01	.00
6	.00	.00	406	127	79	297	132	131	54	11	.00	.00
7	.00	.00	309	97	77	275	139	139	73	10	.00	.00
8	.00	.00	148	84	81	260	130	138	76	9.4	.00	.00
9	.00	.00	266	95	90	284	115	125	66	8.7	.00	.00
10	.00	.00	749	156	104	242	114	118	57	8.0	.00	.00
11	.00	.00	592	321	133	214	119	118	52	7.4	.00	.00
12	.00	.00	304	208	149	191	122	123	48	7.1	.00	.00
13	.00	25	198	156	151	173	126	134	44	6.8	.00	.00
14	.00	20	149	132	144	165	172	114	40	6.4	.00	.00
15	.00	2.8	122	130	149	158	137	109	38	6.0	.00	.00
16	.00	.00	105	116	150	144	126	112	36	5.8	.00	.00
17	.00	.00	82	113	136	138	127	124	34	5.2	.00	.00
18	.00	.00	69	91	128	143	128	99	31	4.8	.00	.00
19	.00	.00	63	81	119	159	253	90	29	4.7	.00	.00
20	.00	.00	54	75	118	171	226	83	27	7.6	.00	.00
21	.00	.00	52	72	126	177	209	79	25	7.2	.00	.00
22	.00	.00	69	69	133	166	205	76	24	4.0	.00	.00
23	.00	.00	49	68	140	180	198	71	22	3.4	.00	.00
24	.00	.00	37	74	144	179	227	65	21	3.1	.00	.00
25	.00	.00	43	79	151	175	228	60	27	2.8	.00	.00
26	.00	.00	42	83	163	189	247	56	23	2.6	.00	.00
27	.00	.00	39	88	185	195	261	52	19	4.8	.00	.00
28	.00	.00	40	95	220	164	264	62	17	2.1	.00	.00
29	.00	.00	39	119	325	148	250	91	16	1.6	.00	.00
30	.00	1.8	34	160	---	137	231	66	15	1.1	.00	.00
31	.00	---	26	140	---	124	---	57	---	.70	.00	---
TOTAL	0.00	50.60	5130	3391	3884	6918	5106	3313	1266	204.30	0.79	0.00
MEAN	.00	1.69	165	109	134	223	170	107	42.2	6.59	.025	.00
MAX	.00	26	749	321	325	606	264	197	95	14	.32	.00
MIN	.00	.00	26	31	77	124	114	52	15	.70	.00	.00
AC-FT	.0	100	10180	6730	7700	13720	10130	6570	2510	405	1.6	.0

CAL YR 1987 TOTAL 27241.60 MEAN 74.6 MAX 811 MIN .00 AC-FT 54030
WTR YR 1988 TOTAL 29263.69 MEAN 80.0 MAX 749 MIN .00 AC-FT 58040

SACRAMENTO RIVER BASIN

11413300 SLATE CREEK BELOW DIVERSION DAM, NEAR STRAWBERRY VALLEY, CA

LOCATION.--Lat 39°36'52", long 121°03'04", in SE 1/4 SW 1/4 sec.2, T.20 N., R.8 E., Plumas County, Hydrologic Unit 18020125, Plumas National Forest, on right bank 300 ft downstream from diversion dam, 0.2 mi upstream from Feney Ravine, and 4.5 mi northeast of town of Strawberry Valley.

DRAINAGE AREA.--49.4 mi².

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

GAGE.--Water-stage recorder and 130° V-notch weir since October 1982. Elevation of gage is 3,570 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharge: July 21. Slate Creek tunnel (station 11413250) diverts up to 900 ft³/s from Slate Creek Reservoir, capacity, 223 acre-ft, at diversion dam 300 ft upstream, to Sly Creek Reservoir (station 11395400). Diversion began in February 1962. See schematic diagrams of South Fork Feather and Yuba River basins.

AVERAGE DISCHARGE (adjusted for diversion to Slate Creek tunnel).--28 years, 210 ft³/s, 152,100 acre-ft/yr.

COOPERATION.--Records provided by Oroville-Wyandotte Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Creek only: Maximum discharge, 13,600 ft³/s, Feb. 17, 1986, gage height, 16.89 ft, from rating curve extended above 5,500 ft³/s on basis of computed flow over dam at gage heights 12.75, 15.90, and 16.89 ft; minimum, 0.3 ft³/s, Mar. 4, 5, 1962.
Combined flow: Maximum discharge, 13,900 ft³/s, Dec. 22, 1964; minimum daily, 2.3 ft³/s, Nov. 23, 1961.

EXTREMES FOR CURRENT YEAR.--Creek only: Maximum discharge, 1,050 ft³/s, Dec. 10, gage height, 7.93 ft; minimum daily, 1.3 ft³/s, Dec. 14, 15.
Combined flow: Maximum discharge, 1,820 ft³/s, Dec. 10; minimum daily, 5.7 ft³/s, several days in October.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.8	7.5	11	11	12	14	11	11	11	11	11	7.6
2	5.7	12	136	11	12	12	11	11	11	11	11	7.6
3	5.7	11	42	12	12	11	11	11	11	11	11	7.5
4	5.8	8.5	15	13	11	11	11	11	11	11	11	7.4
5	5.7	7.8	13	13	11	11	11	11	11	11	11	7.3
6	5.7	8.5	76	12	11	11	11	11	11	11	11	7.1
7	5.7	8.9	12	11	11	11	11	11	11	11	11	7.1
8	5.7	8.4	11	11	11	11	11	11	11	11	11	7.1
9	5.8	13	12	12	11	11	11	11	11	11	10	7.1
10	5.8	12	386	12	11	11	11	11	11	11	10	7.1
11	5.8	9.1	15	13	12	11	11	11	11	11	10	7.1
12	7.9	8.4	1.4	12	12	11	11	11	11	11	10	6.8
13	9.9	11	1.4	12	12	11	11	11	11	11	9.9	7.0
14	7.3	10	1.3	12	12	11	11	11	11	11	10	7.1
15	6.6	10	1.3	12	12	11	11	11	11	11	10	7.1
16	6.6	11	5.9	12	11	11	11	11	11	11	9.9	7.1
17	6.5	12	11	12	11	11	11	11	11	11	9.7	7.0
18	6.4	12	11	11	11	11	11	11	11	11	9.5	6.8
19	6.4	11	11	11	11	11	13	11	11	11	9.2	6.7
20	6.4	12	11	11	11	11	11	11	11	10	9.1	7.1
21	6.4	15	11	11	11	11	11	11	11	11	8.8	7.1
22	6.5	13	11	11	11	11	11	11	11	11	8.8	7.1
23	9.5	11	11	11	11	11	11	11	11	11	8.7	7.1
24	12	11	11	11	11	11	11	11	11	11	8.5	7.0
25	8.7	10	11	11	11	11	11	11	11	11	8.4	7.0
26	7.5	9.2	11	11	11	11	11	11	11	11	8.3	7.1
27	7.1	9.0	11	11	11	11	11	11	11	11	8.2	7.1
28	7.6	9.4	11	11	11	11	11	11	11	11	8.1	7.0
29	8.2	8.5	11	12	11	11	11	11	11	11	8.0	6.7
30	8.3	11	11	14	---	11	11	11	11	11	8.0	6.6
31	7.7	---	11	13	---	11	---	11	---	11	7.8	---
TOTAL	216.7	311.2	905.3	363	327	345	332	341	330	340	296.9	212.5
MEAN	6.99	10.4	29.2	11.7	11.3	11.1	11.1	11.0	11.0	11.0	9.58	7.08
MAX	12	15	386	14	12	14	13	11	11	11	11	7.6
MIN	5.7	7.5	1.3	11	11	11	11	11	11	10	7.8	6.6
AC-FT	430	617	1800	720	649	684	659	676	655	674	589	421
MEAN a	6.99	12.0	195	121	145	234	181	118	53.1	17.6	9.61	7.08
AC-FT a	430	717	11980	7450	8350	14400	10790	7250	3160	1080	591	421

CAL YR 1987 TOTAL 7382.0 MEAN 20.2 MAX 1860 MIN 1.3 AC-FT 14640 MEAN a 94.9 AC-FT a 68670
WTR YR 1988 TOTAL 4320.6 MEAN 11.8 MAX 386 MIN 1.3 AC-FT 8570 MEAN a 91.8 AC-FT a 66610

a Adjusted for diversion to Slate Creek tunnel.

LOCATION.--Lat 39°19'51", long 121°11'23", in NE 1/4 SE 1/4 sec.16, T.17 N., R.7 E., Yuba County, Hydrologic Unit 18020125, at powerplant on right bank of Yuba River, 0.3 mi upstream from Dobbins Creek, and 2.3 mi northwest of French Corral.

GAGE.--Recorded output from powerplant turbines.

REMARKS.--Water is diverted from North Yuba River at New Bullards Bar Dam (station 11413515). Colgate powerplant was rebuilt during the 1970 water year with an increased capacity. Browns Valley ditch diverted up to 10 ft³/s at times from the head of the penstock for use in irrigation. This diversion was discontinued Oct. 31, 1973. See schematic diagram of Yuba River basin.

COOPERATION.--Records provided by Yuba County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--22 years, 1,395 ft³/s, 1,011,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 4,200 ft³/s, June 2, 1971; no flow for several days in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	172	69	452	1010	1670	357	353	483	761	1230	1350	1470
2	531	361	415	1260	1030	183	626	254	635	953	1730	1560
3	618	772	193	571	1150	216	786	519	550	615	1580	1070
4	878	696	189	159	1800	184	1040	792	918	988	1290	1430
5	505	690	93	241	1470	86	609	410	292	933	968	1360
6	354	583	71	345	801	393	196	771	807	1000	1810	1390
7	281	769	214	200	1100	545	337	620	291	1400	1420	1360
8	417	589	227	206	1360	471	513	610	590	1660	1450	1180
9	736	877	227	239	1490	205	595	756	716	1410	1360	640
10	1210	656	218	229	1520	597	374	817	671	1450	1420	776
11	956	619	229	243	1470	896	721	595	620	1280	1550	736
12	360	554	234	257	1460	72	478	188	397	1690	1270	807
13	.00	1030	180	308	928	190	377	450	1410	1510	1380	285
14	664	361	1.5	285	1390	345	416	100	645	1720	1390	496
15	619	85	36	205	1490	774	311	650	686	1490	1060	837
16	1010	493	238	198	1180	361	692	655	655	1500	1250	431
17	472	605	119	221	1260	326	604	620	928	1350	1200	716
18	658	724	30	149	1270	888	564	766	1310	1270	1460	500
19	846	404	193	794	590	171	809	534	575	1480	1190	524
20	231	692	.00	1060	688	398	165	852	1030	1540	1290	731
21	489	452	5.0	1350	830	452	166	595	857	1450	1510	409
22	782	562	142	1200	709	490	54	257	1200	1920	1400	635
23	533	721	219	1400	592	487	.00	812	1020	1380	1560	335
24	657	605	259	1240	510	1340	.00	497	953	1290	1430	102
25	694	506	340	1340	656	968	66	655	792	1720	1350	335
26	902	572	474	913	163	218	354	812	1340	1410	1430	620
27	655	581	462	1140	398	564	163	706	756	1170	1250	418
28	505	537	525	1330	412	813	462	169	1240	1620	1380	539
29	905	489	471	1370	365	902	482	877	923	1550	1430	802
30	1340	716	518	1180	---	809	342	433	983	1190	1390	660
31	72	---	315	1080	---	703	---	655	---	1650	1340	---
TOTAL	19052.00	17370	7289.50	21723	29752	15404	12655.00	17910	24551	42819	42888	23154
MEAN	615	579	235	701	1026	497	422	578	818	1381	1383	772
MAX	1340	1030	525	1400	1800	1340	1040	877	1410	1920	1810	1560
MIN	.00	69	.00	149	163	72	.00	100	291	615	968	102
AC-FT	37790	34450	14460	43090	59010	30550	25100	35520	48700	84930	85070	45930
CAL YR 1987	TOTAL 244080.10											
WTR YR 1988	TOTAL 274567.50											
	MEAN	750	MAX	2140	MIN	.00	AC-FT	484100				
		1920	MIN	.00	AC-FT	544600						

SACRAMENTO RIVER BASIN

11413515 NEW BULLARDS BAR RESERVOIR NEAR NORTH SAN JUAN, CA

LOCATION.--Lat 39°23'34", long 121°08'25", in SE 1/4 NW 1/4 sec.25, T.18 N., R.7 E., Yuba County, Hydrologic Unit 18020125, Plumas National Forest, in center of dam on North Yuba River, 2.2 mi upstream from Middle Yuba River, and 2.4 mi northwest of North San Juan.

DRAINAGE AREA.--489 mi².

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Yuba County Water Agency).

REMARKS.--Reservoir is formed by concrete-arch dam with a concrete-sidehill spillway. Spill controlled by three 30-ft by 53-ft radial gates. Storage began in January 1969. Usable capacity, 727,380 acre-ft between elevations 1,732.0 ft, minimum power pool, and 1,955.0 ft, normal gross pool. Dead storage, 233,920 acre-ft. Total capacity at normal gross pool, 961,300 acre-ft, elevation, 1,955.0 ft. Water is released to Colgate powerplant through a tunnel at the dam. Water is diverted into the reservoir from Middle Yuba River via Lohman Ridge tunnel to Oregon Creek then via Camptonville tunnel. Records, including extremes, represent total contents at 2400 hours. See schematic diagram of Yuba River basin.

COOPERATION.--Records provided by Yuba County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission Project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 966,103 acre-ft, June 12, 1982, elevation, 1,956.00 ft; minimum since reservoir first filled, 178,230 acre-ft, Dec. 29, 1980, elevation, 1,700.00 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 753,542 acre-ft, June 8, elevation, 1,908.06 ft; minimum, 541,732 acre-ft, Sept. 30, elevation, 1,850.60 ft.

Capacity table (elevation, in feet NGVD, and contents, in acre-feet)
(Provided by Yuba County Water Agency, from 1969 survey)

1,600	64,900	1,750	270,110
1,630	90,570	1,800	389,977
1,660	122,993	1,850	539,748
1,690	162,983	1,900	721,130
1,720	211,768	1,960	985,471

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	614563	584346	563857	623776	664111	661821	694718	736898	752972	729690	657402	579708
2	613847	584103	571355	621970	664149	665765	694913	738387	753217	728288	654380	576708
3	612917	582889	574440	623703	664149	667313	695068	739313	753337	727490	651628	574680
4	611309	581678	575127	627470	663209	669693	694796	739716	752563	726136	649402	572040
5	610488	580605	576158	631907	661971	672153	695184	740684	753052	724703	647661	569543
6	609918	579777	580295	634717	660545	673937	696579	741329	752603	723193	644595	566917
7	609597	578569	583756	636875	659945	675304	697782	741935	753501	720971	642015	564366
8	608920	577673	584103	639002	658860	676673	698597	742541	753542	718358	639259	562161
9	607746	576399	591481	641427	657327	678732	699142	742864	753297	715987	636875	561140
10	605649	575471	599952	644595	656244	678770	700005	742743	753012	713306	634315	559793
11	603912	574578	605933	647920	654997	680143	700581	743147	752727	711417	631543	558442
12	603380	573754	609063	653859	654119	682055	701399	744643	752849	708512	629213	557128
13	603558	573068	611059	656356	654231	683395	702763	745818	750934	706162	626817	556487
14	602531	573068	612917	658261	653413	684354	704363	747439	750527	703036	624209	555680
15	601470	573205	614348	661107	652371	684687	705927	748008	749918	700502	622331	554168
16	599634	572554	615495	664337	651442	685581	706553	748820	749430	697860	619879	553597
17	598929	571801	616751	666823	651033	686619	707336	749633	748414	695648	617750	552390
18	597732	570774	618008	668483	650143	686580	708316	749877	746791	693519	614921	551452
19	596325	570329	618655	669239	650811	687733	711063	750649	746385	691008	613095	550616
20	596114	569475	619663	669012	650949	688695	714409	750446	745170	688118	610702	549280
21	595411	569065	620980	668182	650885	689774	716619	750771	743956	685812	607852	548712
22	594218	568280	622078	667351	651033	690507	719228	751748	742339	682468	605411	547578
23	593517	567258	623161	666446	651405	691394	721605	751626	740925	680029	602354	547112
24	592233	566338	623703	665692	652185	690776	724107	751993	739596	677855	600023	547078
25	591417	565556	623776	665241	652483	690830	726295	751993	738951	674772	597274	546945
26	589776	564876	623848	665090	653747	692436	728009	751667	737099	672381	594745	545614
27	588763	564027	623776	664789	654753	693365	730324	751382	736095	670525	592501	544983
28	588032	563246	624209	664074	655722	693712	732084	752482	734208	667636	589880	544186
29	586534	562500	624499	663773	657813	693780	733807	752523	732845	665050	587230	542726
30	584242	561823	624427	664601	---	693712	735572	753053	731564	662941	584762	541732
31	584242	---	624644	665090	---	693905	---	753135	---	659908	582370	---
MAX	614563	584346	624644	669239	664149	693905	735572	753135	753542	729690	657402	579708
MIN	584242	561823	563857	621970	650143	661821	694718	736898	731564	659908	582370	541732
a	1863.14	1856.60	1874.54	1885.50	1883.56	1893.05	1903.62	1907.96	1902.62	1884.12	1862.60	1850.60
b	-30357	-22419	+62821	+40446	-7277	+36092	+41667	+17563	-21571	-71656	-77538	-40638

CAL YR 1987 MAX 817623 MIN 561823 b +8790

WTR YR 1988 MAX 753542 MIN 541732 b -72867

a Elevation, in feet NGVD, at end of month.

b Change in contents, in acre-feet.

SACRAMENTO RIVER BASIN

11413520 NORTH YUBA RIVER BELOW NEW BULLARDS BAR DAM, NEAR NORTH SAN JUAN, CA

LOCATION.--Lat 39°23'26", long 121°08'36", in SE 1/4 NW 1/4 sec.25, T.18 N., R.7 E., Yuba County, Hydrologic Unit 18020125, Plumas National Forest, on right bank at old Colgate Dam, 0.2 mi downstream from New Bullards Bar Dam, and 2.5 mi northwest of North San Juan.

DRAINAGE AREA.--490 mi².

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

GAGE.--Water-stage recorder and sharp-crested low-water control since Oct. 1, 1986. Elevation of gage is 1,350 ft above National Geodetic Vertical Datum of 1929, from topographic map. Auxiliary water-stage recorder for high flow 0.9 mi downstream at different datum..

REMARKS.--Estimated daily discharges: Jan. 7-11, June 7-9. Records good. Flow regulated by New Bullards Bar Reservoir (station 11413515) since 1969. Prior to 1969, flow regulated by Bullards Bar Reservoir (usable capacity, 31,500 acre-ft). New Colgate Powerplant (station 11413510) diverts from New Bullards Bar Dam 0.2 mi upstream. Water is diverted out of basin through Slate Creek tunnel (station 11413250) and into basin through Camptonville tunnel.. See schematic diagram of Yuba River basin.

AVERAGE DISCHARGE (since construction of New Bullards Bar Dam, unadjusted).--19 years (water years 1970-88), 246 ft³/s, 178,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 56,200 ft³/s, Jan. 22, 1970, gage height, 35.29 ft, at auxiliary gage, from rating curve extended above 40,000 ft³/s on basis of computation of flow over old Colgate Dam; minimum daily, 0.42 ft³/s, Nov. 5, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 22, 1964, reached a stage of 49.8 ft, from floodmarks, discharge, 91,600 ft³/s, at auxiliary gage, from computation of flow over old Colgate Dam.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9.7 ft³/s, Nov. 13, gage height, 7.03 ft; minimum daily, 5.9 ft³/s, several days during March.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.4	7.2	8.4	7.0	6.3	7.3	6.1	6.2	6.1	6.1	6.1	6.4
2	7.4	7.2	8.6	6.8	6.3	6.4	6.1	6.2	6.1	6.2	6.1	6.3
3	7.4	7.2	7.3	7.6	6.3	6.1	6.1	6.2	6.1	6.2	6.1	6.3
4	7.4	7.3	7.0	7.6	6.1	6.1	6.1	6.2	6.1	6.1	6.1	6.3
5	7.4	7.4	7.0	7.5	6.1	6.1	6.1	6.1	6.3	6.1	6.1	6.3
6	7.4	7.4	7.4	7.2	6.1	6.1	6.1	6.3	6.8	6.1	6.1	6.3
7	7.4	7.4	7.3	7.2	6.1	6.1	6.1	6.6	7.2	6.1	6.1	6.3
8	7.4	7.4	7.4	7.2	6.1	6.1	6.1	6.3	6.1	6.1	6.1	6.2
9	7.4	7.4	8.1	7.1	6.1	6.1	6.1	6.3	6.1	6.1	6.2	6.2
10	7.4	7.3	7.7	7.1	6.1	5.9	6.1	6.3	6.1	6.1	6.3	6.2
11	7.4	7.2	7.2	7.0	6.1	6.0	6.1	6.2	6.1	6.1	6.3	6.1
12	7.4	7.2	7.6	7.0	6.1	5.9	6.1	6.2	6.1	6.1	6.3	6.1
13	7.4	8.1	7.2	6.7	6.1	6.0	6.1	6.1	6.1	6.1	6.2	6.1
14	7.4	7.4	6.7	6.5	6.1	5.9	6.1	6.1	6.1	6.1	6.1	6.1
15	7.4	7.3	6.7	7.1	6.1	5.9	6.1	6.1	6.1	6.1	6.1	6.2
16	7.4	7.2	6.9	7.5	6.1	6.0	6.1	6.2	7.2	6.1	6.1	6.3
17	7.4	7.4	6.8	7.0	6.1	6.0	6.1	6.2	6.1	6.1	6.1	6.3
18	7.4	7.4	6.8	6.7	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
19	7.4	7.4	6.8	6.5	6.1	6.1	7.2	6.1	6.1	6.1	6.1	6.3
20	7.4	7.6	7.0	6.5	6.1	5.9	7.0	6.1	6.1	6.1	6.1	6.3
21	7.4	7.5	7.1	6.5	6.1	5.9	6.3	6.1	6.1	6.1	6.1	6.2
22	7.5	7.4	7.1	6.9	6.1	5.9	6.4	6.2	6.1	6.1	6.1	6.3
23	7.5	7.4	6.9	6.3	6.1	5.9	6.3	6.1	6.1	6.1	6.1	6.3
24	7.4	7.4	6.7	6.3	6.2	5.9	6.3	6.1	6.1	6.1	6.1	6.3
25	7.3	7.4	6.7	6.3	6.1	5.9	6.3	6.1	7.0	6.1	6.2	6.3
26	7.2	7.4	6.7	6.3	6.1	5.9	6.3	6.1	6.1	6.4	6.3	6.3
27	7.2	7.4	6.7	6.3	6.1	5.9	6.1	6.1	6.1	6.1	6.3	6.3
28	7.3	7.4	7.2	6.1	6.5	5.9	6.2	6.3	6.1	6.1	6.3	6.3
29	7.4	7.4	7.2	6.4	6.3	5.9	6.2	6.2	6.1	6.1	6.3	6.3
30	7.2	7.7	7.0	6.3	---	6.0	6.1	6.1	6.1	6.1	6.3	6.3
31	7.2	---	7.0	6.3	---	6.1	---	6.1	---	6.1	6.3	---
TOTAL	228.6	221.8	222.2	210.8	178.2	187.3	186.5	191.6	187.0	189.6	191.2	187.6
MEAN	7.37	7.39	7.17	6.80	6.14	6.04	6.22	6.18	6.23	6.12	6.17	6.25
MAX	7.5	8.1	8.6	7.6	6.5	7.3	7.2	6.6	7.2	6.4	6.3	6.4
MIN	7.2	7.2	6.7	6.1	6.1	5.9	6.1	6.1	6.1	6.1	6.1	6.1
AC-FT	453	440	441	418	353	372	370	380	371	376	379	372

CAL YR 1987 TOTAL 2586.3 MEAN 7.09 MAX 8.6 MIN 6.4 AC-FT 5130
WTR YR 1988 TOTAL 2382.4 MEAN 6.51 MAX 8.6 MIN 5.9 AC-FT 4730

SACRAMENTO RIVER BASIN

11414000 SOUTH YUBA RIVER NEAR CISCO, CA

LOCATION.--Lat 39°19'12", long 120°33'38", in SE 1/4 SW 1/4 sec.19, T.17 N., R.13 E., Nevada County, Hydrologic Unit 18020125, on right bank 0.7 mi downstream from Rattlesnake Creek, 1.3 mi west of Cisco Grove, and 1.5 mi northwest of Cisco.

DRAINAGE AREA.--51.8 mi².

PERIOD OF RECORD.--April 1942 to current year. Prior to October 1949, published as South Fork Yuba River near Cisco.

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 5,520 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to October 1945, water-stage recorder at site 200 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Dec. 13, 14, 20, 22-25, 29-31, Jan. 9-13, 17, Feb. 3. Records excellent except for estimated daily discharges, which are good. Low flow regulated by several small lakes operated by Pacific Gas & Electric Co.

AVERAGE DISCHARGE.--46 years, 202 ft³/s, 146,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,400 ft³/s, Jan. 31, 1963, gage height, 19.6 ft from floodmarks in gage house, 20.6 ft from outside floodmarks, from rating curve extended above 5,000 ft³/s on basis of slope-area measurement at gage height 15.8 ft; minimum daily, 0.1 ft³/s, Nov. 5-7, 1954.

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)
Mar. 26	2215	*631	*4.78				
Minimum daily, 2.0 ft ³ /s, Nov. 12.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.5	6.5	15	22	47	190	191	240	248	11	7.4	7.2
2	8.5	6.9	102	22	46	149	261	218	179	9.9	7.8	7.1
3	8.5	6.0	41	25	44	160	288	222	137	9.2	7.6	6.7
4	8.2	4.8	28	39	42	175	268	236	121	8.5	7.4	6.5
5	8.2	3.7	22	80	41	189	322	203	100	7.7	7.1	6.4
6	9.9	3.2	80	66	44	196	414	168	95	7.0	6.9	6.1
7	7.2	2.9	59	49	45	187	437	160	119	6.2	6.6	5.7
8	7.3	2.6	32	43	54	209	357	162	152	5.4	6.8	5.9
9	7.9	2.7	77	50	68	267	304	167	179	5.1	5.6	5.7
10	7.9	2.6	382	53	79	184	374	231	137	5.2	5.7	6.2
11	8.2	2.4	195	50	89	148	436	372	106	4.7	5.3	6.0
12	9.3	2.0	80	48	99	128	439	434	90	4.6	5.4	6.0
13	8.6	8.3	70	46	103	122	401	436	77	4.2	5.4	6.3
14	8.4	10	54	46	100	132	514	365	68	4.8	5.5	7.0
15	8.3	6.2	38	48	112	149	360	384	61	4.9	6.1	7.6
16	8.2	4.8	36	47	115	136	336	345	54	5.8	6.0	29
17	8.0	4.9	32	47	92	144	364	337	49	5.6	5.9	35
18	7.7	5.4	29	44	86	184	331	273	42	5.5	5.7	33
19	7.5	5.1	27	38	77	253	276	254	37	5.1	19	30
20	7.4	5.1	25	37	83	291	246	243	34	4.8	23	8.9
21	7.4	6.0	25	37	102	286	204	248	31	4.4	22	4.3
22	6.1	5.4	25	37	124	234	186	240	27	5.5	20	3.4
23	7.3	4.7	25	40	137	380	187	212	23	6.7	18	9.0
24	7.4	4.5	25	49	147	353	258	183	20	7.0	17	8.7
25	5.2	4.1	25	56	153	364	296	160	21	7.4	10	6.7
26	4.4	3.5	24	56	166	439	387	144	21	52	8.1	5.4
27	4.1	3.3	23	56	184	407	445	117	18	31	7.8	4.1
28	5.7	3.1	24	60	197	251	439	128	15	12	7.6	2.6
29	8.5	3.1	25	58	205	216	370	213	13	8.3	7.6	4.2
30	7.8	3.2	25	54	---	218	312	178	12	7.0	7.4	5.4
31	6.8	---	24	50	---	180	---	193	---	7.2	7.2	---
TOTAL	234.4	137.0	1694	1453	2881	6921	10003	7466	2286	273.7	288.9	286.1
MEAN	7.56	4.57	54.6	46.9	99.3	223	333	241	76.2	8.83	9.32	9.54
MAX	9.9	10	382	80	205	439	514	436	248	52	23	35
MIN	4.1	2.0	15	22	41	122	186	117	12	4.2	5.3	2.6
AC-FT	465	272	3360	2880	5710	13730	19840	14810	4530	543	573	567

CAL YR 1987 TOTAL 34435.2 MEAN 94.3 MAX 866 MIN 2.0 AC-FT 68300
WTR YR 1988 TOTAL 33924.1 MEAN 92.7 MAX 514 MIN 2.0 AC-FT 67290

SACRAMENTO RIVER BASIN

11414090 FORDYCE LAKE NEAR CISCO, CA

LOCATION.--Lat 39°22'44", long 120°29'40", in NE 1/4 SE 1/4 sec.34, T.18 N., R.12 E., Nevada County, Hydrologic Unit 18020125, near left abutment of Fordyce Dam on Fordyce Creek and 5.3 mi northeast of Cisco.

DRAINAGE AREA.--31.7 mi².

PERIOD OF RECORD.--October 1977 to current year. Periodic gage heights only for October 1965 to September 1976 and daily contents for water year 1977 are in the files of U.S. Geological Survey.

GAGE.--Water-stage recorder. Datum of gage is 6,290.5 ft above National Geodetic Vertical Datum of 1929 (levels by Pacific Gas & Electric Co.). Prior to Nov. 29, 1976, nonrecording gage on upstream side of dam at same datum.

REMARKS.--Lake is formed by a rockfill dam; storage began in 1926. In 1980 the capacity of Fordyce Lake was increased by the addition of 3 ft of flashboards. Capacity, 49,903 acre-ft between gage heights 0.85 ft, bottom of outlet valve, and 114.6 ft, top of flashboards in spillway. Released water flows down Fordyce Creek (station 11414100) to Lake Spaulding (station 11414140) for use in a power and irrigation system. See schematic diagram of Yuba River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 49,903 acre-ft, June 27, July 4, 6, 1982, June 9, 15-17, 1984, gage height, 114.60 ft; minimum, 250 acre-ft, Oct. 31 to Nov. 7, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 33,932 acre-ft, June 19, gage height, 91.76 ft; minimum, 2,768 acre-ft, Nov. 28, gage height, 20.69 ft.

Capacity table (gage height, in feet, and contents, in acre-feet)
(Based on table provided by Pacific Gas & Electric Co., dated May 1981)

4	219	20	2,608	40	8,183	80	26,770
5	278	25	3,827	50	11,797	90	32,820
10	774	30	5,170	60	16,174	100	39,342
15	1,570	35	6,628	70	21,196	114.6	49,903

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3238	2942	2840	4436	5310	6971	12436	22452	32170	32989	16032	6185
2	3236	2933	2928	4482	5340	7031	12679	22560	32407	33002	15303	6111
3	3221	2940	2959	4525	5360	7132	12976	22828	32500	32832	14569	6037
4	3213	2911	2959	4563	5380	7227	13225	22953	32751	32763	13884	5922
5	3189	2942	2956	4590	5400	7385	13530	23223	32801	32674	13089	5857
6	3189	2878	3009	4585	5420	7516	13954	23383	32920	32500	12415	5854
7	3169	2871	3084	4636	5440	7642	14331	23427	33046	32220	11706	5928
8	3160	2864	3125	4676	5460	7810	14727	23427	33210	31890	11018	6037
9	3150	2843	3231	4706	5495	7953	15106	23623	33330	31556	10335	6081
10	3138	2838	3786	4736	5520	8069	15489	23933	33481	31260	9583	6152
11	3140	2824	3978	4766	5541	8160	15989	24420	33532	30922	9156	6218
12	3128	2836	3904	4796	5590	8235	16517	24986	33602	30263	9122	6385
13	3116	2866	3900	4806	5645	8333	17022	25516	33671	29368	9087	6429
14	3103	2857	4132	4983	5682	8412	17530	26085	33703	28487	9053	6394
15	3106	2843	4168	5013	5732	8524	17870	26659	33804	27621	8691	6429
16	3082	2845	4192	5019	5840	8587	18222	27091	33836	26764	8089	6459
17	3070	2833	4205	5025	5848	8694	18617	27509	33850	25883	7529	6491
18	3055	2857	4237	5030	5910	8886	18924	27892	33766	25037	7258	6414
19	3043	2840	4187	5033	5951	9118	19320	28201	33932	24190	7178	6332
20	3031	2833	4218	5036	6004	9367	19478	28618	33824	23361	7089	6209
21	3019	2838	4240	5039	6007	9618	19596	29020	33824	22511	7010	6580
22	3031	2824	4271	5125	6114	9809	19786	29434	33716	21713	6971	6666
23	3041	2821	4261	5114	6185	10154	19910	29808	33627	20927	6853	6693
24	3012	2789	4247	5100	6227	10473	20085	30098	33538	20137	6777	6696
25	3000	2836	4314	5137	6355	10843	20304	30329	33545	19361	6696	6643
26	3002	2784	4300	5168	6429	11277	20711	30506	33475	18712	6643	6657
27	3009	2779	4372	5218	6604	11575	21144	30695	33418	17870	6535	6577
28	3009	2768	4396	5213	6723	11809	21574	30983	33222	17110	6465	6447
29	2973	2770	4386	5240	6853	11969	21949	31180	33159	16636	6385	6268
30	2961	2803	4383	5270	---	12183	22208	31494	33071	16603	6300	6152
31	2952	---	4444	5290	---	12362	---	31624	---	16545	6227	---
MAX	3238	2942	4444	5290	6853	12362	22208	31624	33932	33002	16032	6696
MIN	2952	2768	2840	4436	5310	6971	12436	22452	32170	16545	6227	5854
a	21.47	20.84	27.36	30.42	35.75	51.40	71.89	88.08	90.40	60.78	33.64	32.38
b	-289	-149	+1641	+777	+1632	+5509	+9846	+9416	+1447	-16526	-10318	-75

CAL YR 1987 MAX 37199 MIN 2768 b -2651
WTR YR 1988 MAX 33932 MIN 2768 b +2911

a Gage height, in feet, at end of month.
b Change in contents, in acre-feet.

SACRAMENTO RIVER BASIN

11414100 FORDYCE CREEK BELOW FORDYCE DAM, NEAR CISCO, CA

LOCATION.--Lat 39°22'48", long 120°29'54", in NW 1/4 SE 1/4 sec.34, T.18 N., R.13 E., Nevada County, Hydrologic Unit 18020125, Tahoe National Forest, on right bank 850 ft downstream from Fordyce Dam, and 5.3 mi northeast of Cisco.

DRAINAGE AREA.--31.7 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 6,250 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: May 4-11. Flow regulated by Fordyce Lake (station 11414090). See schematic diagram of Yuba River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--22 years, 134 ft³/s, 97,080 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,660 ft³/s, July 9, 1974, gage height, 7.90 ft in gage well, 6.82 ft from high-water marks, from rating curve extended above 1,000 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 3.5 ft³/s, Jan. 2-9, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 462 ft³/s, July 12, gage height, 3.74 ft; minimum daily, 3.9 ft³/s, Nov. 26-28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.7	4.7	4.9	5.6	6.5	8.9	15	25	36	40	243	36
2	5.6	4.7	5.1	5.6	6.5	9.1	15	25	36	40	364	36
3	5.6	4.7	4.6	5.6	6.5	9.5	16	25	36	40	359	36
4	5.6	4.6	4.7	5.5	6.5	9.6	16	25	37	40	353	36
5	5.6	4.6	4.7	5.6	6.5	9.9	16	25	37	56	348	36
6	5.6	4.7	5.6	5.3	6.7	9.9	17	25	37	75	342	50
7	5.6	4.8	4.7	5.3	6.7	10	17	25	38	126	337	59
8	5.6	4.9	4.7	5.3	6.7	11	17	25	38	153	330	59
9	5.6	5.1	8.9	5.3	6.7	11	17	26	38	152	324	59
10	5.6	5.2	10	5.3	6.8	11	18	26	39	151	317	60
11	5.5	5.3	6.0	5.3	7.0	11	18	27	39	151	183	60
12	5.3	5.4	6.0	5.3	7.1	11	19	28	39	341	15	60
13	5.3	5.5	5.7	5.3	7.0	11	20	28	39	443	15	60
14	5.3	5.4	5.7	5.4	7.0	11	21	29	39	438	15	60
15	5.3	5.3	5.7	5.6	7.2	11	21	30	39	436	174	60
16	5.3	5.4	5.8	5.6	7.2	11	20	30	39	430	258	61
17	5.1	5.4	5.8	5.8	7.2	11	21	31	40	425	253	61
18	5.1	5.0	5.8	5.8	7.2	11	21	31	40	419	118	61
19	5.1	4.8	5.8	5.8	7.2	12	22	31	40	414	39	61
20	5.1	4.9	5.8	5.8	7.3	12	22	31	40	410	38	61
21	5.0	4.8	5.8	5.9	7.5	12	22	32	40	404	38	61
22	4.9	4.4	5.6	6.0	7.5	12	23	32	40	396	38	61
23	5.0	4.5	5.6	6.0	7.6	13	23	32	40	390	38	61
24	4.9	4.6	5.6	6.2	7.7	13	24	33	40	383	38	60
25	4.9	4.0	5.6	6.2	7.8	14	24	33	40	378	37	60
26	4.9	3.9	5.6	6.2	8.1	14	25	33	40	374	37	60
27	4.9	3.9	5.6	6.2	8.3	14	24	34	40	369	37	60
28	4.9	3.9	5.6	6.2	8.5	15	24	34	40	364	37	60
29	4.9	4.0	5.6	6.2	8.9	15	24	35	40	215	37	59
30	4.8	4.0	5.6	6.5	---	15	25	35	40	23	37	59
31	4.7	---	5.6	6.5	---	15	---	35	---	23	37	---
TOTAL	162.3	142.4	177.8	178.2	209.4	363.9	607	916	1166	8099	4836	1673
MEAN	5.24	4.75	5.74	5.75	7.22	11.7	20.2	29.5	38.9	261	156	55.8
MAX	5.7	5.5	10	6.5	8.9	15	25	35	40	443	364	61
MIN	4.7	3.9	4.6	5.3	6.5	8.9	15	25	36	23	15	36
AC-FT	322	282	353	353	415	722	1200	1820	2310	16060	9590	3320

CAL YR 1987 TOTAL 21703.1 MEAN 59.5 MAX 344 MIN 3.9 AC-FT 43050
WTR YR 1988 TOTAL 18531.0 MEAN 50.6 MAX 443 MIN 3.9 AC-FT 36760

SACRAMENTO RIVER BASIN

11414140 LAKE SPAULDING NEAR EMIGRANT GAP, CA

LOCATION.--Lat 39°19'35", long 120°38'32", in SE 1/4 NE 1/4 sec.20, T.17 N., R.12 E., Nevada County, Hydrologic Unit 18020125, near center of Spaulding Dam on South Yuba River and 2.5 mi northeast of Emigrant Gap.

DRAINAGE AREA.--118 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 4,809.6 ft above National Geodetic Vertical Datum of 1929 (levels by Pacific Gas & Electric Co.). Prior to July 1968, nonrecording gage at same site and datum.

REMARKS.--Lake is formed by three concrete-arch dams with spillway on the middle arch. Storage began in 1913. Capacity, 74,773 acre-ft between gage heights 0.6 ft, bottom of outlet, and 205.0 ft, top of radial gates.

Released water flows through Spaulding powerplants Nos. 1 and 2 (stations 11414154 and 11414155). Flow through powerplant No. 1 is transported out of Yuba River basin by Drum Canal to Bear River basin. See schematic diagram of Yuba River and Bear River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 75,100 acre-ft, July 13, 1967, gage height, 205.5 ft; minimum, 914 acre-ft, Feb. 28, 1976, gage height, 25.5 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 69,410 acre-ft, May 17, gage height, 197.15 ft; minimum, 8,984 acre-ft, Feb. 10, gage height, 67.78 ft.

Capacity table (gage height, in feet, and contents, in acre-feet)
(Based on survey by Pacific Gas & Electric Co., dated Apr. 23, 1965)

20	566	70	9,632
25	874	100	19,541
30	1,352	150	41,545
40	2,742	200	71,329
50	4,578	206	75,473

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51749	36864	26638	20291	13306	13617	34151	64874	68950	63981	55352	40235
2	51990	36284	27049	20299	12529	13996	34932	65171	68910	64436	54742	39747
3	52249	35559	27100	20455	11767	14400	35650	65236	68750	64887	54182	39879
4	52486	34928	26978	20552	10993	14848	36279	65352	68551	65462	53450	39986
5	52752	34202	26910	20995	10371	16428	37109	65197	68411	65326	53275	40092
6	53031	33582	27629	21021	10434	17245	38300	65003	68087	64681	53830	39651
7	53275	33372	27561	20448	10489	17849	39595	65488	67935	64135	54370	39015
8	53532	33182	27523	20291	9937	18463	40603	66014	67882	63764	54358	38394
9	53625	32470	27940	20582	9306	19311	41483	66196	67875	64071	53883	37972
10	53695	31394	30831	21195	8984	19991	42513	66242	67935	64218	53438	38165
11	53613	30291	31734	21263	9146	20392	43688	66830	67981	63521	52845	38310
12	52729	29224	31816	20863	9358	20657	44839	67440	67552	62676	52221	37912
13	51376	28954	31998	20489	9705	20875	45989	68060	67190	62221	52094	37305
14	49994	29006	31543	19666	10026	21112	47505	68498	66503	61749	51927	36702
15	48720	29076	30549	19428	10404	21460	48503	68930	65838	61435	51370	36109
16	47671	28876	29268	18994	10567	21807	49313	69176	65190	61323	50788	35535
17	47417	28507	28038	18538	10537	21998	50470	69410	64861	60830	50204	34999
18	47164	28163	27362	17927	10422	22486	51411	69370	65352	60295	49510	35353
19	46359	27782	26701	17474	10323	23104	52492	69150	65877	59775	48531	35944
20	45049	27625	26059	17025	10368	23784	53573	69063	65988	59288	48380	36517
21	43826	27667	25202	16566	10528	24490	54535	69056	65780	58784	48352	37109
22	42859	27723	24210	16270	10616	25141	55376	69050	65566	58289	47737	37675
23	42267	27544	23257	16342	10649	26242	56169	69070	65074	58925	46523	38245
24	42147	27146	22684	16411	10771	27260	57215	68996	64661	59553	45356	38814
25	42028	26881	22579	16088	10987	28279	58344	68850	65236	59645	44176	39398
26	41137	26915	22425	15446	11457	29470	59651	68690	65773	59153	43312	39975
27	40026	26952	22317	15129	12285	30670	61098	68557	65884	58668	43217	40542
28	38945	26986	21769	14163	12764	31484	62537	68438	65624	58125	43323	41101
29	37887	27028	21176	13643	12905	32176	63610	68597	65190	57554	43164	41633
30	37084	26856	20612	13705	---	32945	64340	68664	64513	56865	42046	42199
31	36976	---	20280	13813	---	33554	---	68770	---	56151	41019	---
MAX	53695	36864	31998	21263	13306	33554	64340	69410	68950	65462	55352	42199
MIN	36976	26856	20280	13643	8984	13617	34151	64874	64513	56151	41019	34999
a	140.93	118.67	102.00	83.45	80.64	133.78	189.41	196.19	189.68	176.20	148.98	151.26
b	-14503	-10120	-6576	-6467	-908	+20649	+30786	+4430	-4257	-8362	-15132	+1180
c	13620	7250	9590	6970	393	290	869	19780	15980	24090	19480	11030
d	2600	1630	1340	1320	861	3360	972	3820	3290	4050	3970	3690

CAL YR 1987 MAX 71982 MIN 20280 b -20595 c 183500 d 31770

WTR YR 1988 MAX 69410 MIN 8984 b -9280 c 129300 d 30910

a Gage height, in feet, at end of month.

b Change in contents, in acre-feet.

c Diversion, in acre-feet, to Spaulding No. 1 powerplant, provided by Pacific Gas & Electric Co.

d Diversion, in acre-feet, to Spaulding No. 2 powerplant, provided by Pacific Gas & Electric Co.

LOCATION.--Lat 39°19'03", long 120°39'08", in SE 1/4 SW 1/4 sec.20, T.17 N., R.12 E., Nevada County, Hydrologic Unit 18020125, Tahoe National Forest, 100 ft downstream from tunnel outlet, 1.0 mi downstream from Spaulding No. 1 powerplant, and 1.7 mi northeast of Emigrant Gap.

GAGE.--Water-stage recorder. Elevation of gage is 4,880 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Oct. 1, 1968, in powerplant 0.7 mi upstream at different datum.

REMARKS.--No estimated daily discharges. Canal diverts from Spaulding No. 1 powerplant (station 11414154) at Lake Spaulding Dam. Water is used for irrigation and power in the Bear River basin. See schematic diagrams of Yuba River and Bear River basins.

AVERAGE DISCHARGE.--24 years, 526 ft³/s, 381,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 860 ft³/s, May 17, 1986; no flow for several days in most years.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	108	211	111	403	211	2.0	224	258	494	563	635
2	.00	345	209	111	533	211	2.0	318	258	45	627	518
3	.00	415	209	111	522	141	2.0	414	258	45	593	220
4	.00	411	178	233	527	81	65	454	258	45	591	223
5	.00	407	115	208	435	2.8	102	469	258	381	352	223
6	.00	347	116	301	103	2.7	34	446	258	636	13	500
7	.00	110	168	483	104	2.6	4.7	101	257	629	13	610
8	.00	109	220	263	465	2.4	4.7	101	257	548	338	605
9	103	371	221	214	559	2.3	4.7	321	257	207	505	484
10	118	604	226	149	433	2.2	4.7	421	257	208	504	214
11	97	595	152	367	235	2.2	4.7	343	257	474	503	217
12	402	586	12	482	201	2.2	4.7	417	257	612	272	481
13	647	250	12	490	107	1.9	4.7	414	364	609	13	608
14	640	6.0	367	481	107	1.9	4.7	415	426	606	13	600
15	634	6.0	666	302	106	1.9	4.7	416	439	519	312	598
16	502	115	793	470	207	1.9	4.7	501	428	423	501	594
17	99	214	783	464	259	1.9	4.7	545	322	618	501	589
18	98	214	670	538	259	1.9	4.7	577	11	616	501	120
19	401	214	414	451	216	1.9	4.9	597	7.3	609	434	3.5
20	641	152	411	450	108	1.9	4.9	518	263	603	56	.00
21	619	4.7	540	449	105	1.9	4.9	375	423	601	16	.00
22	471	4.7	624	396	179	1.9	4.9	307	430	572	347	.00
23	332	103	624	142	216	1.9	4.9	256	566	22	604	.00
24	106	211	397	143	216	1.9	4.9	259	489	21	603	.00
25	105	187	141	360	218	1.9	4.9	258	10	307	596	.00
26	506	5.5	140	517	145	1.9	6.0	258	9.7	594	510	.00
27	639	5.4	121	516	3.8	1.9	6.5	258	256	592	210	.00
28	640	5.4	390	527	3.8	1.9	6.5	258	405	591	210	.00
29	639	5.4	423	457	129	1.9	147	258	415	545	481	.00
30	498	91	419	150	---	2.0	223	258	649	350	597	.00
31	108	---	289	102	---	2.0	---	258	---	349	666	---
TOTAL	9045.00	6202.1	10261	10438	7104.6	699.7	686.7	11015	9003.0	13471	12045	8042.50
MEAN	.292	.207	.331	.337	.245	.22.6	.22.9	.355	.300	.435	.389	.268
MAX	.647	.604	.793	.538	.559	.211	.223	.597	.649	.636	.666	.635
MIN	.00	4.7	12	102	3.8	1.9	2.0	101	7.3	21	13	.00
AC-FT	17940	12300	20350	20700	14090	1390	1360	21850	17860	26720	23890	15950
CAL YR 1987	TOTAL	122312.50	MEAN	335	MAX	820	MIN	.00	AC-FT	242600		
WTR YR 1988	TOTAL	98013.60	MEAN	268	MAX	793	MIN	.				

SACRAMENTO RIVER BASIN

11414190 DRUM CANAL ABOVE DRUM FOREBAY, NEAR BLUE CANYON, CA

LOCATION.--Lat 39°15'54", long 120°43'44", in NE 1/4 SW 1/4 sec.10, T.16 N., R.11 E., Placer County, Hydrologic Unit 18020126, on right bank 1.2 mi northwest of Blue Canyon and 1.5 mi upstream from Drum Forebay.

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

GAGE.--Water-stage recorder. Elevation of gage is 4,800 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 14 to Jan. 5. Flow is water diverted from South Yuba River through Spaulding No. 1 powerplant (station 11414154) plus diversion from North Fork American River basin by way of Lake Valley Canal (station 11426190). Most of the water from Drum Canal enters the Bear River via Drum Nos. 1 and 2 powerplants (stations 11414194 and 11414195) at Drum Afterbay. Some of the water is diverted out of Drum Forebay to Alta powerplant (station 11421725). See schematic diagrams of Yuba River and Bear River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--24 years, 531 ft³/s, 384,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 856 ft³/s, May 8, 1982; no flow at times in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	103	224	111	395	250	20	220	241	510	484	626
2	.00	307	228	111	551	237	21	299	240	29	599	541
3	.00	397	217	111	540	173	22	399	239	28	597	183
4	.00	394	183	233	543	113	64	442	238	28	595	187
5	.00	391	125	208	482	42	110	450	237	316	415	189
6	.00	349	139	285	119	42	66	458	237	623	14	456
7	.00	105	193	509	117	42	28	109	239	620	13	616
8	.00	104	243	305	422	42	26	108	240	566	284	620
9	74	339	246	199	535	44	22	286	242	182	505	524
10	87	579	255	151	429	41	24	404	240	182	504	197
11	94	572	173	365	203	38	25	329	239	436	503	201
12	356	565	25	506	194	31	25	401	239	621	322	453
13	639	257	24	521	118	29	27	399	331	624	15	627
14	634	9.5	385	512	117	28	39	398	404	627	15	621
15	629	7.5	681	326	118	29	35	399	410	564	267	618
16	530	116	808	505	207	27	29	473	406	403	501	614
17	97	215	802	505	272	25	28	523	339	636	503	606
18	97	215	692	570	269	26	27	549	22	635	505	165
19	344	215	435	490	235	30	40	569	14	634	472	.81
20	608	153	432	481	117	31	46	508	217	633	65	.00
21	599	5.4	560	474	116	32	41	356	399	632	21	.00
22	452	5.3	644	440	181	32	39	292	405	630	287	.00
23	345	104	644	151	226	38	38	224	519	70	599	.00
24	104	212	417	153	227	36	43	235	496	52	595	.00
25	103	188	155	359	230	30	45	238	32	283	589	.00
26	442	6.2	140	538	181	34	48	238	26	610	532	.00
27	607	6.0	121	542	37	34	50	238	230	595	170	.00
28	609	5.9	390	552	41	24	50	240	393	592	171	.00
29	609	6.0	423	506	152	23	137	243	395	559	431	.00
30	510	93	419	173	---	23	225	241	585	294	594	.00
31	105	---	289	122	---	21	---	240	---	292	654	---
TOTAL	8674.00	6024.8	10712	11014	7374	1647	1440	10508	8494	13506	11821	8044.81
MEAN	280	201	346	355	254	53.1	48.0	339	283	436	381	268
MAX	639	579	808	570	551	250	225	569	585	636	654	627
MIN	.00	5.3	24	111	37	21	20	108	14	28	13	.00
AC-FT	17200	11850	21250	21850	14630	3270	2860	20840	16850	26790	23450	15960
a	3650	2120	5900	5520	3040	77	194	276	1430	8120	6810	4470
b	11800	9220	14270	15610	11430	3230	2740	19920	13930	15900	14710	9830
c	1640	1400	591	567	393	557	587	672	966	1170	1200	712

CAL YR 1987 TOTAL 125161.80 MEAN 343 MAX 836 MIN .00 AC-FT 248300 AC-FT a 55310 b 175400 c 12950
WTR YR 1988 TOTAL 99259.61 MEAN 271 MAX 808 MIN .00 AC-FT 196900 AC-FT a 41610 b 142600 c 10450

a Discharge, in acre-feet, to Drum No. 1 powerplant, provided by Pacific Gas & Electric Co.

b Discharge, in acre-feet, to Drum No. 2 powerplant, provided by Pacific Gas & Electric Co.

c Discharge, in acre-feet, to Alta powerplant, provided by Pacific Gas & Electric Co.

SACRAMENTO RIVER BASIN

11414200 SOUTH YUBA CANAL NEAR EMIGRANT GAP, CA

LOCATION.--Lat 39°18'49", long 120°39'43", in SE 1/4 NE 1/4 sec.30, T.17 N., R.12 E., Nevada County, Hydrologic Unit 18020125, on left bank of concrete flume 400 ft downstream from Bowman Lake Road and 2.5 mi northeast of Emigrant Gap.

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

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 4,590 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Canal diverts from Spaulding No. 2 powerplant (station 11414155) at Lake Spaulding Dam. Downstream from the gage, some flow is diverted to Bear River. The remainder of the water enters Deer Creek at Deer Creek powerplant (station 11414205). See schematic diagrams of Yuba River and Bear River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--24 years, 90.6 ft³/s, 65,640 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 165 ft³/s, Aug. 3, 1965; no flow Apr. 20-22, 1966, Apr. 6-11, 1971, and Apr. 5-21, 1986.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	44	39	57	38	36	1.0	40	70	65	73	72
2	64	43	39	57	38	69	1.0	40	70	71	75	72
3	64	42	38	57	38	78	1.0	40	70	72	74	72
4	64	41	38	45	37	97	1.0	33	70	72	74	73
5	62	41	38	36	37	101	.80	67	70	71	73	73
6	64	41	38	37	37	100	.58	68	70	71	73	73
7	63	43	38	39	38	97	.58	71	70	70	74	72
8	63	44	38	44	38	99	.58	68	70	70	74	72
9	64	42	39	43	39	99	.58	71	59	70	73	72
10	64	40	40	42	37	100	.58	73	51	73	73	74
11	64	42	39	38	35	100	.58	73	51	73	73	74
12	65	42	39	36	37	100	.58	74	51	73	73	74
13	65	41	39	33	39	97	.88	72	52	72	73	73
14	64	41	38	32	38	98	21	71	53	72	73	73
15	51	41	38	39	36	97	43	71	51	72	73	72
16	42	39	45	51	36	96	42	71	59	74	72	72
17	41	41	43	52	36	95	41	70	58	73	72	73
18	42	42	39	47	36	96	42	70	58	73	71	78
19	43	42	39	36	36	95	39	70	58	73	72	81
20	45	43	39	39	35	97	39	70	60	72	71	80
21	47	43	41	38	35	98	39	71	61	72	77	78
22	47	43	43	37	35	78	39	71	57	72	74	77
23	44	43	41	34	36	51	40	71	57	73	73	78
24	42	42	39	36	37	51	40	71	57	74	72	76
25	42	43	40	36	37	51	41	71	58	74	71	76
26	42	40	42	36	37	51	40	71	57	74	72	76
27	42	40	42	36	37	36	41	71	57	74	72	77
28	42	41	42	35	37	1.0	41	70	57	73	73	77
29	43	41	57	35	37	1.0	44	70	57	72	73	77
30	43	40	57	36	---	1.0	42	70	59	72	72	76
31	43	---	57	36	---	1.0	---	70	---	71	72	---
TOTAL	1637	1251	1284	1255	1069	2267.0	683.74	2060	1798	2233	2260	2243
MEAN	52.8	41.7	41.4	40.5	36.9	73.1	22.8	66.5	59.9	72.0	72.9	74.8
MAX	66	44	57	57	39	101	44	74	70	74	77	81
MIN	41	39	38	32	35	1.0	.58	33	51	65	71	72
AC-FT	3250	2480	2550	2490	2120	4500	1360	4090	3570	4430	4480	4450
a	2840	2280	2390	2420	2300	4320	1280	3740	3510	4340	4010	3920

CAL YR 1987 TOTAL 20480.9 MEAN 56.1 MAX 77 MIN 1.0 AC-FT 40620 AC-FT a 35050
WTR YR 1988 TOTAL 20040.74 MEAN 54.8 MAX 101 MIN .58 AC-FT 39750 AC-FT a 37350

a Discharge, in acre-feet, to Deer Creek powerplant, provided by Pacific Gas & Electric Co.

SACRAMENTO RIVER BASIN

11414250 SOUTH YUBA RIVER AT LANGS CROSSING, NEAR EMIGRANT GAP, CA

LOCATION.--Lat 39°19'07", long 120°39'24", in SW 1/4 SW 1/4 sec.20, T.17 N., R.12 E., Nevada County, Hydrologic Unit 18020125, on right bank 50 ft downstream from road bridge, 0.8 mi downstream from Spaulding Nos. 1 and 2 powerplants, and 1.6 mi northeast of Emigrant Gap.

DRAINAGE AREA.--120 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 4,432.44 ft above National Geodetic Vertical Datum of 1929 (levels by Pacific Gas & Electric Co.).

REMARKS.--Estimated daily discharges: July 25 to Aug. 2. Flow regulated by Lake Spaulding (station 11414140) 0.8 mi upstream. See schematic diagram of Yuba River and Bear River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--22 years (water years 1967-88), 104 ft³/s, 75,350 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,400 ft³/s, Feb. 18, 1986, gage height, 19.95 ft, from rating curve extended above 8,800 ft³/s on basis of spillway rating at Spaulding dam; minimum daily, 2.1 ft³/s, on several days during July and September 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 85 ft³/s, Dec. 6, gage height, 2.78 ft; minimum daily, 4.5 ft³/s, Oct. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.5	5.3	18	6.5	12	20	5.7	8.0	6.7	5.9	5.7	5.4
2	5.4	5.3	35	6.5	10	18	5.7	8.0	6.6	5.7	5.6	6.4
3	5.3	5.1	14	18	9.5	15	5.8	7.8	6.5	5.7	5.7	6.0
4	5.1	5.0	8.3	38	8.9	13	5.7	7.5	6.1	5.8	5.7	6.4
5	4.5	5.1	7.6	45	9.2	11	5.7	7.5	5.9	6.2	5.6	6.1
6	4.7	5.3	37	25	8.1	10	5.9	7.6	5.8	6.5	5.5	5.1
7	5.6	5.2	30	18	7.2	9.6	5.9	7.8	6.7	6.4	5.5	5.1
8	5.6	5.1	15	15	8.7	9.0	5.7	7.8	6.8	6.9	5.6	6.1
9	5.5	5.6	34	21	9.4	8.7	5.4	7.7	6.3	6.4	5.6	6.0
10	5.6	5.3	64	29	11	8.0	5.6	7.7	5.8	5.9	5.8	5.8
11	5.6	5.0	26	43	13	7.7	5.5	7.6	5.6	5.9	5.9	6.4
12	6.0	5.1	15	22	12	6.5	5.6	7.6	5.4	6.0	5.9	5.3
13	5.8	11	11	18	11	6.6	6.3	7.8	5.5	5.9	5.7	5.1
14	5.7	6.1	9.0	16	11	7.7	7.7	7.7	5.5	5.8	5.8	5.9
15	5.6	4.9	8.2	17	10	6.5	6.8	7.7	5.8	5.7	5.8	6.0
16	5.5	5.2	7.9	15	10	6.4	6.6	7.7	5.8	5.9	6.0	6.0
17	5.4	5.5	7.2	13	9.4	6.9	6.4	9.1	5.5	6.2	5.9	6.0
18	5.4	5.1	6.7	12	8.8	5.8	6.2	8.4	5.5	6.3	5.8	6.4
19	5.5	5.4	6.5	11	8.3	6.0	17	7.3	5.5	6.3	5.7	9.3
20	5.6	5.8	6.2	10	8.7	6.3	19	7.0	5.4	6.2	5.7	7.7
21	5.6	6.6	6.4	9.7	8.6	6.8	16	6.6	5.5	6.2	5.7	6.5
22	5.7	5.8	11	9.7	8.8	6.2	15	6.3	5.5	6.4	5.6	6.4
23	6.4	5.4	8.4	11	8.7	5.6	15	6.3	5.7	6.6	5.8	6.4
24	5.9	5.2	7.7	13	8.6	5.7	14	6.1	6.1	6.6	5.8	6.7
25	5.6	4.6	7.1	14	8.5	5.6	12	5.9	7.2	5.7	5.8	6.6
26	5.6	4.9	6.6	14	8.5	5.5	10	5.7	6.6	5.7	5.6	6.5
27	5.7	5.4	6.2	14	8.4	5.6	9.2	5.8	6.5	5.7	5.4	6.3
28	6.6	5.4	6.9	13	8.9	5.8	8.4	7.0	6.5	5.7	5.2	6.4
29	6.6	5.3	7.2	15	12	5.9	8.0	8.6	6.2	5.7	5.3	6.3
30	5.9	6.0	7.0	17	---	5.9	8.1	8.3	6.0	5.7	5.8	6.6
31	5.4	---	6.8	14	---	5.7	---	7.1	---	5.7	5.4	---
TOTAL	173.9	166.0	447.9	543.4	277.2	253.0	259.9	229.0	180.5	187.3	175.9	187.2
MEAN	5.61	5.53	14.4	17.5	9.56	8.16	8.66	7.39	6.02	6.04	5.67	6.24
MAX	6.6	11	64	45	13	20	19	9.1	7.2	6.9	6.0	9.3
MIN	4.5	4.6	6.2	6.5	7.2	5.5	5.4	5.7	5.4	5.7	5.2	5.1
AC-FT	345	329	888	1080	550	502	516	454	358	372	349	371

CAL YR 1987 TOTAL 3209.9 MEAN 8.79 MAX 151 MIN 4.5 AC-FT 6370
WTR YR 1988 TOTAL 3081.2 MEAN 8.42 MAX 64 MIN 4.5 AC-FT 6110

LOCATION.--Lat 39°25'16", long 120°32'28", in SE 1/4 SW 1/4 sec.17, T.18 N., R.13 E., Nevada County, Hydrologic Unit 18020125, Tahoe National Forest, on right bank near French Lake Dam on Canyon Creek, 0.5 mi upstream from Weill Lake, and 8.2 mi north of Cisco.

PERIOD OF RECORD.--October 1986 to current year. Unpublished records for water years 1966-86 available in the files of the U.S. Geological Survey.

REMARKS.--Reservoir is formed on natural lake by rock-filled dam completed in 1859. Usable capacity, 13,940 acre-ft between elevations 6,594.90 ft, invert of outlet gate, and 6,660.28 ft, crest of spillway. Figures given represent usable contents. Released water is used for hydroelectric power and irrigation downstream. See schematic diagram for Yuba River basin.

COOPERATION.--Records were collected by Nevada Irrigation District, under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission Project. Contents not rounded to U.S. Geological Survey standards.

[illegible]

SACRAMENTO RIVER BASIN

11414440 FAUCHERIE LAKE NEAR CISCO, CA

LOCATION.--Lat 39°25'45", long 120°34'04", in SE 1/4 NE 1/4 sec.13, T.18 N., R.12 E., Nevada County, Hydrologic Unit 18020125, Tahoe National Forest, near right bank end of Faucherie Dam on Canyon Creek, 8.5 mi north of Cisco.

DRAINAGE AREA.--8.97 mi².

PERIOD OF RECORD.--October 1986 to current year. Unpublished records for water years 1965-86 available in the files of U.S. Geological Survey.

GAGE.--Staff gages, observed approximately weekly during the summer months. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Nevada Irrigation District).

REMARKS.--Reservoir is formed on natural lake by earth-filled dam initially constructed prior to 1880 and enlarged in 1964. Usable capacity, 3,740 acre-ft between elevations 6,090.00 ft, invert of outlet gate, and 6,123.00 ft, crest of spillway. Dead storage, below elevation 6,090 ft, 240 acre-ft. Figures given herein represent total contents. Released water is used for hydroelectric power and irrigation downstream. See schematic diagram for Yuba River basin.

COOPERATION.--Records were collected by Nevada Irrigation District, under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

Capacity table (elevation, in feet, and contents, in acre-feet)
(Based on survey by Nevada Irrigation District in 1964)

6,090	240	6,110	2,216
6,095	628	6,115	2,854
6,100	1,095	6,120	3,540
6,105	1,629	6,125	4,280

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	2670	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	4010	---
3	---	2390	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	3980	3995	3995	---	---	---	---
5	2315	---	---	---	---	---	---	---	---	4016	---	---
6	---	---	---	---	---	---	---	---	4010	---	---	---
7	---	---	---	3980	---	---	---	---	---	---	4010	---
8	---	---	---	---	---	---	---	---	---	---	---	2775
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	2412	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	3980	---	---	4017	---	---	---	---
12	---	---	---	---	---	---	---	---	4018	---	---	---
13	2319	---	---	3980	---	---	---	---	---	---	---	2575
14	---	---	---	---	---	---	---	---	---	---	3983	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	3980	---	4017	---	---	---	---
18	---	2577	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	4025	4008	---	2352
20	2327	---	---	---	---	---	---	---	---	---	---	2325
21	---	---	---	---	---	---	3995	---	---	---	3640	---
22	---	---	---	---	---	3995	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	4025	---	4013	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	4010	---	---	---
27	2358	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	3980	---	---	3991	---	---	---	4010	---	---

SACRAMENTO RIVER BASIN

11414465 SAWMILL LAKE NEAR GRANITEVILLE, CA

LOCATION.--Lat 39°26'44", long 120°36'02", in NW 1/4 NW 1/4 sec.11, T.18 N., R.12 E., Nevada County, Hydrologic Unit 18020125, Tahoe National Forest, near right bank end of Sawmill Lake Dam on Canyon Creek, 0.8 mi upstream from Bowman Lake, and 7.2 mi east of Graniteville.

DRAINAGE AREA.--16.4 mi².

PERIOD OF RECORD.--October 1986 to current year. Unpublished records for water years 1966-86 available in the files of U.S. Geological Survey.

GAGE.--Staff gages, observed approximately weekly during the summer months. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Nevada Irrigation District).

REMARKS.--Reservoir is formed by a rock-filled dam initially constructed prior to 1880 and enlarged in 1941. Usable capacity, 3,030 acre-ft between elevations 5,805 ft, base of dam, and 5,860 ft, crest of spillway. Figures given herein represent usable contents. Released water is used for hydroelectric power and irrigation downstream. See schematic diagram for Yuba River basin.

COOPERATION.--Records were collected by Nevada Irrigation District, under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

Capacity table (elevation, in feet, and contents, in acre-feet)
(Based on survey by Nevada Irrigation District in 1964)

5,805	0	5,840	1,130
5,820	110	5,850	2,000
5,830	430	5,860	3,030
		5,863	3,375

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	1182	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	1165	---	---	---	3030	---	---	---	---	---	---
4	---	---	---	---	---	---	3053	3048	---	---	---	---
5	1156	---	---	---	---	---	---	---	---	3053	---	---
6	---	---	---	---	---	---	---	---	3065	---	---	---
7	---	---	---	3030	---	---	---	---	---	3053	3059	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	1170	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	3030	---	---	3065	---	3053	---	---
12	---	---	---	---	---	---	---	---	3053	---	---	---
13	1156	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	3030	---	---	---	---	---	---	3032	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	3030	---	3030	---	---	---	---
18	---	1174	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	3065	---	---	---
20	1147	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	3053	---	---	---	2927	---
22	---	---	---	---	---	3053	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	3042	---	---	---
24	---	---	---	---	---	---	---	3059	---	3059	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	3053	---	---	---
27	1156	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	2882	---
31	---	---	3030	---	---	3050	---	---	---	3059	---	---

SACRAMENTO RIVER BASIN

11414690 JACKSON LAKE NEAR SIERRA CITY, CA

LOCATION.--Lat 39°27'52", long 120°33'44", in SW 1/4 SW 1/4 sec.31, T.19 N., R.12 E., Nevada County, Hydrologic Unit 18020125, Tahoe National Forest, on outlet structure on Jackson Lake Dam on Jackson Creek, 3.0 mi upstream from Bowman Lake, and 8.0 mi southeast of Sierra City.

DRAINAGE AREA.--0.65 mi².

PERIOD OF RECORD.--October 1986 to current year. Unpublished records for water years 1965-86 available in the files of U.S. Geological Survey.

GAGE.--Staff gage, observed approximately weekly during the summer months. Datum of gage is 6,570 ft above National Geodetic Vertical Datum of 1929 (levels by Nevada Irrigation District).

REMARKS.--Reservoir is formed on natural lake by earth-filled dam completed in 1859. Usable capacity, 974 acre-ft between gage height 0.0 ft, invert of outlet, and 22.67 ft, crest of spillway. Dead storage below gage height 0.0 ft, 360 acre-ft. Figures given herein represent total contents. Released water is used for hydroelectric power and irrigation downstream. See schematic diagram for Yuba River basin.

COOPERATION.--Records were collected by Nevada Irrigation District, under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

Capacity table (gage height, in feet, and contents, in acre-feet)
(Based on survey by Nevada Irrigation District in 1964)

0	360	15	958
5	545	20	1,185
10	730	24	1,407

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	649	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	512	---	---	---	---
5	---	538	---	---	---	---	---	---	---	649	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	604	---	---	---	---	---	---	---	686	---	545	---
8	---	---	---	---	---	---	---	---	---	---	---	380
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	512	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	519	---	---	---	---	---	---	---	623	---	---
13	---	---	---	---	---	---	434	---	693	---	---	360
14	582	---	---	---	---	---	---	---	---	---	530	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	380	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	612	---	---
18	---	515	---	---	---	---	---	623	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	360
20	---	---	---	---	---	---	---	---	686	---	---	360
21	---	---	---	---	---	---	486	---	---	---	478	---
22	564	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	414	---	660	675	---	---	---
24	---	512	---	---	---	---	---	---	---	582	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	377	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	660	---	---	---
28	549	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	426	---	---	---	---	428	---
31	---	---	---	---	---	---	---	---	---	575	---	---

SACRAMENTO RIVER BASIN

11415500 BOWMAN LAKE NEAR GRANITEVILLE, CA

LOCATION.--Lat 39°27'01", long 120°39'09", in SE 1/4 SW 1/4 sec.5, T.18 N., R.12 E., Nevada County, Hydrologic Unit 18020125, on right bank near rockfill portion of Bowman Dam on Canyon Creek, 4.6 mi east of Graniteville, and 8 mi south of Sigra City.

DRAINAGE AREA.--27.1 mi².

PERIOD OF RECORD.--December 1926 to current year.

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Nevada Irrigation District). Prior to Oct. 8, 1964, nonrecording gage at same site and datum.

REMARKS.--Lake is formed by one rockfill and one concrete-arch dam; storage began in November 1926. Total capacity, 68,700 acre-ft between elevations 5,400 ft, bottom of outlet tunnel, and 5,563.6 ft, top of radial spillway gates and crest of concrete-arch dam. Flashboards are occasionally added, increasing elevation to 5,565.8 ft and capacity to 70,400 acre-ft, all of which is available for release. Lake receives water from Middle Yuba River via Milton-Bowman tunnel (station 11408000), and releases it through Bowman-Spaulling canal (station 11416000) which conveys it to reservoirs of Pacific Gas & Electric Co. Water is eventually used for irrigation by Nevada Irrigation District. Records, including extremes, represent total contents. See schematic diagram of Yuba River basin.

COOPERATION.--Selected gage-height readings provided by Nevada Irrigation District.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 71,000 acre-ft, May 30, 1965, elevation, 5,566.5 ft; lake completely drained for inspection and repair Nov. 25 to Dec. 9, 1949, Oct. 1-20, 1966, Oct. 4-29, 1972, and Sept. 21-30, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 48,000 acre-ft, Aug. 25, elevation, 5,537.4 ft; minimum, 21,400 acre-ft, Jan. 24, elevation, 5,495.0 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)
(Based on table dated Nov. 24, 1926)

5,419.6	0	5,470	10,200
5,430	900	5,480	14,200
5,440	2,100	5,510	30,000
5,450	4,100	5,540	49,800
5,460	6,900	5,570	73,800

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27000	24000	23100	23700	21500	23300	30600	38000	41700	44900	46800	45300
2	26700	23900	23300	23600	21500	23500	30800	38000	42100	44700	46800	44800
3	26400	23800	23300	23500	21500	23700	31000	37900	42400	44500	46900	44300
4	26100	23800	23200	23400	21500	23900	31200	37900	42800	44300	47000	43700
5	25700	23800	23200	23300	21500	24200	31500	37900	43100	44100	47000	43200
6	25400	23700	23400	23300	21400	24400	31700	37800	43500	43800	47100	42700
7	25100	23700	23400	23300	21400	24600	32000	37800	43900	43600	47100	42100
8	24800	23600	23400	23100	21400	24800	32300	37700	44400	43400	47200	41600
9	24500	23600	23500	23000	21400	25100	32600	37600	44800	43200	47300	41000
10	24200	23600	23900	22900	21400	25400	32800	37500	45200	43300	47300	40500
11	24100	23500	24000	22800	21500	25600	33100	37400	45600	43600	47400	39900
12	24200	23500	24000	22800	21500	25700	33400	37500	46000	43900	47400	39300
13	24300	23500	24000	22800	21500	25900	33800	37500	46400	44300	47400	38800
14	24300	23500	24000	22800	21600	26100	34200	37500	46700	44600	47400	38200
15	24400	23500	24100	22800	21600	26200	34500	37500	47100	44900	47500	37700
16	24500	23400	24200	22600	21700	26400	34800	37500	47400	45200	47500	37100
17	24500	23400	24200	22500	21700	26600	35100	37600	47500	45500	47500	36600
18	24600	23300	24200	22200	21800	26800	35400	37600	47400	45600	47500	36100
19	24700	23300	24200	22000	21900	27000	35700	37600	47200	45700	47600	35500
20	24700	23300	24200	21800	22000	27300	35800	37700	47000	45800	47600	35000
21	24800	23300	24300	21600	22100	27600	35900	38000	46800	45900	47700	34500
22	24900	23200	24300	21400	22300	27800	36000	38300	46700	46000	47700	34000
23	24900	23200	24300	21400	22400	28200	36100	38600	46500	46000	47800	33600
24	24800	23200	24300	21400	22600	28500	36300	38900	46300	46100	47900	33100
25	24700	23100	24300	21400	22600	28900	36600	39100	46100	46200	47900	32500
26	24600	23100	24300	21400	22700	29200	37000	39400	45900	46300	47700	31900
27	24500	23000	24300	21400	22800	29600	37400	39700	45700	46400	47300	31400
28	24400	23000	24300	21400	22900	29800	37700	40000	45500	46500	46900	31000
29	24300	23000	24200	21500	23100	30100	37800	40400	45300	46600	46500	30700
30	24200	23000	24100	21500	---	30200	37900	40800	45100	46600	46100	30500
31	24100	---	23900	21500	---	30400	---	41200	---	46700	45800	---
MAX	27000	24000	24300	23700	23100	30400	37900	41200	47500	46700	47900	45300
MIN	24100	23000	23100	21400	21400	23300	30600	37400	41700	43200	45800	30500
a	5500.2	5498.1	5499.8	5495.3	5498.3	5510.7	5523.0	5527.8	5533.4	5535.7	5534.3	5510.8
b	-3200	-1100	+900	-2400	+1600	+7300	+7500	+3300	+3900	+1600	-900	-15300

CAL YR 1987 MAX 57700 MIN 23000 b -11400

WTR YR 1988 MAX 47900 MIN 21400 b +3200

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

SACRAMENTO RIVER BASIN

11416000 BOWMAN-SPAULDING CANAL INTAKE NEAR GRANITEVILLE, CA

LOCATION.--Lat 39°26'26", long 120°39'29", in NW 1/4 SW 1/4 sec.8, T.18 N., R.12 E., Nevada County, Hydrologic Unit 18020125, Tahoe National Forest, on left bank 0.6 mi downstream from Bowman Dam, 4.2 mi east of Graniteville, and 8.5 mi south of Sierra City.

PERIOD OF RECORD.--October 1927 to current year. Prior to October 1970, published as Bowman-Spaulding Canal at intake or Bowman-Spaulding Canal intake, near Sierra City.

REVISED RECORDS.--WSP 1395: 1935-36, 1940.

GAGE.--Water-stage recorder. Datum of gage is 5,390.39 ft above National Geodetic Vertical Datum of 1929. Prior to July 1965 at site 0.3 mi upstream at different datum.

REMARKS.--No estimated daily discharges. Records excellent except flows below 1 ft³/s, which are fair. Canal diverts from left bank of Canyon Creek at diversion dam 500 ft downstream from Bowman Dam. Water is diverted to Lake Spaulding (station 11414140) and after passing through several powerplants is used for irrigation by Nevada Irrigation District. See schematic diagram of Yuba River basin.

AVERAGE DISCHARGE.--61 years, 160 ft³/s, 115,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 345 ft³/s, Sept. 5, 1986; no flow at times in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	186	82	54	123	58	57	.18	101	.68	269	.28	290
2	186	83	56	123	58	25	.18	102	.59	271	.36	288
3	186	83	50	141	55	.86	.22	114	.55	275	.36	286
4	185	64	50	153	51	.79	.22	114	.55	274	.36	284
5	185	44	50	154	51	.73	.18	114	.58	274	.43	294
6	184	36	60	92	55	.72	.17	118	.62	273	.45	303
7	184	46	57	62	55	.67	.18	124	1.2	273	.44	301
8	183	47	89	150	55	1.6	.13	124	3.2	272	.43	300
9	183	47	86	151	55	2.2	.10	133	1.4	277	.43	300
10	182	47	57	151	56	1.4	.09	142	.55	105	.41	298
11	66	47	50	151	56	1.0	.09	140	4.7	.32	.41	301
12	.03	43	50	78	56	.83	.09	139	.46	.22	.41	303
13	.00	49	50	52	56	.81	.16	139	1.2	.17	.41	308
14	1.1	47	44	49	56	.63	.50	136	3.5	.23	.41	317
15	.00	48	45	118	57	.44	.27	137	3.4	.25	.41	312
16	.00	48	45	154	53	.42	.22	141	47	1.2	8.4	307
17	.00	45	45	154	58	.42	.21	139	143	.33	38	305
18	.00	46	45	153	27	.46	.18	139	241	.15	42	302
19	.00	46	46	153	.36	.51	46	142	267	.04	3.6	301
20	.00	46	46	153	.47	.52	106	68	266	.33	.45	307
21	.00	48	46	165	.47	.52	79	.46	265	.28	.46	309
22	.00	49	46	125	.56	.52	49	.46	266	.27	.46	302
23	53	49	46	48	.63	.61	49	.46	287	.27	.46	307
24	82	49	43	48	23	1.0	49	.47	308	.28	1.2	317
25	82	49	49	48	54	1.9	22	.46	259	.28	32	314
26	82	49	48	49	54	1.7	1.1	.46	267	.31	156	311
27	82	49	48	46	55	1.4	.64	.46	266	.29	232	309
28	82	49	72	47	55	.96	61	.84	265	.27	235	305
29	82	49	125	51	57	.61	105	.94	264	.27	243	304
30	82	49	124	51	---	.29	105	.67	265	.27	232	303
31	82	---	124	57	---	.19	---	.62	---	.27	202	---
TOTAL	2620.13	1533	1846	3250	1268.49	106.71	676.11	2512.30	3699.18	2569.30	1433.03	9088
MEAN	84.5	51.1	59.5	105	43.7	3.44	22.5	81.0	123	82.9	46.2	303
MAX	186	83	125	165	58	57	106	142	308	277	243	317
MIN	.00	36	43	46	.36	.19	.09	.46	.46	.04	.28	284
AC-FT	5200	3040	3660	6450	2520	212	1340	4980	7340	5100	2840	18030
CAL YR 1987	TOTAL 45922.78	MEAN 126	MAX 317	MIN .00	AC-FT 91090							
WTR YR 1988	TOTAL 30602.25	MEAN 83.6	MAX 317	MIN .00	AC-FT 60700							

SACRAMENTO RIVER BASIN

11416100 BOWMAN-SPAULDING CANAL AT JORDAN CREEK SIPHON VENTURI, NEAR EMIGRANT GAP, CA

LOCATION.--Lat 39°20'32", long 120°38'26", in SW 1/4 NW 1/4 sec.16, T.17 N., R.12 E., Nevada County, Hydrologic Unit 18020125, at outlet of Jordan Creek siphon, 0.6 mi downstream from Fuller Lake and 3.5 mi northeast of Emigrant Gap.

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

GAGE.--Water-stage recorder and Venturi section. Elevation of gage is 5,340 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records show water diverted from Bowman Lake (station 11415500) plus numerous small tributaries before it enters Lake Spaulding (station 11414140). Most of the water at this gage flows downstream through Spaulding No. 3 powerplant (station 11416200), which is shown as a line item below this table. See schematic diagram of Yuba River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--24 years, 220 ft³/s, 159,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 335 ft³/s, Dec. 25, 1983; no flow at times in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	177	85	43	127	64	142	.00	156	27	266	.00	264
2	177	85	77	127	64	122	.00	148	.00	268	.00	288
3	177	85	98	132	65	99	.00	151	.00	271	.00	286
4	178	85	57	154	62	68	26	153	22	271	.00	284
5	180	52	45	163	60	52	39	150	51	272	.94	284
6	180	40	49	152	60	45	47	150	24	272	.00	289
7	180	36	76	88	60	43	43	160	.00	270	1.8	287
8	180	36	110	111	61	43	43	162	.00	269	1.4	296
9	179	43	114	146	63	46	23	161	21	270	.83	293
10	179	40	161	163	64	43	7.7	171	53	154	.00	291
11	109	36	120	166	68	18	26	174	40	.00	.00	289
12	.00	22	72	146	71	1.9	43	172	.00	.00	.00	292
13	.00	8.9	71	86	72	.10	47	176	.00	.00	.00	292
14	.00	43	60	66	72	.00	49	176	.00	.00	.00	295
15	.00	43	60	78	72	18	49	168	.00	.00	.00	296
16	.00	43	59	142	76	46	47	174	33	1.1	.00	294
17	.00	43	57	160	75	43	43	187	119	.31	.00	293
18	.00	43	55	160	70	5.8	43	182	233	.00	5.2	290
19	.00	43	55	159	13	.00	75	174	251	.00	.00	290
20	.00	18	53	159	.00	.00	134	108	262	.00	.00	290
21	.00	40	49	158	.00	18	133	50	269	.00	.00	294
22	.00	43	39	177	.00	43	130	25	267	.00	.00	293
23	33	43	91	99	.00	43	111	.37	266	.00	.00	290
24	83	43	75	68	21	48	103	.00	283	.10	.00	293
25	82	42	71	60	63	52	75	.00	272	.10	11	294
26	82	43	64	60	96	49	55	37	269	.00	95	294
27	82	43	64	60	96	49	55	58	269	1.0	221	293
28	85	43	55	54	96	49	107	33	266	.83	228	292
29	88	40	96	55	103	44	163	.00	265	.00	229	291
30	87	36	122	62	---	43	160	31	265	.00	234	290
31	85	---	126	62	---	35	---	51	---	.00	217	---
TOTAL	2603.00	1345.9	2344	3600	1687.00	1308.80	1876.70	3538.37	3827.00	2586.44	1245.17	8707
MEAN	84.0	44.9	75.6	116	58.2	42.2	62.6	114	128	83.4	40.2	290
MAX	180	85	161	177	103	142	163	187	283	272	234	296
MIN	.00	8.9	39	54	.00	.00	.00	.00	.00	.00	.00	264
AC-FT	5160	2670	4650	7140	3350	2600	3720	7020	7590	5130	2470	17270
a	5230	3870	5120	7550	3800	3740	4440	7450	7900	5060	2460	16960

CAL YR 1987 TOTAL 49704.40 MEAN 136 MAX 298 MIN .00 AC-FT 98590 AC-FT a 101400
WTR YR 1988 TOTAL 34669.38 MEAN 94.7 MAX 296 MIN .00 AC-FT 68770 AC-FT a 73590

a Discharge, in acre-feet, through Spaulding No. 3 powerplant, provided by Pacific Gas & Electric Co.

SACRAMENTO RIVER BASIN

11416500 CANYON CREEK BELOW BOWMAN LAKE, CA

LOCATION.--Lat 39°26'23", long 120°39'37", in NE 1/4 SE 1/4 sec.7, T.18 N., R.12 E., Nevada County, Hydrologic Unit 18020125, on left bank 1 mi downstream from Bowman Dam, 3.5 mi upstream from Texas Creek, and 8.8 mi south of Sierra City.

DRAINAGE AREA.--28.3 mi².

PERIOD OF RECORD.--January 1927 to current year.

REVISED RECORDS.--WSP 1315-A: 1930(M). WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 5,300 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Bowman Lake (station 11415500), several smaller reservoirs, and diversion into Bowman-Spaulding Canal (station 11416000). See schematic diagram of Yuba River basin.

AVERAGE DISCHARGE.--61 years, 35.3 ft³/s, 25,570 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,970 ft³/s, Mar. 8, 1986, gage height, 9.08 ft, from rating curve extended above 1,500 ft³/s, on basis of computation of flow over Bowman dam; maximum gage height, 9.42 ft in gage well, 10.32 ft from floodmarks, Jan. 22, 1970; no flow at times in some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 32 ft³/s, Dec. 2, gage height, 3.36 ft; minimum daily, 2.4 ft³/s, Nov. 3-8, 10-12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	3.0	8.9	3.6	3.0	5.9	3.6	4.7	4.4	4.8	5.1	4.8
2	4.0	2.7	16	3.6	3.0	4.7	3.6	4.6	4.2	4.9	5.1	4.8
3	4.0	2.4	4.9	3.9	3.0	4.3	3.8	4.6	4.1	5.0	5.2	4.7
4	3.9	2.4	3.8	5.2	2.9	4.1	3.8	4.5	4.1	5.0	5.2	4.6
5	3.9	2.4	3.8	6.9	2.9	4.0	3.8	4.5	4.1	5.0	5.3	4.6
6	3.9	2.4	9.2	4.7	3.1	3.9	3.9	4.5	4.2	4.9	5.4	4.7
7	3.8	2.4	5.3	4.0	3.2	3.8	4.0	4.8	4.8	4.9	5.4	4.7
8	3.8	2.4	4.3	4.1	3.3	3.8	3.9	4.9	5.0	4.9	5.4	4.6
9	3.8	2.6	10	5.5	3.1	4.0	3.8	4.6	4.4	4.9	5.7	4.7
10	3.8	2.4	17	6.0	3.5	3.3	3.8	4.5	4.4	4.5	6.0	4.6
11	3.4	2.4	6.1	7.0	3.9	3.0	3.8	4.2	4.5	4.0	6.0	4.5
12	3.2	2.4	4.3	4.6	3.8	2.9	4.1	4.3	4.1	3.9	5.9	4.5
13	3.2	3.5	3.9	3.9	3.6	2.8	4.2	4.1	4.2	3.8	5.9	4.6
14	4.1	2.8	3.7	3.9	3.5	2.8	4.6	4.2	4.2	3.9	5.9	4.6
15	3.8	2.5	3.5	4.4	3.6	2.8	4.4	4.1	4.2	3.9	5.9	4.6
16	3.8	2.5	3.4	4.1	3.5	2.7	4.3	4.2	4.3	3.9	5.9	4.6
17	3.6	2.6	3.3	3.6	3.1	2.7	4.3	4.4	4.5	3.9	5.9	4.6
18	3.5	2.6	3.2	3.5	2.9	2.8	4.3	4.2	4.9	6.3	6.0	4.6
19	3.5	2.6	3.2	3.3	2.7	2.9	6.3	4.2	4.9	4.9	6.0	4.5
20	3.4	2.6	3.1	3.3	3.0	2.9	5.9	4.0	4.9	4.8	5.7	4.5
21	3.3	2.9	3.3	3.3	3.3	2.9	5.7	3.8	4.8	4.8	5.7	4.5
22	3.4	2.7	4.0	3.3	3.4	2.9	5.3	3.8	4.8	4.8	5.7	4.4
23	3.5	2.7	3.6	3.2	3.6	3.0	6.0	3.7	4.9	4.8	5.7	4.5
24	3.1	2.6	3.5	3.4	3.6	3.0	6.7	3.8	5.1	4.8	5.0	4.6
25	3.1	2.6	3.8	3.3	3.6	2.9	6.2	3.8	4.9	4.9	4.2	4.6
26	3.1	2.6	3.4	3.2	3.7	2.9	5.7	3.8	4.8	5.0	4.3	4.6
27	3.1	2.6	3.3	3.2	3.8	2.9	5.2	3.8	4.8	5.0	4.5	4.4
28	3.2	2.7	3.5	3.2	4.4	2.8	5.0	4.1	4.8	5.0	4.5	4.3
29	3.2	2.7	4.2	3.2	5.4	2.9	4.8	4.7	4.8	5.0	4.5	4.3
30	3.1	2.8	3.6	3.2	---	3.7	4.7	4.5	4.8	5.0	4.4	4.3
31	3.0	---	3.6	3.1	---	3.6	---	4.3	---	5.1	4.4	---
TOTAL	109.5	78.5	160.7	124.7	99.4	103.6	139.5	132.2	136.9	146.3	165.8	136.9
MEAN	3.53	2.62	5.18	4.02	3.43	3.34	4.65	4.26	4.56	4.72	5.35	4.56
MAX	4.1	3.5	17	7.0	5.4	5.9	6.7	4.9	5.1	6.3	6.0	4.8
MIN	3.0	2.4	3.1	3.1	2.7	2.7	3.6	3.7	4.1	3.8	4.2	4.3
AC-FT	217	156	319	247	197	205	277	262	272	290	329	272

CAL YR 1987 TOTAL 1735.3 MEAN 4.75 MAX 27 MIN 2.4 AC-FT 3440
WTR YR 1988 TOTAL 1534.0 MEAN 4.19 MAX 17 MIN 2.4 AC-FT 3040

SACRAMENTO RIVER BASIN

11417500 SOUTH YUBA RIVER AT JONES BAR, NEAR GRASS VALLEY, CA

LOCATION.--Lat 39°17'32", long 121°06'13", in NW 1/4 SE 1/4 sec.32, T.17 N., R.8 E., Nevada County, Hydrologic Unit 18020125, on left bank at Jones Bar, 100 ft upstream from Rush Creek, 0.9 mi downstream from bridge on State Highway 49, and 5 mi northwest of Grass Valley.

DRAINAGE AREA.--308 mi².

PERIOD OF RECORD.--October 1940 to September 1948, April 1959 to current year. Published as South Fork Yuba River at Jones Bar 1940-48, and as South Yuba River at Jones Bar 1959-63.

SEDIMENT DATA: Water years 1966-74.

WATER TEMPERATURE: Water years 1965-79 (daily records).

REVISED RECORDS.--WSP 1315-A: 1942-43(M), drainage area at former site. WSP 1931: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,060 ft above National Geodetic Vertical Datum of 1929, from river-profile map. Oct. 1, 1940, to Sept. 30, 1948, at site 150 ft upstream at datum 2.00 ft higher.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Lake Spaulding, Fordyce Lake, and Bowman Lake (stations 11414040, 11414090, and 11415500) and many smaller reservoirs. Diversions into and out of basin for several powerplants and for irrigation of about 20,000 acres by the Nevada Irrigation District. See schematic diagram of Yuba River basin.

AVERAGE DISCHARGE.--37 years, 461 ft³/s, 334,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,600 ft³/s, Dec. 22, 1964, gage height, 25.0 ft, from floodmarks, from rating curve extended above 23,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 1.0 ft³/s, Sept. 10-13, 1944.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 23, 1955, reached a stage of 30.7 ft, from floodmarks, present datum, at site 100 ft upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 975 ft³/s, Dec. 10, gage height, 6.95 ft; minimum daily, 23 ft³/s, Aug. 27 to Sept. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	35	100	108	240	396	104	157	94	48	30	23
2	29	33	416	106	215	363	102	148	92	47	31	23
3	29	34	282	383	193	266	103	140	83	45	31	24
4	27	34	133	771	178	231	107	134	78	44	31	25
5	28	32	97	781	170	212	104	129	74	43	30	24
6	28	32	211	531	161	198	101	134	75	43	31	24
7	28	34	542	360	156	189	101	135	88	44	30	24
8	28	34	316	403	150	180	100	146	98	44	30	25
9	29	38	388	410	150	177	97	136	94	43	29	28
10	30	42	821	489	153	175	94	128	84	42	29	28
11	30	38	520	788	163	164	93	121	77	41	30	29
12	30	35	267	495	173	155	91	115	71	43	30	28
13	33	51	179	365	167	148	89	117	67	40	29	27
14	32	114	145	297	161	143	113	112	63	39	30	29
15	30	71	128	432	158	142	123	106	60	38	30	29
16	30	51	137	503	158	136	106	101	58	37	30	30
17	30	49	145	479	152	131	102	121	55	36	30	29
18	30	52	117	357	144	130	100	126	54	35	33	29
19	29	50	115	283	139	130	252	109	53	34	28	30
20	29	50	104	245	133	131	493	100	51	36	27	32
21	29	68	100	223	134	131	300	94	51	33	27	46
22	29	64	185	209	136	130	241	88	52	33	26	38
23	36	55	200	206	137	130	262	84	52	33	26	34
24	42	50	143	222	137	135	228	81	50	33	26	34
25	41	48	120	228	137	130	208	77	54	32	26	34
26	34	46	111	228	137	129	194	74	69	33	25	34
27	32	45	102	225	141	129	190	72	56	35	23	35
28	33	44	143	222	149	123	180	76	50	33	23	34
29	36	45	170	231	192	114	170	112	49	32	23	34
30	43	55	141	321	---	110	161	111	49	31	23	33
31	39	---	118	273	---	108	---	99	---	31	23	---
TOTAL	983	1429	6696	11174	4614	5166	4709	3483	2001	1181	870	896
MEAN	31.7	47.6	216	360	159	167	157	112	66.7	38.1	28.1	29.9
MAX	43	114	821	788	240	396	493	157	98	48	33	46
MIN	27	32	97	106	133	108	89	72	49	31	23	23
AC-FT	1950	2830	13280	22160	9150	10250	9340	6910	3970	2340	1730	1780

CAL YR 1987 TOTAL 46240 MEAN 127 MAX 2500 MIN 27 AC-FT 91720
WTR YR 1988 TOTAL 43202 MEAN 118 MAX 821 MIN 23 AC-FT 85690

SACRAMENTO RIVER BASIN

11418000 YUBA RIVER BELOW ENGLEBRIGHT DAM, NEAR SMARTVILLE, CA

LOCATION.--Lat 39°14'07", long 121°16'23", in NW 1/4 NW 1/4 sec.23, T.16 N., R.6 E., Yuba County, Hydrologic Unit 18020125, on right bank 2,000 ft downstream from Englebright Dam, 0.5 mi upstream from Deer Creek, and 2.3 mi northeast of Smartville.

DRAINAGE AREA.--1,108 mi².

PERIOD OF RECORD.--October 1941 to current year. Prior to October 1953, published as "at Narrows Dam." October 1953 to Sept. 30, 1969, published as "at Englebright Dam." If records for Deer Creek near Smartville (station 11418500) since 1941 are added to records at this station, records equivalent to those published from 1903 to 1941 as Yuba River at Smartville (station 11419000) can be obtained.

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 278.68 ft above National Geodetic Vertical Datum of 1929 (levels by International Engineering Co.). Prior to Sept. 19, 1958, at site 2,000 ft upstream at datum 248.31 ft higher, and Sept. 19, 1958, to Sept. 30, 1969, at datum 278.68 ft lower. Supplementary gage 2,000 ft upstream since Oct. 1, 1969, at Englebright Dam at datum 248.31 ft higher.

REMARKS.--No estimated daily discharges. Records good. Diversions out of basin for power and irrigation above station up to 1,800 ft³/s (see stations 11413250, 11414190, and 11414200). Flow regulation by Lake Spaulding (station 11414140), Jackson Meadows and New Bullards Bar Reservoirs (stations 11407800 and 11413515), Englebright Reservoir beginning in 1941, capacity, 70,000 acre-ft, Bowman and Fordyce Lakes (stations 11415500 and 11414090), and many smaller reservoirs. See schematic diagram of Yuba River basin.

AVERAGE DISCHARGE.--47 years, 2,513 ft³/s, 1,821,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 171,000 ft³/s, Dec. 22, 1964, gage height, 546.14 ft, site and datum then in use, from rating curve extended above 25,000 ft³/s on basis of computation of peak flow over spillway of dam at gage heights 544.72 and 546.14 ft; no flow at times in 1942, 1949, 1956, 1958-61, 1968-69.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,680 ft³/s, Feb. 1, gage height, 8.72 ft; minimum daily, 522 ft³/s, Sept. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	557	709	634	1050	1530	622	627	620	736	985	1460	1360
2	554	733	624	1050	1520	622	626	635	744	979	1450	1370
3	554	735	659	1050	1510	624	622	656	712	993	1460	1370
4	554	733	659	1060	1520	624	624	704	686	983	1450	1360
5	559	717	660	1070	1530	624	596	776	686	981	1420	1320
6	630	709	654	1070	1530	624	537	825	698	986	1410	1320
7	675	709	654	1070	1530	636	537	829	682	1160	1400	1270
8	675	709	654	1060	1530	640	574	803	664	1450	1370	1230
9	753	709	656	1060	1530	634	596	750	681	1550	1360	1130
10	815	709	661	1060	1530	629	596	652	732	1570	1360	963
11	789	680	667	1060	1540	626	612	629	752	1580	1360	811
12	743	658	666	1070	1540	629	634	631	752	1560	1350	664
13	707	634	667	1070	1540	626	634	682	831	1540	1350	600
14	681	634	666	1060	1540	624	634	709	890	1530	1350	591
15	692	634	671	1060	1530	624	651	762	886	1520	1320	591
16	696	634	670	1060	1370	627	675	790	900	1510	1280	593
17	703	634	668	1060	1230	628	675	762	931	1490	1260	586
18	703	634	669	1290	1020	634	743	728	981	1490	1260	592
19	703	634	668	1490	1030	639	745	704	981	1500	1260	572
20	717	634	669	1500	1020	639	688	701	981	1490	1370	539
21	734	634	680	1500	1030	639	637	697	997	1490	1440	522
22	740	634	655	1510	988	650	637	696	1030	1500	1440	533
23	740	634	654	1510	738	651	636	699	1030	1520	1450	537
24	740	634	659	1520	627	650	634	727	998	1510	1440	537
25	740	610	670	1530	612	664	634	727	1030	1510	1410	548
26	740	634	670	1520	615	640	634	722	1040	1510	1370	550
27	743	634	670	1520	615	617	583	721	1040	1510	1340	554
28	746	634	670	1520	611	620	562	721	1040	1510	1340	597
29	718	634	670	1530	616	622	608	715	1030	1510	1350	559
30	701	634	675	1530	---	623	620	720	990	1510	1350	577
31	703	---	794	1520	---	627	---	723	---	1490	1360	---
TOTAL	21505	19898	20663	39030	35072	19578	18811	22216	26131	43417	42590	24346
MEAN	694	663	667	1259	1209	632	627	717	871	1401	1374	812
MAX	815	735	794	1530	1540	664	745	829	1040	1580	1460	1370
MIN	554	610	624	1050	611	617	537	620	664	979	1260	522
AC-FT	42660	39470	40990	77420	69570	38830	37310	44070	51830	86120	84480	48290

CAL YR 1987 TOTAL 307493 MEAN 842 MAX 2820 MIN 267 AC-FT 609900
WTR YR 1988 TOTAL 333257 MEAN 911 MAX 1580 MIN 522 AC-FT 661000

SACRAMENTO RIVER BASIN

11418500 DEER CREEK NEAR SMARTVILLE, CA

LOCATION.--Lat 39°13'28", long 121°16'03", in SW 1/4 SE 1/4 sec.23, T.16 N., R.6 E., Nevada County, Hydrologic Unit 18020125, on left bank 400 ft upstream from county road bridge, 0.9 mi upstream from mouth, and 2 mi northeast of Smartville.

DRAINAGE AREA.--84.6 mi².

PERIOD OF RECORD.--June 1935 to current year.

WATER TEMPERATURE: Water years 1974-79.

SEDIMENT DATA: Water years 1974-79.

REVISED RECORDS.--WSP 1395: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 630 ft above National Geodetic Vertical Datum of 1929, from river-profile map. June 21, 1935, to Nov. 30, 1938, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Natural flow of stream is affected by Scotts Flat Reservoir beginning in 1949, usable capacity, 26,300 acre-ft, increased to 49,000 acre-ft in July 1964; Deer Creek Reservoir, capacity, 1,400 acre-ft; Lake Wildwood, capacity, 3,840 acre-ft beginning in 1970, power developments, and diversion for irrigation. At times water from South Yuba River is diverted to Deer Creek and water from Deer Creek is diverted to Bear River. See schematic diagram of Yuba River basin.

AVERAGE DISCHARGE.--53 years, 130 ft³/s, 94,180 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,100 ft³/s, Feb. 17, 1986, gage height, 14.05 ft, from rating curve extended above 5,200 ft³/s; minimum daily, 0.06 ft³/s, Aug. 5, 1977.,

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 1928 reached a stage of 14.5 ft from floodmarks, discharge, 14,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,430 ft³/s, Jan. 16, gage height, 6.52 ft; minimum daily, 0.72 ft³/s, Aug. 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	1.7	84	34	32	157	2.5	14	3.3	1.6	.89	1.2
2	1.7	2.0	188	30	30	107	3.0	12	3.2	1.8	.92	1.4
3	2.0	2.1	102	284	28	44	3.5	11	2.6	2.3	.88	1.5
4	2.4	2.2	40	386	26	32	4.2	7.4	2.3	2.3	.91	1.5
5	2.1	2.2	28	384	25	28	4.3	7.3	2.3	1.9	.92	1.5
6	1.8	2.6	78	130	24	27	4.0	9.7	2.4	1.4	.95	1.5
7	1.7	2.6	180	75	24	24	3.7	23	6.6	1.3	.95	1.2
8	1.5	2.8	231	236	23	22	3.0	24	6.6	1.1	1.1	1.3
9	1.6	3.8	241	153	22	20	2.8	15	3.4	1.3	1.0	1.4
10	1.7	3.7	168	135	23	18	2.6	12	2.8	1.4	.97	1.6
11	2.1	3.3	74	414	20	18	2.9	9.1	2.5	1.7	.96	1.6
12	2.5	3.7	43	120	20	15	2.4	6.5	2.5	1.4	1.1	1.6
13	2.5	12	28	72	20	16	2.2	5.8	2.3	1.4	1.2	1.3
14	2.5	20	21	56	19	16	4.3	5.2	1.9	1.5	1.2	1.1
15	2.5	15	22	247	19	16	5.4	5.2	1.7	1.3	1.0	3.0
16	2.1	9.1	43	569	19	15	4.3	4.5	1.8	1.4	.96	2.5
17	2.1	12	70	312	16	15	4.0	7.9	1.9	1.5	.93	1.6
18	1.6	15	41	139	18	14	3.7	6.6	1.9	1.4	.88	1.6
19	1.6	10	42	83	14	14	159	5.2	2.0	1.1	.73	1.6
20	1.5	11	31	63	15	13	535	3.3	1.8	1.0	.75	1.4
21	1.5	31	29	53	15	14	114	3.9	1.7	1.0	.77	1.5
22	1.7	23	90	46	15	11	55	3.2	1.7	.97	.77	1.3
23	2.1	14	70	42	15	6.4	96	2.5	1.7	1.1	.77	1.1
24	3.8	9.2	38	38	15	5.5	51	2.0	1.6	1.1	.72	1.0
25	2.1	7.2	28	35	15	5.2	34	1.9	2.3	1.1	.84	1.1
26	1.6	6.9	25	33	14	4.5	29	1.9	2.2	1.2	.88	2.0
27	1.5	5.7	22	31	14	5.6	24	1.8	2.0	1.0	.85	3.5
28	1.6	5.8	106	29	16	2.8	18	2.0	1.7	.86	.90	2.0
29	1.6	5.5	171	35	22	2.3	16	7.0	1.5	.84	.93	.96
30	1.7	27	78	49	---	2.8	16	6.8	1.6	.80	1.1	.96
31	1.6	---	45	38	---	2.3	---	4.3	---	.91	1.2	---
TOTAL	60.2	272.1	2457	4351	578	693.4	1209.8	232.0	73.8	40.98	28.93	46.82
MEAN	1.94	9.07	79.3	140	19.9	22.4	40.3	7.48	2.46	1.32	.93	1.56
MAX	3.8	31	241	569	32	157	535	24	6.6	2.3	1.2	3.5
MIN	1.5	1.7	21	29	14	2.3	2.2	1.8	1.5	.80	.72	.96
AC-FT	119	540	4870	8630	1150	1380	2400	460	146	81	57	93

CAL YR 1987 TOTAL 12791.6 MEAN 35.0 MAX 1340 MIN 1.2 AC-FT 25370
WTR YR 1988 TOTAL 10044.03 MEAN 27.4 MAX 569 MIN .72 AC-FT 19920

SACRAMENTO RIVER BASIN

11421000 YUBA RIVER NEAR MARYSVILLE, CA

LOCATION.--Lat 39°10'33", long 121°31'26", in New Helvetia Grant, Yuba County, Hydrologic Unit 18020107, on left bank 4.2 mi northeast of Marysville and 5 mi downstream from Dry Creek.

DRAINAGE AREA.--1,339 mi².

PERIOD OF RECORD.--October 1940 to current year (prior to October 1943, low-water periods only). Published as "at Marysville" October 1940 to September 1957. Separate records published for two sites August 1954 to September 1955. Yearly discharge for the 1945 water year published in WSP 1315-A.

WATER TEMPERATURE: Water years 1973-78.

CHEMICAL DATA: Water years 1951-52, and 1973-80. Published as Yuba River at Marysville (station 11421500) during water years 1966, 1973-76.

REVISED RECORDS.--WSP 1715: 1956(M). WSP 1931: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2.95 ft below National Geodetic Vertical Datum of 1929. Prior to August 1954 and Oct. 1, 1956, to Sept. 30, 1957, at Simpson Lane Bridge in Marysville 4.2 mi downstream at same datum. Sept. 3, 1963, to Sept. 23, 1968, auxiliary water-stage recorder at Simpson Lane Bridge at same datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by several reservoirs above station. Many diversions above station for power. Diversions for irrigation of about 13,000 acres between stations below Englebright Dam and near Marysville. See schematic diagram of Yuba River basin.

AVERAGE DISCHARGE.--45 years (water years 1944-88), 2,540 ft³/s, 1,840,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (water years 1944, 1947-88), 180,000 ft³/s, Dec. 22, 1964, gage height, 90.15 ft, from floodmarks, from rating curve extended above 91,000 ft³/s on basis of U.S. Army Corps of Engineers flood-routing study; minimum recorded, 10 ft³/s, July 2, 1959.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,800 ft³/s, Jan. 16, gage height, 62.59 ft; minimum daily, 267 ft³/s, June 9, July 3, 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	444	428	691	936	1570	751	440	318	297	294	797	1080
2	443	447	749	974	1570	856	437	292	309	282	779	1090
3	448	482	739	1250	1570	745	446	284	325	267	802	1110
4	453	502	647	1710	1560	713	471	298	290	271	807	1130
5	459	478	616	1650	1570	699	479	329	280	286	803	1130
6	475	452	661	1330	1560	686	403	324	278	267	811	1090
7	596	459	823	1170	1570	683	382	320	313	336	833	1090
8	496	466	820	1320	1560	698	385	348	288	590	823	1050
9	465	487	926	1390	1560	696	427	351	267	770	799	969
10	553	484	877	1360	1560	690	414	328	278	777	793	821
11	545	490	733	1580	1560	679	398	300	306	798	782	681
12	498	468	666	1390	1560	676	384	272	310	819	789	544
13	472	476	635	1290	1560	667	355	278	323	822	801	435
14	420	482	613	1250	1550	657	327	294	345	825	815	408
15	412	469	601	1440	1540	628	308	287	302	829	827	408
16	422	476	642	1910	1480	602	316	324	302	818	804	418
17	438	515	700	1860	1350	589	303	328	319	807	811	400
18	440	521	649	1620	1160	593	300	318	340	803	792	441
19	435	510	628	1710	1110	595	426	292	310	802	817	426
20	423	514	611	1680	1100	590	1110	300	306	796	887	421
21	427	535	613	1640	1090	592	687	304	294	798	998	404
22	445	533	643	1620	1090	596	466	316	310	809	1030	400
23	461	523	673	1610	907	588	505	306	298	798	1040	406
24	457	528	620	1600	752	575	469	318	298	798	1070	395
25	458	528	606	1590	696	576	416	317	294	818	1060	391
26	456	523	597	1580	685	584	384	307	340	814	1060	401
27	459	520	593	1570	675	519	364	306	354	805	1050	404
28	462	516	652	1570	677	482	300	296	336	811	1050	433
29	470	516	801	1580	680	472	309	298	332	818	1070	426
30	435	576	719	1590	---	467	318	300	319	816	1050	424
31	432	---	667	1580	---	448	---	295	---	812	1070	---
TOTAL	14299	14904	21211	46350	36872	19392	12729	9548	9263	21156	27720	19227
MEAN	461	497	684	1495	1271	626	424	308	309	682	894	641
MAX	596	576	926	1910	1570	856	1110	351	354	829	1070	1130
MIN	412	428	593	936	675	448	300	272	267	267	779	391
AC-FT	28360	29560	42070	91940	73140	38460	25250	18940	18370	41960	54980	38140

CAL YR 1987 TOTAL 228621 MEAN 626 MAX 3360 MIN 67 AC-FT 453500
WTR YR 1988 TOTAL 252671 MEAN 690 MAX 1910 MIN 267 AC-FT 501200

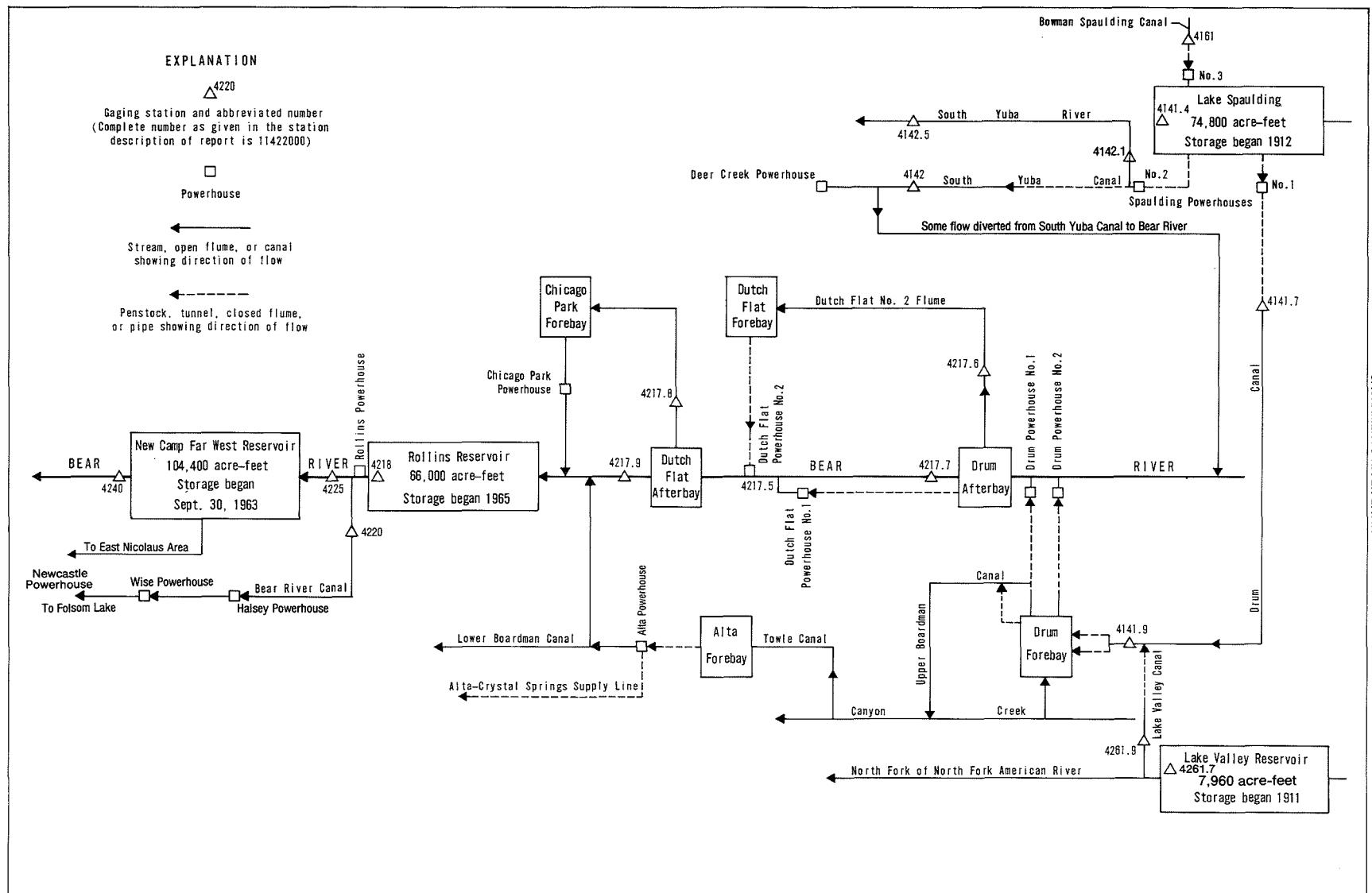


FIGURE 32--Schematic diagram showing diversions and storage in Bear River basin.

SACRAMENTO RIVER BASIN

11421710 BEAR RIVER NEAR EMIGRANT GAP, CA

LOCATION.--Lat 39°18'23", long 120°40'41", in NW 1/4 SW 1/4 sec.30 T.17 N., R.12 E., Placer County, Hydrologic Unit 18020126, on left bank 20 ft upstream from Highway 20 bridge and 0.7 mi northwest of Emigrant Gap.

DRAINAGE AREA.--0.76 mi².

PERIOD OF RECORD.--October 1987 to September 1988. Unpublished records for water years 1981-87 available in files of U.S. Geological Survey.

GAGE.--Water-stage recorder and concrete culvert. Elevation of gage is 4,550 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to October 1987, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Some water is diverted into stream from South Yuba Canal (station 11414200). See schematic diagram of Bear River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 34 ft³/s, Dec. 6, gage height, 0.82 ft; minimum daily, 5.2 ft³/s, Aug. 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.5	6.8	13	6.4	9.2	16	7.3	7.8	7.8	9.0	7.7	8.1
2	6.9	7.6	17	6.6	9.7	13	7.2	7.9	8.0	7.2	8.3	7.7
3	7.2	7.1	7.8	10	8.9	11	7.4	8.2	8.2	6.4	8.5	6.5
4	7.1	10	6.8	16	8.6	9.1	7.7	8.1	7.4	7.0	8.5	6.7
5	7.1	17	6.7	15	8.3	8.1	7.7	8.2	7.9	7.8	8.2	6.8
6	7.1	8.5	15	11	6.8	7.9	7.0	8.7	7.3	8.3	7.2	7.7
7	7.3	6.8	9.3	10	6.7	7.6	6.5	7.6	7.3	8.1	7.0	7.7
8	7.5	6.4	7.3	8.4	8.1	7.2	8.0	7.2	8.5	8.0	7.8	7.5
9	7.1	14	13	10	9.2	7.3	8.9	7.9	7.8	6.2	8.1	7.7
10	7.0	11	22	11	9.4	6.9	7.5	8.4	6.8	6.8	7.9	6.7
11	6.8	6.7	11	18	9.5	6.7	7.1	7.8	6.7	7.9	7.8	6.6
12	7.6	8.8	7.2	12	8.6	6.8	7.0	8.2	6.6	8.2	7.1	7.2
13	7.3	9.5	6.6	11	7.7	6.6	7.4	8.1	7.1	8.3	5.3	7.4
14	7.1	6.2	7.4	10	7.7	6.8	8.2	7.8	7.4	8.4	6.0	7.4
15	7.1	6.8	8.4	10	7.7	6.5	7.0	7.7	7.4	8.1	8.0	7.3
16	6.9	7.0	9.0	10	7.8	6.9	7.1	8.3	7.3	7.3	8.0	7.5
17	6.4	6.8	8.9	9.6	7.9	7.0	7.1	9.9	7.0	8.5	7.7	8.6
18	6.4	7.5	8.5	9.6	7.2	6.7	7.1	9.2	6.0	8.7	7.7	9.4
19	7.3	8.2	7.6	8.6	7.6	6.8	12	8.9	7.7	8.6	7.6	9.8
20	7.4	7.6	7.5	8.5	7.4	7.1	11	8.7	9.5	8.6	5.2	9.6
21	7.1	7.2	8.0	8.3	7.6	7.3	9.0	7.7	9.3	8.5	5.7	9.2
22	6.9	7.4	11	8.0	8.2	7.5	8.8	7.3	7.4	8.9	7.3	9.2
23	7.8	7.9	9.1	7.3	8.5	8.0	9.5	6.7	7.8	6.9	8.4	8.9
24	7.0	6.9	7.7	7.6	8.2	7.7	10	6.7	8.4	7.0	8.1	8.6
25	7.1	6.7	6.5	8.5	8.0	7.5	9.4	6.6	8.6	7.9	8.1	8.6
26	7.7	7.5	7.1	9.1	7.8	7.5	8.6	6.6	8.1	8.6	7.9	8.6
27	7.9	7.5	7.2	9.7	7.2	7.7	7.7	6.6	7.9	8.4	6.5	8.5
28	8.6	7.2	7.6	10	8.1	8.3	7.0	7.7	7.9	8.4	6.8	8.4
29	8.4	7.1	7.8	11	12	7.5	7.3	8.6	7.3	8.3	7.4	8.2
30	7.8	8.5	6.9	11	---	7.4	7.9	7.6	8.2	6.8	8.0	7.9
31	6.6	---	6.9	8.9	---	7.3	---	7.0	---	6.7	8.3	---
TOTAL	224.0	244.2	285.8	311.1	239.6	245.7	241.4	243.7	230.6	243.8	232.1	240.0
MEAN	7.23	8.14	9.22	10.0	8.26	7.93	8.05	7.86	7.69	7.86	7.49	8.00
MAX	8.6	17	22	18	12	16	12	9.9	9.5	9.0	8.5	9.8
MIN	6.4	6.2	6.5	6.4	6.7	6.5	6.5	6.6	6.0	6.2	5.2	6.5
AC-FT	444	484	567	617	475	487	479	483	457	484	460	476

WTR YR 1988 TOTAL 2982.0 MEAN 8.15 MAX 22 MIN 5.2 AC-FT 5910

SACRAMENTO RIVER BASIN

11421750 DUTCH FLAT NO. 1 POWERPLANT NEAR DUTCH FLAT, CA

LOCATION.--Lat 39°13'02", long 120°50'04", in SE 1/4 SE 1/4 sec.27, T.16 N., R.10 E., Placer County, Hydrologic Unit 18020126, in powerplant on left bank of Dutch Flat Afterbay and 0.8 mi north of Dutch Flat.

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

GAGE.--Discharge computed from powerplant output. Elevation of gage is 2,740 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Water is diverted from Drum Afterbay through Dutch Flat tunnel and discharges into Dutch Flat Afterbay. See schematic diagram of Bear River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey in connection with a Federal Energy Regulatory Commission Project.

AVERAGE DISCHARGE.--24 years, 235 ft³/s, 170,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 571 ft³/s, Apr. 13, May 9, 1982, Nov. 17, 1983, June 24, 1987; no flow at times in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES
(NOT PREVIOUSLY PUBLISHED)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	197	166	.00	9.9	253	63	270	.00	189
2	.00	.00	.00	189	166	.00	.00	220	142	320	111	173
3	.00	.00	.00	9.9	245	.00	.00	220	245	212	150	134
4	.00	.00	111	103	220	.00	9.9	205	368	.00	158	173
5	.00	.00	197	9.9	253	.00	.00	181	119	.00	189	245
6	.00	.00	173	111	205	.00	.00	111	.00	228	126	.00
7	.00	.00	181	205	181	.00	.00	134	.00	261	173	.00
8	.00	.00	189	197	220	.00	.00	79	205	220	.00	142
9	.00	.00	189	95	212	.00	9.9	134	181	286	.00	181
10	.00	.00	158	197	158	87	.00	142	253	87	103	134
11	.00	.00	142	166	87	236	9.9	205	236	63	270	181
12	.00	.00	205	95	228	270	9.9	245	286	.00	228	.00
13	.00	.00	205	79	270	418	.00	245	9.9	103	220	.00
14	.00	.00	228	63	134	36	189	197	36	228	181	166
15	.00	.00	205	79	388	.00	312	111	220	173	126	181
16	.00	.00	55	126	236	228	261	36	228	228	166	181
17	.00	.00	119	103	205	359	278	63	220	79	158	166
18	.00	.00	212	166	.00	236	134	212	126	111	181	119
19	.00	.00	197	95	.00	303	212	270	142	150	220	.00
20	.00	.00	197	142	.00	398	197	126	.00	278	166	.00
21	.00	.00	197	205	.00	173	205	142	55	236	150	212
22	.00	.00	173	119	.00	142	205	119	261	212	189	205
23	.00	.00	119	166	.00	228	205	126	189	205	166	189
24	.00	.00	111	205	.00	295	197	205	571	79	173	212
25	.00	.00	189	181	.00	261	228	71	220	.00	150	95
26	.00	.00	36	158	.00	295	150	95	.00	.00	212	55
27	.00	.00	205	212	.00	245	197	173	.00	111	197	9.9
28	.00	.00	270	158	.00	134	212	134	.00	278	150	9.9
29	.00	.00	111	158	---	87	261	95	245	173	.00	.00
30	.00	.00	126	158	---	119	236	79	278	197	55	.00
31	.00	---	150	189	---	.00	---	134	---	119	87	---
TOTAL	0.00	0.00	4650.00	4336.8	3574.00	4550.00	3728.50	4762	4898.90	4907.00	4455.00	3352.80
MEAN	.00	.00	150	140	128	147	124	154	163	158	144	112
MAX	.00	.00	270	212	388	418	312	270	571	320	270	245
MIN	.00	.00	.00	9.9	.00	.00	.00	36	.00	.00	.00	.00
AC-FT	.0	.0	9220	8600	7090	9020	7400	9450	9720	9730	8840	6650

CAL YR 1986 TOTAL 78564.90 MEAN 215 MAX 557 MIN .00 AC-FT 155800
WTR YR 1987 TOTAL 43215.00 MEAN 118 MAX 571 MIN .00 AC-FT 85720

SACRAMENTO RIVER BASIN

11421750 DUTCH FLAT NO. 1 POWERPLANT NEAR DUTCH FLAT, CA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	71	134	.00	.00	181	205	173	158	150
2	.00	158	.00	87	197	.00	.00	312	220	.00	181	166
3	.00	228	9.9	55	205	.00	.00	438	220	.00	166	150
4	.00	236	9.9	63	150	.00	.00	378	220	.00	142	142
5	.00	111	.00	71	166	.00	.00	378	173	103	111	134
6	.00	95	79	150	.00	.00	.00	428	236	197	.00	212
7	.00	.00	228	278	95	.00	.00	95	212	158	.00	166
8	.00	.00	103	55	205	.00	.00	103	197	119	79	134
9	.00	119	173	.00	150	.00	.00	295	212	150	245	150
10	.00	189	79	.00	55	.00	.00	312	205	142	245	55
11	.00	212	79	189	111	.00	.00	330	205	158	253	173
12	150	181	36	103	55	.00	.00	359	212	166	111	270
13	189	126	.00	253	103	.00	.00	359	134	166	.00	197
14	205	.00	189	142	103	.00	.00	339	36	166	.00	173
15	166	.00	236	126	119	.00	.00	339	220	134	119	134
16	126	9.9	220	245	181	.00	.00	408	220	142	173	181
17	63	119	228	158	474	.00	.00	515	150	158	295	158
18	.00	166	261	173	205	.00	.00	501	.00	150	278	.00
19	150	166	.00	134	.00	.00	.00	515	.00	150	126	.00
20	158	95	.00	220	55	.00	9.9	487	9.9	158	.00	.00
21	126	.00	270	111	119	.00	173	303	312	134	.00	.00
22	220	.00	173	349	9.9	.00	.00	236	303	150	95	.00
23	197	36	181	.00	.00	.00	.00	173	253	.00	189	.00
24	79	166	142	111	.00	.00	9.9	220	119	.00	158	.00
25	55	95	63	270	.00	.00	36	220	.00	126	166	.00
26	158	.00	63	197	.00	.00	55	312	.00	166	36	.00
27	158	.00	150	197	.00	9.9	36	212	197	134	95	.00
28	189	.00	134	158	.00	.00	71	220	312	134	87	.00
29	158	.00	173	111	.00	.00	119	173	320	150	158	.00
30	158	.00	95	103	---	.00	189	181	286	166	150	.00
31	.00	---	.00	126	---	.00	---	236	---	228	197	---
TOTAL	2705.00	2507.90	3374.80	4306.00	2891.90	9.90	698.80	9558	5388.90	3978.00	4013.00	2745.00
MEAN	87.3	83.6	109	139	99.7	.32	23.3	308	180	128	129	91.5
MAX	220	236	270	349	474	9.9	189	515	320	228	295	270
MIN	.00	.00	.00	.00	.00	.00	.00	95	.00	.00	.00	.00
AC-FT	5370	4970	6690	8540	5740	20	1390	18960	10690	7890	7960	5440
CAL YR 1987	TOTAL 47152.70	MEAN 129	MAX 571	MIN .00	AC-FT 93530							
WTR YR 1988	TOTAL 42177.20	MEAN 115	MAX 515	MIN .00	AC-FT 83660							

SACRAMENTO RIVER BASIN

11421760 DUTCH FLAT NO. 2 FLUME NEAR BLUE CANYON, CA

LOCATION.--Lat 39°15'16", long 120°46'28", in SE 1/4 NE 1/4 sec.18, T.16 N., R.11 E., Placer County, Hydrologic Unit 18020126, on left bank 600 ft downstream from Drum Afterbay, and 3.6 mi west of Blue Canyon.

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

GAGE.--Water-stage recorder. Datum of gage is 3,348.09 ft above National Geodetic Vertical Datum of 1929 (levels by Nevada Irrigation District).

REMARKS.--Estimated daily discharges: Apr. 17 to June 7, Sept. 19-30. Records good. Water is diverted from Drum Afterbay through the flume to Dutch Flat No. 2 powerplant and then to Dutch Flat Afterbay. See schematic diagram of Bear River basin.

AVERAGE DISCHARGE.--22 years, 333 ft³/s, 241,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 626 ft³/s, Sept. 29, 1983; no flow at times in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	6.0	199	17	313	357	3.8	.00	.00	286	326	399
2	3.1	203	321	10	403	289	3.6	.00	.00	8.5	400	298
3	3.2	62	252	121	328	182	3.6	.00	.00	6.8	394	8.6
4	3.3	115	161	301	352	104	3.6	.00	.00	6.2	426	5.8
5	3.3	253	37	226	331	18	3.5	.00	.00	105	248	6.1
6	3.4	200	69	272	40	6.6	4.0	.00	.00	405	8.1	279
7	3.4	15	119	207	6.7	6.7	4.5	.00	2.9	420	5.6	391
8	4.1	8.5	96	151	296	76	4.5	.00	5.1	360	129	371
9	6.1	286	135	229	355	68	4.5	.00	5.2	30	260	331
10	5.7	334	279	209	311	72	4.3	.00	5.4	6.0	193	31
11	5.9	292	33	400	203	15	3.8	.00	5.4	318	187	6.4
12	207	332	13	391	50	9.2	3.6	.00	5.4	391	33	236
13	424	49	7.7	281	12	6.3	3.7	.00	181	417	10	349
14	378	11	224	295	7.4	3.4	3.6	.00	323	442	6.2	371
15	405	11	382	223	7.4	3.4	3.6	.00	173	365	161	362
16	311	61	432	353	102	3.4	3.6	.00	112	251	169	388
17	11	23	531	351	23	3.4	2.0	.00	119	445	167	397
18	5.8	24	392	358	6.9	3.7	.00	.00	6.6	453	142	49
19	283	25	290	350	7.0	3.8	.00	.00	6.0	451	285	.00
20	390	20	444	348	7.0	3.9	.00	.00	186	456	8.4	.00
21	378	14	282	267	7.0	4.1	.00	.00	57	446	4.9	.00
22	178	12	434	210	221	3.9	.00	.00	6.7	380	172	.00
23	94	12	409	57	222	3.8	.00	.00	261	13	371	.00
24	11	14	303	27	231	3.7	.00	.00	258	6.0	378	.00
25	6.7	14	12	174	249	3.8	.00	.00	6.8	209	357	.00
26	301	14	7.7	296	241	3.9	.00	.00	5.4	409	368	.00
27	338	14	7.7	347	7.0	4.9	.00	.00	5.8	424	52	.00
28	371	13	248	376	7.7	4.7	.00	.00	6.3	422	53	.00
29	402	13	271	395	157	3.9	.00	.00	6.3	388	337	.00
30	358	123	300	49	---	4.1	.00	.00	337	22	395	.00
31	7.4	---	187	17	---	3.8	---	.00	---	7.8	388	---
TOTAL	4904.5	2573.5	6878.1	7308	4504.1	1279.4	63.80	0.00	2086.30	8349.3	6434.2	4278.90
MEAN	158	85.8	222	236	155	41.3	2.13	.00	69.5	269	208	143
MAX	424	334	531	400	403	357	4.5	.00	337	456	426	399
MIN	3.1	6.0	7.7	10	6.7	3.4	.00	.00	.00	6.0	4.9	.00
AC-FT	9730	5100	13640	14500	8930	2540	127	.0	4140	16560	12760	8490

CAL YR 1987 TOTAL 73368.4 MEAN 201 MAX 579 MIN 2.6 AC-FT 145500
WTR YR 1988 TOTAL 48660.10 MEAN 133 MAX 531 MIN .00 AC-FT 96520

SACRAMENTO RIVER BASIN

11421770 BEAR RIVER BELOW DRUM AFTERBAY, NEAR BLUE CANYON, CA

LOCATION.--Lat 39°15'16", long 120°46'26", in SW 1/4 NW 1/4 sec.17, T.16 N., R.11 E., Placer County, Hydrologic Unit 18020126, on left bank 60 ft downstream from Drum Afterbay Dam and 3.5 mi west of Blue Canyon.

DRAINAGE AREA.--12.3 mi².

PERIOD OF RECORD.--April 1966 to current year, low flows only April to September 1966.

GAGE.--Water-stage recorder and 4-ft steel Cipolletti weir set in a concrete broad-crested weir. Elevation of gage is 3,300 ft above National Geodetic Vertical Datum of 1929, from topographic map. April 1966 to May 25, 1967, water-stage recorder at present site at different datum. May 26, 1967, to Feb. 11, 1968, water-stage recorder at site 1,000 ft downstream at different datum.

REMARKS.--No estimated daily discharges. Water for Dutch Flat No. 1 powerplant (station 11421750) and Dutch Flat No. 2 flume (station 11421760) is diverted from Drum Afterbay just upstream from station. See schematic diagram of Bear River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--22 years, 21.6 ft³/s, 15,650 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,530 ft³/s, Apr. 11, 1982, gage height, 4.64 ft, from rating curve extended above 1,200 ft³/s; minimum daily, 1.0 ft³/s, Dec. 9, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 22 ft³/s, Sept. 19, gage height, 1.15 ft; minimum daily, 5.1 ft³/s, Sept. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	5.4	6.0	6.2	6.1	10	10	5.4	5.3	5.3	5.3	5.3
2	5.2	5.9	5.9	6.2	5.8	10	5.6	5.3	5.3	5.3	5.3	5.3
3	5.2	6.1	5.8	6.2	5.8	10	5.2	5.3	5.3	5.3	5.3	5.3
4	5.2	6.2	5.8	6.2	5.5	10	5.3	5.4	5.4	5.3	5.3	5.3
5	5.2	6.2	5.8	6.1	5.8	10	5.3	5.3	5.3	5.4	5.3	5.3
6	5.2	6.2	6.0	6.1	5.7	10	5.3	5.3	5.3	5.3	5.3	5.3
7	5.2	5.9	6.0	5.9	5.8	10	5.3	5.4	5.4	5.3	5.3	5.3
8	5.5	5.7	5.8	5.9	5.8	10	5.4	5.4	5.4	5.3	5.3	5.3
9	6.1	5.9	6.0	6.0	5.8	10	5.3	5.4	5.4	5.3	5.3	5.3
10	5.9	6.1	5.9	6.0	5.8	10	5.3	5.3	5.4	5.4	5.3	5.3
11	5.9	6.2	6.1	6.0	5.5	10	5.3	5.4	5.3	5.3	5.3	5.3
12	6.4	6.1	6.1	5.9	5.2	10	5.3	5.3	5.4	5.4	5.3	5.4
13	6.4	6.1	6.1	5.9	5.3	10	5.4	5.4	5.4	5.3	5.3	5.2
14	6.5	5.9	6.0	5.8	5.3	10	5.3	5.4	5.4	5.3	5.3	5.1
15	6.3	5.7	6.1	5.9	5.3	10	5.3	5.3	5.3	5.3	5.3	5.2
16	6.0	5.5	6.0	5.9	5.4	10	5.3	5.3	5.4	5.3	5.3	5.2
17	5.8	6.1	5.9	5.8	5.5	10	5.3	5.3	5.4	5.3	5.3	5.4
18	5.8	6.0	5.9	6.0	5.5	10	5.2	5.3	5.4	5.3	5.3	9.1
19	6.0	6.0	6.0	6.0	5.5	10	5.4	5.4	5.4	5.3	5.3	16
20	6.0	6.1	6.1	6.0	5.5	10	5.4	5.4	5.4	5.3	5.3	15
21	6.0	6.0	6.0	5.9	5.5	10	5.4	5.4	5.3	5.3	5.3	8.8
22	6.1	5.8	5.9	5.8	5.5	10	5.3	5.4	5.4	5.3	5.3	9.2
23	6.1	5.7	5.9	5.7	5.5	10	5.4	5.3	5.3	5.3	5.3	9.7
24	6.0	6.0	5.9	5.8	5.5	10	5.4	5.3	5.4	5.3	5.3	9.6
25	6.0	6.1	5.8	5.8	5.5	10	5.3	5.4	5.4	5.3	5.3	9.6
26	6.0	6.0	6.0	6.0	5.5	10	5.3	5.3	5.4	5.3	5.3	9.6
27	6.1	5.8	5.9	5.8	5.5	10	5.3	5.4	5.4	5.5	5.3	9.6
28	6.1	5.5	6.0	5.8	5.5	10	5.3	5.3	5.4	5.3	5.3	9.4
29	6.1	5.5	5.8	5.9	8.5	10	5.3	5.4	5.4	5.3	5.3	8.8
30	6.0	5.6	5.8	6.0	---	10	5.3	5.3	5.4	5.3	5.3	8.8
31	5.6	---	5.9	6.1	---	10	---	5.4	---	5.3	5.3	---
TOTAL	181.1	177.3	184.2	184.6	164.4	310	164.5	165.9	161.1	164.8	164.3	223.0
MEAN	5.84	5.91	5.94	5.95	5.67	10.0	5.48	5.35	5.37	5.32	5.30	7.43
MAX	6.5	6.2	6.1	6.2	8.5	10	10	5.4	5.4	5.5	5.3	16
MIN	5.2	5.4	5.8	5.7	5.2	10	5.2	5.3	5.3	5.3	5.3	5.1
AC-FT	359	352	365	366	326	615	326	329	320	327	326	442

CAL YR 1987 TOTAL 2033.7 MEAN 5.57 MAX 8.6 MIN 4.7 AC-FT 4030
WTR YR 1988 TOTAL 2245.2 MEAN 6.13 MAX 16 MIN 5.1 AC-FT 4450

SACRAMENTO RIVER BASIN

11421780 CHICAGO PARK FLUME NEAR DUTCH FLAT, CA

LOCATION.--Lat 39°12'55", long 120°50'23", in NW 1/4 NE 1/4 sec.34, T.16 N., R.10 E., Nevada County, Hydrologic Unit 18020126, on left bank 670 ft downstream from Dutch Flat Afterbay and 0.6 mi north of Dutch Flat.

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

GAGE.--Water-stage recorder. Elevation of gage is 2,600 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Sept. 8, 1968, at site 420 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Oct. 1-12, Mar. 15-28, Mar. 30 to Apr. 8, Apr. 10-18, and Sept. 19-30. Records excellent except those for discharges below 70 ft³/s, which are poor. Water is diverted from Dutch Flat Afterbay through the flume to Chicago Park powerplant and then to Bear River. See schematic diagram of Bear River basin.

AVERAGE DISCHARGE.--22 years, 612 ft³/s, 443,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 1,130 ft³/s, Nov. 19, 1983; no flow several days in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	139	271	136	424	457	20	241	276	511	420	630
2	.00	138	397	138	692	290	20	341	265	20	636	522
3	.00	311	274	185	553	237	20	379	249	20	496	218
4	.00	404	144	504	521	166	20	418	251	20	545	218
5	.00	396	107	381	587	27	20	525	249	171	436	202
6	.00	340	201	431	132	20	20	424	251	535	20	359
7	.00	20	344	652	125	20	20	130	250	545	20	589
8	.00	20	296	388	444	161	20	130	251	553	144	599
9	.00	387	365	318	616	115	137	299	250	234	485	485
10	.00	566	492	288	476	20	20	330	237	193	486	105
11	.00	512	273	610	215	204	20	500	225	323	481	191
12	136	511	117	681	258	20	20	380	225	568	184	532
13	495	199	20	678	148	85	20	380	313	555	20	568
14	625	20	433	520	176	140	20	379	418	558	20	558
15	559	20	664	402	158	20	20	380	400	523	178	598
16	495	95	688	555	254	20	20	474	399	345	566	708
17	118	205	849	542	308	20	20	537	388	557	515	631
18	20	197	735	611	312	20	20	568	20	559	438	180
19	304	195	411	481	310	20	124	565	20	561	476	.00
20	600	192	393	545	161	20	78	563	146	585	20	.00
21	537	77	525	525	152	20	109	340	379	599	20	.00
22	385	20	700	518	274	20	113	320	378	585	219	.00
23	282	20	659	187	292	20	20	264	495	20	596	.00
24	132	181	510	181	253	20	20	276	445	20	517	.00
25	111	200	139	471	255	20	100	267	20	252	625	.00
26	326	44	152	591	266	20	89	163	20	610	516	.00
27	594	20	232	566	20	20	20	276	117	593	89	.00
28	566	20	358	533	20	20	80	277	424	511	215	.00
29	557	20	452	577	122	114	136	277	442	512	390	.00
30	458	64	422	280	---	28	339	274	499	193	596	.00
31	137	---	353	159	---	20	---	276	---	298	651	---
TOTAL	7437.00	5533	11976	13634	8524	2404	1705	10953	8302	12129	11020	7893.00
MEAN	240	184	386	440	294	77.5	56.8	353	277	391	355	263
MAX	625	566	849	681	692	457	339	568	499	610	651	708
MIN	.00	20	20	136	20	20	20	130	20	20	20	.00
AC-FT	14750	10970	23750	27040	16910	4770	3380	21730	16470	24060	21860	15660

CAL YR 1987 TOTAL 122021.00 MEAN 334 MAX 925 MIN .00 AC-FT 242000
WTR YR 1988 TOTAL 101510.00 MEAN 277 MAX 849 MIN .00 AC-FT 201300

SACRAMENTO RIVER BASIN

11421790 BEAR RIVER BELOW DUTCH FLAT AFTERBAY, NEAR DUTCH FLAT, CA

LOCATION.--Lat 39°12'55", long 120°50'23", in NE 1/4 NW 1/4 sec.34, T.16 N., R.10 E., Placer County, Hydrologic Unit 18020126, at left bank downstream end of spillway on Dutch Flat Afterbay Dam, 0.6 mi north of Dutch Flat.

DRAINAGE AREA.--21.5 mi².

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

REVISED RECORDS.--WDR CA-82-4: 1978, 1979(M), 1980.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 2,600 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records excellent except those above 20 ft³/s, which are good. Water is imported from South Yuba River basin via Drum Canal above forebay (station 11414190). Chicago Park flume (station 11421780) diverts upstream from station to Chicago Park powerplant. Records include spill over Dutch Flat Afterbay Dam. See schematic diagram of Bear River basin.

AVERAGE DISCHARGE.--22 years, 29.1 ft³/s, 21,080 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,240 ft³/s, Feb. 17, 1986; minimum daily, 0.08 ft³/s, Mar. 8-19, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 75 ft³/s, Oct. 1, gage height, 2.28 ft; minimum daily, 5.6 ft³/s, Dec. 19, 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	7.8	5.8	5.7	5.7	5.7	5.7	11	10	11	11	11
2	13	5.8	5.7	5.7	5.7	5.7	5.7	11	10	11	11	11
3	13	5.9	5.7	5.7	5.7	5.7	5.7	11	10	11	11	11
4	23	5.9	5.7	5.7	5.7	5.7	5.7	11	10	11	11	11
5	26	5.9	5.9	5.7	5.7	5.7	5.7	11	10	11	11	11
6	17	5.8	5.9	5.7	5.7	5.7	5.7	11	10	11	11	11
7	13	5.9	5.7	5.7	5.7	5.7	5.7	11	10	11	11	11
8	11	5.9	5.7	5.7	5.7	5.7	5.7	11	10	11	11	11
9	11	5.9	5.8	5.7	5.7	5.7	5.7	11	10	11	11	11
10	11	5.8	5.7	5.7	5.7	5.7	5.7	11	11	11	11	11
11	11	5.8	5.7	5.7	5.7	5.7	5.7	11	11	11	11	11
12	11	5.8	5.7	5.7	5.7	5.7	5.7	11	11	11	11	11
13	12	5.8	5.7	5.7	5.7	5.7	5.7	11	11	11	11	11
14	12	5.9	5.7	5.7	5.7	5.7	5.7	11	11	10	11	11
15	12	5.9	5.7	5.7	5.7	5.7	5.7	11	11	10	11	11
16	12	5.9	5.7	5.7	5.7	5.7	5.7	11	11	11	11	11
17	12	5.8	5.7	5.7	5.7	5.7	5.7	11	11	11	11	16
18	12	5.9	5.7	5.7	5.7	5.7	5.7	11	11	11	11	32
19	12	5.9	5.6	5.7	5.7	5.7	5.7	11	11	11	11	49
20	12	5.9	5.7	5.7	5.7	5.7	5.7	11	11	11	11	49
21	12	5.8	5.7	5.7	5.7	5.7	5.7	11	11	11	11	43
22	12	5.7	5.8	5.7	5.7	5.7	5.7	11	11	12	11	18
23	12	5.7	5.7	5.7	5.7	5.7	5.7	11	11	12	11	13
24	12	5.9	5.7	5.7	5.7	5.7	5.7	11	11	12	11	13
25	12	5.8	5.7	5.7	5.7	5.7	5.7	11	11	11	11	13
26	12	5.7	5.7	5.7	5.7	5.7	5.7	11	11	11	11	13
27	12	5.7	5.7	5.7	5.7	5.7	5.7	11	11	11	11	13
28	12	5.7	5.6	5.7	5.7	5.7	5.7	11	11	11	11	13
29	12	5.7	5.7	5.7	5.7	5.7	5.8	11	11	11	11	13
30	12	5.7	5.7	5.7	---	5.7	8.1	10	11	11	11	13
31	12	---	5.7	5.7	---	5.7	---	10	---	11	11	---
TOTAL	436	176.6	177.2	176.7	165.3	176.7	173.5	339	321	342	341	487
MEAN	14.1	5.89	5.72	5.70	5.70	5.70	5.78	10.9	10.7	11.0	11.0	16.2
MAX	48	7.8	5.9	5.7	5.7	5.7	8.1	11	11	12	11	49
MIN	11	5.7	5.6	5.7	5.7	5.7	5.7	10	10	10	11	11
AC-FT	865	350	351	350	328	350	344	672	637	678	676	966

CAL YR 1987 TOTAL 9188.3 MEAN 25.2 MAX 920 MIN 5.6 AC-FT 18220
WTR YR 1988 TOTAL 3312.0 MEAN 9.05 MAX 49 MIN 5.6 AC-FT 6570

SACRAMENTO RIVER BASIN

11421800 ROLLINS RESERVOIR NEAR COLFAX, CA

LOCATION.--Lat 39°08'08", long 120°57'03", in NE 1/4 SE 1/4 sec.22, T.15 N., R.9 E., Placer County, Hydrologic Unit 18020126, on left bank 300 ft upstream from Rollins Dam on Bear River, 2.3 mi north of Colfax.

DRAINAGE AREA.--104 mi².

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Nevada Irrigation District).

REMARKS.--Reservoir is formed by an earthfill dam. Storage began Dec. 15, 1964. Usable capacity, 66,000 acre-ft between elevations 1,970.0 ft, invert of outlet tunnel, and 2,171.0 ft, spillway crest. Dead storage, 270 acre-ft. Several diversions into and out of basin upstream for power development and irrigation. Water is normally released through Rollins powerplant (station 11421900) and is shown as a line item below this table. Part of the water then is diverted to Bear River Canal (station 11422000) for power development. Water is later used for irrigation. See schematic diagram of Bear River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 71,700 acre-ft, Feb. 17, 1986, elevation, 2,177.7 ft; minimum since reservoir first filled, 4,250 acre-ft, Oct. 10, 1977, elevation, 2,022.5 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 62,900 acre-ft, July 22, elevation, 2,167.2 ft; minimum, 35,100 acre-ft, Oct. 19, elevation, 2,124.7 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)
(Based on table provided by Nevada Irrigation District in 1964)

2,020	3,920	2,100	23,900
2,030	5,320	2,120	32,700
2,040	6,990	2,140	43,800
2,050	8,940	2,160	57,300
2,060	11,200	2,178	72,000
2,080	16,800		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47700	41000	40200	40600	53000	50200	50300	50300	60700	62200	61000	52800
2	46800	41100	40500	40100	53600	50900	50100	50700	60900	61600	61400	52900
3	45800	41700	40200	40300	54000	51400	50000	51100	60900	61000	61500	52300
4	44700	42500	39600	41400	54200	51700	49900	51600	60900	60400	61600	51700
5	43600	43300	38900	42300	54600	51800	49800	52300	61000	60000	61600	51000
6	42500	44100	38500	42800	54000	51800	49600	52900	61100	60300	60600	50600
7	41400	44100	38500	43500	53400	51700	49500	52900	61100	60700	59700	50700
8	40300	44100	38600	43800	53400	52000	49300	52800	61200	61100	59000	50900
9	39200	44800	39100	44100	53800	52100	49500	53100	61300	60800	59000	51000
10	38100	45900	39900	44300	53900	52000	49400	53500	61400	60400	59000	50200
11	37000	46900	39700	45800	53500	52400	49100	54300	61400	60200	59000	49400
12	36000	47900	38900	46900	53100	52400	48900	54800	61400	60500	58400	49500
13	35900	48500	38100	47700	52500	52400	48600	55300	61500	60800	57400	49600
14	36200	48400	38000	48100	52000	52600	48400	55700	61800	61100	56400	49700
15	36500	48300	38500	48500	51600	52500	48300	56100	62000	61400	55600	50000
16	36800	48200	39200	49400	51300	52400	48000	56700	62200	61100	55800	50400
17	36300	48200	40100	50400	51200	52300	47800	57500	62400	61400	55900	50700
18	35500	48200	40900	51200	50900	52200	47600	58300	62000	61600	55800	50200
19	35200	48400	40800	51700	50800	52000	48000	59000	61400	61900	55700	49200
20	35800	48600	40800	52100	50300	51800	48600	59600	61000	62300	54800	48300
21	36200	48100	40900	52500	49800	51700	48900	59900	61200	62600	53800	47300
22	36300	47300	41700	52800	49500	51500	49200	60100	61400	62900	53200	46300
23	36300	46400	42300	52400	49400	51300	49300	60300	61800	62200	53400	45200
24	35800	45800	42500	52000	49100	51200	49300	60400	62300	61300	53400	44200
25	35400	45100	41900	52100	48900	51100	49400	60500	61700	60800	53600	43100
26	36000	44200	41300	52500	49100	50900	49600	60300	61100	61200	53800	42100
27	37300	43200	40800	52900	49000	50800	49600	60300	60700	61600	52900	41000
28	38500	42300	40800	53200	48900	50600	49600	60300	60900	61800	52300	40000
29	39700	41300	41000	53600	49100	50600	49700	60400	61300	62000	52000	39000
30	40700	40500	41100	53500	---	50600	50100	60500	61700	61500	52200	38000
31	40800	---	41100	53000	---	50400	---	60600	---	61100	52500	---
MAX	47700	48600	42500	53600	54600	52600	50300	60600	62400	62900	61600	52900
MIN	35200	40500	38000	40100	48900	50200	47600	50300	60700	60000	52000	38000
a	2135.0	2134.4	2135.6	2154.0	2148.3	2150.4	2149.9	2164.3	2165.6	2165.0	2153.3	2130.1
b	-7700	-300	+600	+11900	-3900	+1300	-300	+10500	+1100	-600	-8600	-14500
c	22650	8730	29370	28700	24000	6770	7660	13770	16380	27520	30270	28770

CAL YR 1987 MAX 64600 MIN 35200 b -9800
WTR YR 1988 MAX 62900 MIN 35200 b -10500

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

c Discharge, in acre-feet, through Rollins powerplant, provided by Nevada Irrigation District.

SACRAMENTO RIVER BASIN

11422000 BEAR RIVER CANAL INTAKE NEAR COLFAX, CA

LOCATION.--Lat 39°07'58", long 120°57'12", in SW 1/4 SE 1/4 sec.22, T.15 N., R.9 E., Placer County, Hydrologic Unit 18020126, on right bank 400 ft downstream from canal inlet, 0.2 mi downstream from Rollins Dam, and 2.2 mi north of Colfax.

PERIOD OF RECORD.--January 1912 to September 1953, October 1964 to current year. Monthly discharge only for some periods published in WSP 1315-A. Prior to October 1912, published as Pacific Gas & Electric Co.'s Canal near Colfax; October 1912 to September 1953, published as Bear River Canal near Colfax.

GAGE.--Water-stage recorder. Elevation of gage is 1,950 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Mar. 25, 1946, water-stage recorder at site 1.5 mi downstream at different datum.

REMARKS.--Estimated daily discharges: Oct. 26-31, Nov. 4-8. Canal diverts from left bank of Bear River. Water is used to develop power at Halsey and Wise powerplants (stations 11425310 and 11425415). Part of the water is distributed for irrigation, and the remainder is eventually spilled into North Fork American River. See schematic diagram of Bear River basin.

COOPERATION.--Records collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--65 years (water years 1913-53, 1965-88), 307 ft³/s, 222,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 531 ft³/s, Oct. 5, 6, 1980; no flow at times in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	355	42	469	400	464	77	107	141	152	250	392	422
2	362	40	470	399	464	78	108	142	154	250	388	422
3	415	30	470	383	466	78	109	149	155	251	427	420
4	452	.00	468	371	465	78	110	157	156	251	423	421
5	468	.00	466	367	462	78	110	155	157	280	397	421
6	465	.00	464	387	460	78	110	154	158	335	393	422
7	465	.00	464	449	458	78	111	133	159	333	390	422
8	466	.00	439	447	458	78	111	118	160	334	397	422
9	467	30	461	445	458	78	111	118	162	332	402	426
10	466	89	462	446	458	77	115	109	163	333	399	425
11	467	54	466	449	457	78	141	104	165	355	401	424
12	466	55	462	447	455	78	161	104	172	378	401	425
13	466	56	460	444	455	78	157	119	176	372	404	426
14	467	56	459	444	411	78	156	134	202	369	404	428
15	433	57	460	444	377	79	150	134	236	368	403	430
16	384	110	462	419	396	83	143	143	252	366	403	432
17	364	204	458	363	392	92	144	148	228	366	407	434
18	364	193	464	374	402	104	148	150	214	368	409	436
19	364	99	471	439	392	105	125	153	214	370	407	435
20	365	103	473	460	385	105	49	218	221	372	408	433
21	367	247	473	472	384	106	37	152	228	373	409	435
22	366	413	459	471	383	107	78	152	228	372	410	434
23	343	427	472	472	383	109	93	152	227	372	414	434
24	330	466	469	473	359	110	69	152	228	372	416	434
25	267	484	468	472	357	111	56	164	227	373	418	434
26	267	484	467	470	218	111	65	185	225	376	420	434
27	.00	480	466	470	77	112	88	197	224	377	420	428
28	.00	477	445	468	76	113	95	196	228	374	420	406
29	.00	474	421	468	77	112	122	183	243	381	419	400
30	17	470	420	467	---	115	140	176	250	395	420	398
31	24	---	412	465	---	110	---	162	---	400	421	---
TOTAL	10502.00	5640.00	14240	13545	11049	2874	3319	4654	5964	10798	12642	12763
MEAN	339	188	459	437	381	92.7	111	150	199	348	408	425
MAX	468	484	473	473	466	115	161	218	252	400	427	436
MIN	.00	.00	412	363	76	77	37	104	152	250	388	398
AC-FT	20830	11190	28250	26870	21920	5700	6580	9230	11830	21420	25080	25320
a	17520	9030	25310	24720	20520	4730	4850	6270	10140	18380	22240	22870
b	16180	8740	23140	21060	17160	2910	3300	5500	7070	11020	13710	17700

CAL YR 1987 TOTAL 126484.00 MEAN 347 MAX 484 MIN .00 AC-FT 250900 AC-FT a 230900 AC-FT b 191400
WTR YR 1988 TOTAL 107990.00 MEAN 295 MAX 484 MIN .00 AC-FT 214200 AC-FT a 186600 AC-FT b 147500

a Discharge, in acre-feet, to Halsey powerplant, provided by Pacific Gas & Electric Co.

b Discharge, in acre-feet, to Wise powerplant, provided by Pacific Gas & Electric Co.

SACRAMENTO RIVER BASIN

11422500 BEAR RIVER BELOW ROLLINS DAM, NEAR COLFAX, CA

LOCATION.--Lat 39°07'53", long 120°57'29", in SE 1/4 SW 1/4 sec.22, T.15 N., R.9 E., Nevada County, Hydrologic Unit 18020126, on right bank 20 ft upstream from new highway bridge, 0.5 mi downstream from Rollins Dam, and 2.2 mi north of Colfax.

DRAINAGE AREA.--105 mi².

PERIOD OF RECORD.--January 1912 to September 1913, October 1913 to July 1915 (gage heights and discharge measurements only), August 1915 to June 1917, November 1949 to September 1953, August 1964 to current year. Monthly discharge only for some periods, published in WSP 1315-A. Prior to August 1964, published as Bear River near Colfax. Records for November and December 1911 include diversion to Bear River Canal and are not equivalent.

GAGE.--Water-stage recorder. Datum of gage is 1,927.41 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 8, 1915, nonrecording gages at several sites above diversion dam 0.3 mi upstream at different datums. Aug. 8, 1915, to June 30, 1917, nonrecording gage 0.7 mi downstream at different datum. Nov. 1, 1949, to Sept. 30, 1953, at site 0.2 mi downstream at different datum. Aug. 17, 1964, to Feb. 4, 1986, at present site and datum. Feb. 5, 1986, to Mar. 19, 1987, at site 160 ft downstream at datum 8.00 ft lower.

REMARKS.--No estimated daily discharges. Records excellent. Flow regulated by Rollins Reservoir (station 11421800) beginning Dec. 15, 1964. Bear River Canal (station 11422000) diverts upstream from station. See schematic diagram of Bear River basin.

AVERAGE DISCHARGE (unadjusted).--29 years (water years 1913, 1916, 1951-53, 1965-88), 394 ft³/s, 285,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (prior to construction of Rollins Dam in 1964), 9,620 ft³/s, Nov. 20, 1950, gage height, 21.40 ft, site and datum then in use, from rating curve extended above 3,600 ft³/s on basis of slope-area measurement of peak flow; no flow at times in 1912, 1952. Maximum discharge since construction of Rollins Dam, 22,500 ft³/s, Feb. 17, 1986, gage height, 20.62 ft, site and datum then in use, from rating curve extended above 11,600 ft³/s; minimum daily, 0.5 ft³/s, Nov. 17, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 107 ft³/s, Aug. 9, 13, gage height, 1.27 ft; minimum daily, 20 ft³/s, several days during December, February, and April.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	81	37	22	21	22	23	22	82	84	78	85	93
2	85	32	23	21	22	22	21	82	84	78	89	92
3	87	30	22	25	22	21	21	83	84	78	91	93
4	88	23	21	25	22	21	21	82	84	78	93	92
5	88	23	20	25	22	21	22	82	84	79	95	92
6	87	23	23	22	22	21	21	82	84	81	95	92
7	87	23	22	22	23	21	21	82	84	79	95	92
8	87	23	24	24	22	21	21	82	84	78	100	91
9	88	24	24	24	23	21	22	82	84	79	105	86
10	87	23	23	25	23	21	22	81	85	78	105	81
11	87	23	21	28	23	21	22	82	85	79	105	80
12	87	23	21	23	23	21	22	82	84	80	103	81
13	87	26	21	22	23	21	22	83	85	81	105	80
14	88	24	21	22	23	21	22	84	85	89	105	80
15	61	23	20	25	22	21	22	84	86	95	91	80
16	43	24	21	27	21	21	22	87	87	95	81	80
17	43	25	21	24	22	21	22	86	86	95	82	80
18	43	25	21	21	22	22	22	84	86	84	86	80
19	43	24	21	21	22	21	26	85	86	77	91	80
20	43	24	21	23	22	21	26	86	86	77	92	80
21	42	27	21	25	22	22	22	85	87	78	92	80
22	42	28	22	24	22	22	22	85	87	79	92	80
23	42	28	21	21	22	22	22	85	87	79	92	80
24	42	28	20	21	22	21	22	85	88	79	92	80
25	48	24	20	21	21	21	22	85	87	80	92	80
26	45	22	20	22	21	22	21	86	87	80	91	80
27	45	22	20	22	20	21	20	86	87	80	91	80
28	45	22	22	22	20	21	21	86	87	80	93	80
29	45	21	23	22	21	21	21	85	82	80	98	80
30	47	21	22	23	---	21	55	85	78	79	97	80
31	46	---	21	22	---	22	---	84	---	80	93	---
TOTAL	1979	745	665	715	637	660	690	2600	2554	2512	2917	2505
MEAN	63.8	24.8	21.5	23.1	22.0	21.3	23.0	83.9	85.1	81.0	94.1	83.5
MAX	88	37	24	28	23	23	55	87	88	95	105	93
MIN	42	21	20	21	20	21	20	81	78	77	81	80
AC-FT	3930	1480	1320	1420	1260	1310	1370	5160	5070	4980	5790	4970

CAL YR 1987 TOTAL 22846 MEAN 62.6 MAX 362 MIN 15 AC-FT 45320
WTR YR 1988 TOTAL 19179 MEAN 52.4 MAX 105 MIN 20 AC-FT 38040

SACRAMENTO RIVER BASIN

11424000 BEAR RIVER NEAR WHEATLAND, CA

LOCATION.--Lat 39°00'01", long 121°24'21", in SE 1/4 SW 1/4 sec.3, T.13 N., R.5 E., Placer County, Hydrologic Unit 18020108, on right bank 100 ft downstream from bridge on State Highway 65, 1 mi southeast of Wheatland, and 6.5 mi downstream from New Camp Far West Reservoir.

DRAINAGE AREA.--292 mi².

PERIOD OF RECORD.--October 1928 to current year.

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 71.92 ft above National Geodetic Vertical Datum of 1929. See WSP 2131 for history of changes prior to May 28, 1970.

REMARKS.--No estimated daily discharges. Records fair. Natural flow of stream affected by inflow from Yuba and American River basins. Flow regulated by Lake Combie, usable capacity, 7,840 acre-ft; Rollins Reservoir (station 11421800) since December 1964; and New Camp Far West Reservoir, usable capacity, 102,200 acre-ft, since October 1963. Many diversions for irrigation and power. See schematic diagram of Bear River basin.

AVERAGE DISCHARGE (prior to regulation by New Camp Far West Reservoir).--34 years (water years 1930-63), 417 ft³/s, 301,900 acre-ft/year; 25 years (water years 1964-88), 422 ft³/s, 305,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,000 ft³/s, Feb. 17, 1986, gage height, 21.60 ft; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 129 ft³/s, Jan. 16, gage height, 4.15 ft; minimum daily, 8.2 ft³/s, Jan. 2, Feb. 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.2	21	24	8.6	12	22	15	23	28	18	14	11
2	9.5	17	22	8.2	12	17	32	23	26	15	16	11
3	9.6	16	18	19	12	16	32	23	24	12	12	11
4	9.1	15	16	31	12	15	31	23	23	12	12	12
5	9.2	15	15	22	11	16	31	23	24	12	12	12
6	9.1	13	18	13	11	16	31	23	30	13	13	11
7	9.4	14	22	11	11	15	34	25	28	12	14	9.8
8	8.8	14	34	15	11	16	31	24	24	13	14	9.3
9	9.3	18	29	12	9.8	16	23	23	24	12	14	9.4
10	9.3	15	22	11	10	16	16	23	25	12	14	9.6
11	10	14	15	10	9.7	15	16	23	24	11	13	9.3
12	11	14	12	9.7	9.1	11	15	23	25	11	12	9.8
13	9.1	22	11	9.1	9.4	13	15	24	22	11	13	10
14	8.7	16	11	9.0	9.5	12	15	23	23	11	12	11
15	12	13	12	17	9.1	14	14	23	23	12	14	11
16	11	12	18	51	8.2	16	14	22	22	12	15	11
17	12	16	22	50	8.8	16	15	22	25	12	13	12
18	13	16	16	26	8.7	16	14	22	36	13	13	12
19	12	12	15	17	9.3	14	26	22	26	12	13	13
20	14	14	13	15	9.6	10	30	23	19	13	12	12
21	20	17	13	15	11	12	25	23	19	12	13	9.7
22	14	12	17	14	11	10	24	23	18	13	13	8.6
23	14	12	16	13	11	9.8	24	23	17	14	11	10
24	16	11	13	12	11	9.8	24	22	17	13	10	9.3
25	14	12	13	12	12	9.7	24	22	17	15	9.3	8.6
26	14	12	13	11	14	11	24	23	14	15	9.5	9.0
27	17	14	13	12	15	10	23	23	14	13	9.5	8.5
28	19	13	21	12	16	10	23	23	14	13	8.9	9.0
29	21	11	22	13	19	11	23	26	14	13	9.0	9.8
30	18	19	16	14	---	14	23	26	20	13	8.5	11
31	16	---	12	12	---	18	---	27	---	13	11	---
TOTAL	388.3	440	534	504.6	323.2	427.3	687	721	665	396	377.7	310.7
MEAN	12.5	14.7	17.2	16.3	11.1	13.8	22.9	23.3	22.2	12.8	12.2	10.4
MAX	21	22	34	51	19	22	34	27	36	18	16	13
MIN	8.7	11	11	8.2	8.2	9.7	14	22	14	11	8.5	8.5
AC-FT	770	873	1060	1000	641	848	1360	1430	1320	785	749	616

CAL YR 1987 TOTAL 6360.0 MEAN 17.4 MAX 171 MIN 3.2 AC-FT 12620
WTR YR 1988 TOTAL 5774.8 MEAN 15.8 MAX 51 MIN 8.2 AC-FT 11450

SACRAMENTO RIVER BASIN

11426000 SACRAMENTO WEIR SPILL TO YOLO BYPASS, NEAR SACRAMENTO, CA

LOCATION.--Lat 38°36'25", long 121°33'15", unsurveyed, Sacramento County, Hydrologic Unit 18020109, on right bank 100 ft upstream from weir, 3.2 mi upstream from American River, 4 mi northwest of Sacramento, and 4.2 mi upstream from Sacramento.

PERIOD OF RECORD.--October 1939 to current year. Monthly discharge only for water years 1940-51, published in WSP 1735. Published as Sacramento weir near Sacramento 1939-61. Gage-height records collected at same site February 1926 to September 1934 and major flood flows only October 1934 to September 1939 are contained in reports of California Department of Water Resources.

GAGE.--Water-stage recorder and concrete weir crest. Datum of gage is 3.00 ft below National Geodetic Vertical Datum of 1929. October 1939 to September 1942, October 1959 to September 1963, water-stage recorder or nonrecording gage at downstream end of weir. October 1942 to September 1959, water-stage recorder on left bank at Sacramento River opposite center of weir. February 1963 to September 1985, water-stage recorder on right bank of Sacramento River 100 ft downstream from end of weir.

REMARKS.--Crest of weir is at gage height 20.2 ft and top of movable gates at 28.0 ft. Weir consists of 48 gates each 38.1 ft long. Flow over weir enters Yolo Bypass by way of Sacramento Bypass. Flow regulated by weir gates. February 1963 to September 1985, stage was obtained by averaging the stage obtained at sites on the Sacramento River above and below the weir.

COOPERATION.--Records provided by California Department of Water Resources; not reviewed by U.S. Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 128,000 ft³/s, Feb. 20, 1986, gage height, 30.84 ft; maximum gage height, 33.01 ft, Dec. 23, 1955; no flow all or most of each year.

EXTREMES FOR CURRENT YEAR.--No flow during year.

SACRAMENTO RIVER BASIN

11426190 LAKE VALLEY CANAL NEAR EMIGRANT GAP, CA

LOCATION.--Lat 39°17'56", long 120°38'31", in SE 1/4 NE 1/4 sec.32, T.17 N., R.12 E., Placer County, Hydrologic Unit 18020128, on right bank 0.8 mi upstream from inlet to Carpenter Flat siphon and 1.5 mi east of Emigrant Gap.

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

GAGE.--Water-stage recorder and Parshall flume. Elevation of gage is 5,410 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Oct. 1, 1979, on right bank 0.7 mi downstream at different datum.

REMARKS.--Estimated daily discharges: Dec. 13 to Jan. 8. Canal diverts from right bank of the North Fork of North Fork American River, 2.0 mi downstream from Lake Valley Reservoir (station 11426170) to the Drum Canal in Bear River basin. See schematic diagrams of Bear River and Yuba River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--24 years, 16.3 ft³/s, 11,810 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 75 ft³/s, Jan. 13, 1980; no flow many days in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.20	1.2	13	.00	23	29	9.4	17	3.5	.92	.04	.00
2	.20	1.3	19	.00	22	20	9.7	15	2.8	.91	.03	.00
3	.17	1.3	7.5	.00	21	19	11	12	1.6	.90	.03	.00
4	.08	1.2	4.6	.00	21	18	11	11	1.0	.87	.03	.00
5	.08	1.2	10	.00	23	19	11	7.5	.96	.87	.03	.00
6	.08	1.3	23	.00	22	20	11	6.8	.96	.87	.03	3.2
7	.08	1.3	25	.00	19	20	12	7.5	1.2	.87	.03	5.6
8	.23	1.3	23	9.7	11	21	11	8.2	3.3	.87	.02	11
9	.35	1.1	25	25	12	23	9.5	7.2	3.7	.49	.02	13
10	.20	.43	29	24	12	20	9.9	6.8	2.5	.20	.02	14
11	.20	.43	21	19	15	17	10	6.9	2.1	2.7	.02	13
12	.20	.43	13	16	15	13	10	7.1	1.9	12	.02	13
13	.19	3.3	12	21	15	12	12	7.9	.98	19	.02	13
14	.20	3.5	18	21	15	12	20	6.7	.20	20	.02	13
15	.20	1.5	15	23	15	12	14	6.4	.19	20	.01	12
16	.20	.68	15	23	15	12	12	6.1	.06	21	.01	11
17	.20	.68	19	29	14	11	11	7.5	.06	20	.01	5.8
18	.20	.64	22	29	13	13	11	6.4	.08	20	.01	1.7
19	.18	.63	21	28	12	15	20	5.4	.08	20	.01	.08
20	.78	.63	21	28	13	16	24	4.2	.38	20	.01	.08
21	1.2	.68	20	27	14	16	19	3.2	.84	20	.01	.08
22	1.2	.62	20	27	15	16	17	3.0	1.1	20	.01	.08
23	1.5	.59	20	27	13	22	17	2.8	1.4	21	.01	.06
24	1.5	.60	20	28	13	19	22	2.6	1.3	22	.01	.02
25	1.2	.59	14	28	13	15	24	2.5	1.5	22	.01	.03
26	1.1	.74	.00	25	14	18	26	2.3	1.3	13	.01	.03
27	1.1	.64	.00	28	16	18	29	2.2	1.0	.78	.01	.03
28	1.3	.51	.00	28	19	13	29	2.5	.98	.08	.01	.03
29	1.4	.58	.00	28	26	11	24	4.4	.96	.08	.01	.03
30	1.4	1.8	.00	27	---	11	21	3.9	.99	.08	.01	.03
31	1.3	---	.00	25	---	9.8	---	3.6	---	.08	.00	---
TOTAL	18.42	31.40	450.10	593.70	471	510.8	477.5	196.6	38.92	301.57	0.52	129.88
MEAN	.59	1.05	14.5	19.2	16.2	16.5	15.9	6.34	1.30	9.73	.017	4.33
MAX	1.5	3.5	29	29	26	29	29	17	3.7	22	.04	14
MIN	.08	.43	.00	.00	11	9.8	9.4	2.2	.06	.08	.00	.00
AC-FT	37	62	893	1180	934	1010	947	390	77	598	1.0	258

CAL YR 1987 TOTAL 4006.95 MEAN 11.0 MAX 52 MIN .00 AC-FT 7950
WTR YR 1988 TOTAL 3220.41 MEAN 8.80 MAX 29 MIN .00 AC-FT 6390

SACRAMENTO RIVER BASIN

11427000 NORTH FORK AMERICAN RIVER AT NORTH FORK DAM, CA

LOCATION.--Lat 38°56'10", long 121°01'22", in SW 1/4 NW 1/4 sec.31, T.13 N., R.9 E., Placer County, Hydrologic Unit 18020128, on left bank 50 ft upstream from spillway at North Fork Dam, 2 mi upstream from Middle Fork, and 4 mi northeast of Auburn.

DRAINAGE AREA.--342 mi².

PERIOD OF RECORD.--October 1941 to current year.

CHEMICAL DATA: Water years 1977-80.

WATER TEMPERATURE: Water years 1959-83.

SEDIMENT DATA: Water year 1980 (periodic record).

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 715.0 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--No estimated daily discharges. Records good. Minor regulation by Lake Clementine, usable capacity, 12,800 acre-ft, formed by North Fork Dam. Storage in Big Reservoir and Lake Valley Reservoir, combined capacity, 10,300 acre-ft above station. Lake Valley Canal (station 11426190) diverts from North Fork of North Fork American River into Bear River basin for power development in powerplants of Pacific Gas & Electric Co. Combined storage and diversion have small effect on natural flow.

AVERAGE DISCHARGE.--47 years, 830 ft³/s, 601,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65,400 ft³/s, Dec. 23, 1964, gage height, 11.87 ft, from rating curve extended above 24,000 ft³/s on basis of computed flow over spillway of dam at gage height 10.22 ft; no flow Aug. 27-30, Sept. 2-11, 1944; Oct. 5, 6, 1963; Nov. 7-10, 1965, caused by operation of valve in North Fork Dam.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 11	0015	*2,090	*2.41				

Minimum daily, 21 ft³/s, Sept. 7, 8, 11, and 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	37	72	206	384	762	333	560	295	79	37	23
2	28	34	271	179	351	718	342	509	300	75	36	23
3	28	34	372	303	325	575	376	463	262	71	35	23
4	27	34	172	835	303	531	401	444	245	67	33	23
5	28	34	122	1190	288	522	411	419	234	64	33	23
6	27	35	153	1000	276	520	434	397	214	63	32	22
7	27	36	642	649	269	503	494	385	216	62	33	21
8	28	37	372	578	265	488	498	406	257	61	33	21
9	28	38	399	567	277	538	433	388	277	59	32	22
10	28	37	1340	768	296	518	414	372	260	58	33	22
11	28	35	1340	1350	320	431	454	403	227	55	32	21
12	28	34	517	980	349	382	496	489	206	54	31	22
13	28	73	307	670	357	351	505	541	193	53	30	21
14	31	135	226	529	347	339	625	501	183	53	30	22
15	29	93	198	632	345	347	631	479	177	52	30	23
16	27	58	200	835	357	341	504	501	173	51	29	23
17	26	48	211	1090	340	324	473	492	165	49	29	23
18	26	48	178	747	307	332	480	492	157	48	27	23
19	26	45	171	554	291	372	577	416	145	45	26	23
20	26	46	155	449	278	427	932	381	138	44	25	23
21	26	60	139	394	281	453	708	365	132	43	25	25
22	31	63	218	365	303	430	579	375	128	43	25	27
23	47	53	333	344	321	439	566	359	123	42	25	27
24	49	48	237	359	335	599	572	331	113	42	25	26
25	46	45	190	385	344	522	616	302	110	41	24	26
26	40	43	178	394	355	546	659	279	108	41	24	26
27	36	42	163	389	380	615	757	259	101	41	24	26
28	35	41	196	389	408	503	760	245	93	40	24	28
29	34	40	334	388	523	419	697	336	87	39	24	27
30	41	45	300	471	---	385	612	358	83	38	25	30
31	40	---	242	433	---	358	---	322	---	37	24	---
TOTAL	977	1451	9948	18422	9575	14590	16339	12569	5402	1610	895	715
MEAN	31.5	48.4	321	594	330	471	545	405	180	51.9	28.9	23.8
MAX	49	135	1340	1350	523	762	932	560	300	79	37	30
MIN	26	34	72	179	265	324	333	245	83	37	24	21
AC-FT	1940	2880	19730	36540	18990	28940	32410	24930	10710	3190	1780	1420

CAL YR 1987 TOTAL 98107 MEAN 269 MAX 3980 MIN 26 AC-FT 194600
WTR YR 1988 TOTAL 92493 MEAN 253 MAX 1350 MIN 21 AC-FT 183500

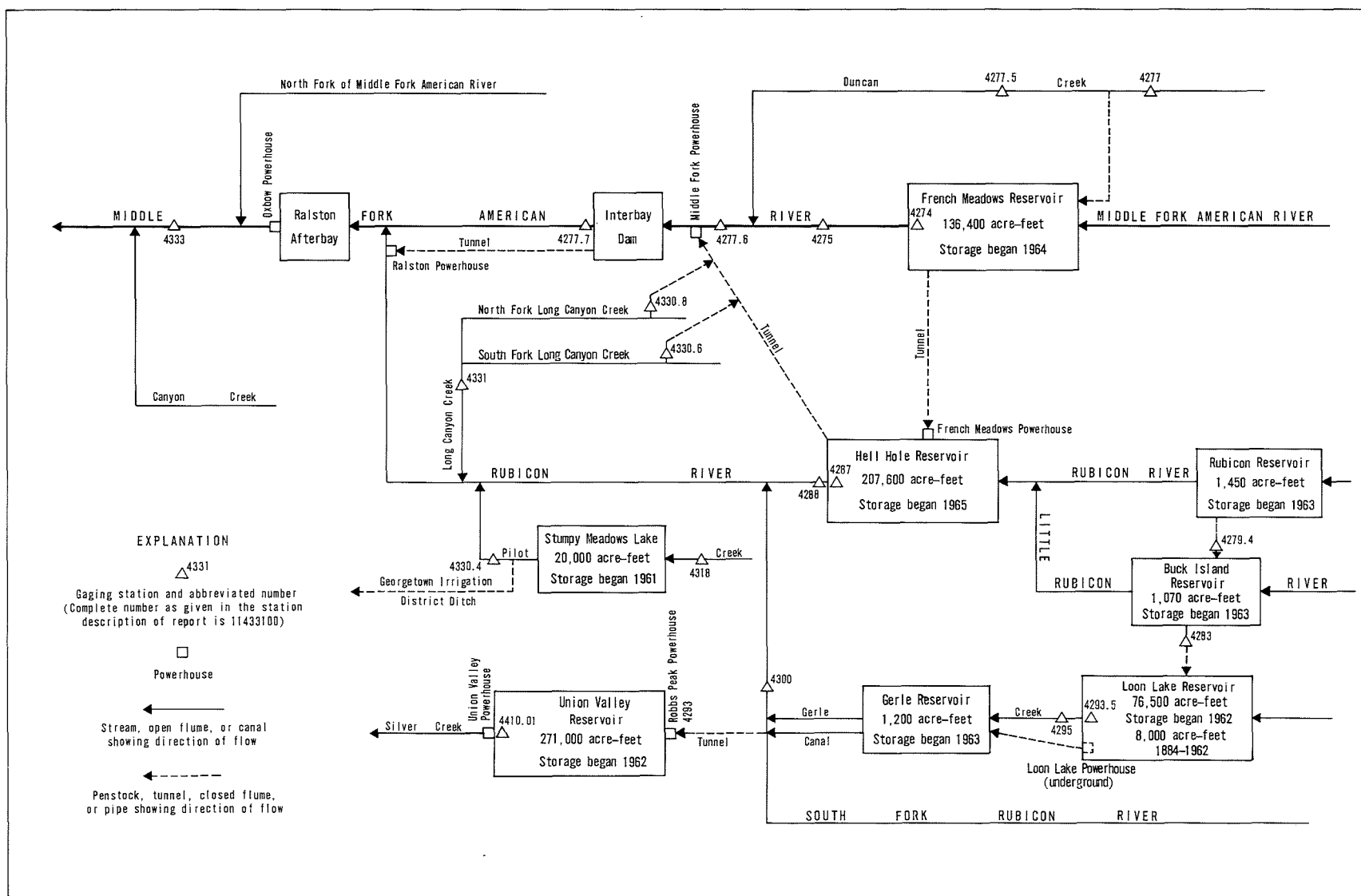


FIGURE 33.--Schematic diagram showing diversions and storage in Middle Fork American and Rubicon River basins.

SACRAMENTO RIVER BASIN

11427400 FRENCH MEADOWS RESERVOIR NEAR FORESTHILL, CA

LOCATION.--Lat 39°06'32", long 120°25'49", in SW 1/4 NE 1/4 sec.32, T.15 N., R.14 E., Placer County, Hydrologic Unit 18020128, Tahoe National Forest, on left bank 2.2 mi upstream from dam on Middle Fork American River, 6.9 mi upstream from Chipmunk Creek, and 21 mi northeast of Foresthill.

DRAINAGE AREA.--47.0 mi².

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Placer County Water Agency).

REMARKS.--Reservoir is formed by rockfill dam with earth core. Storage began Dec. 21, 1964. Usable capacity, 125,601 acre-ft between elevations 5,125 ft, minimum operating level, and 5,263 ft, top of radial gates. Dead storage, 10,804 acre-ft. Reservoir is used to store water for hydroelectric power. Up to 400 ft³/s diverted from Duncan Creek through a tunnel to reservoir. Water is released through a tunnel to French Meadows powerplant at Hell Hole Reservoir on the Rubicon River; releases began Dec. 13, 1965. See schematic diagram of Middle Fork American and Rubicon River basins. Records, including extremes, represent total contents at 2400 hours.

COOPERATION.--Records provided by Placer County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 137,700 acre-ft, May 19, 1966, elevation, 5,263.9 ft; minimum since reservoir first filled, 37,722 acre-ft, Nov. 20, 1977, elevation, 5,170.86 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 102,500 acre-ft, May 30, elevation, 5,237.1 ft; minimum, 58,500 acre-ft, Nov. 4-12, elevation 5,195.8 ft.

Capacity table (elevation, in feet NGVD, and contents, in acre-feet)
(Provided by Placer County Water Agency, from 1965 survey)

5,125	10,800	5,200	62,400
5,130	13,100	5,230	94,100
5,150	23,700	5,270	146,500
5,170	37,100		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59300	58600	58700	62400	65700	70900	81000	93700	102000	94100	79400	62100
2	59200	58600	59100	62400	65800	71200	81300	94100	101500	94100	78600	61600
3	59200	58600	59100	62600	65900	71500	81700	94400	101400	94100	78000	61600
4	59100	58500	59200	62800	65900	71800	82000	94700	101500	94100	77300	61600
5	59100	58500	59200	62900	66000	72100	82300	95000	101600	93700	76600	61500
6	59100	58500	59500	63100	66100	72500	82700	95200	101500	93000	76000	61500
7	59100	58500	59600	63200	66100	72900	83200	95500	101100	92300	75300	61500
8	59000	58500	59700	63300	66200	73200	83500	95800	100700	92000	74700	61500
9	59000	58500	60100	63400	66300	73600	83800	96100	100200	92000	73900	61400
10	59000	58500	60800	63600	66500	73900	84300	96300	99800	92000	73300	61400
11	58900	58500	61200	63800	66600	74100	84700	96600	100000	91500	72600	61300
12	58900	58500	61300	63900	66800	74400	85100	97100	100100	90900	72000	61300
13	58900	58600	61400	64000	67000	74600	85600	97500	100000	90200	71300	61200
14	58900	58600	61400	64100	67100	74900	86300	97800	99500	89600	70600	61200
15	58900	58600	61500	64300	67300	75100	86800	98200	99000	89200	69900	61200
16	58800	58600	61600	64500	67500	75300	87100	98500	98400	89000	69300	61100
17	58800	58700	61700	64600	67700	75600	87600	99000	98100	88800	68600	61100
18	58800	58700	61700	64600	67800	75800	88000	99400	98200	88400	67900	61100
19	58700	58600	61700	64700	67900	76100	88600	99700	98300	87700	67200	61000
20	58700	58700	61700	64700	68100	76500	89000	100100	97900	87000	66900	61000
21	58700	58700	61800	64700	68200	76900	89400	100300	97300	86400	66900	61000
22	58700	58700	62000	64700	68400	77200	89800	100700	96800	85800	66400	61000
23	58700	58700	62000	64800	68600	77700	90200	100900	96200	85100	65700	60900
24	58700	58700	62000	64900	68900	78100	90500	101100	95800	84600	64900	60900
25	58700	58600	62100	65000	69100	78500	91000	101400	95800	83900	64400	60900
26	58700	58600	62100	65100	69400	79100	91400	101500	95800	83300	63900	60900
27	58700	58600	62100	65200	69700	79500	92000	101700	95800	82600	63900	60900
28	58700	58600	62300	65300	70100	79900	92600	102000	95600	82000	63900	60900
29	58700	58600	62300	65500	70500	80300	93000	102200	95000	81300	63900	60800
30	58700	58600	62400	65500	---	80600	93400	102500	94400	80700	63400	60800
31	58700	---	62400	65600	---	80800	---	102400	---	80000	62700	---
MAX	59300	58700	62400	65600	70500	80800	93400	102500	102000	94100	79400	62100
MIN	58700	58500	58700	62400	65700	70900	81000	93700	94400	80000	62700	60800
a	5196.0	5195.9	5199.9	5203.3	5208.2	5218.1	5229.4	5237.0	5230.3	5217.4	5200.3	5198.3
b	-600	-100	+3800	+3200	+4900	+10300	+12600	+9000	-8000	-14400	-17300	-1900

CAL YR 1987 b +900

WTR YR 1988 b +1500

a Elevation, in feet NGVD, at end of month.

b Change in contents, in acre-feet.

SACRAMENTO RIVER BASIN

11427500 MIDDLE FORK AMERICAN RIVER AT FRENCH MEADOWS, CA

LOCATION.--Lat 39°06'35", long 120°28'49", in SW 1/4 NW 1/4 sec.36, T.15 N., R.13 E., Placer County, Hydrologic Unit 18020128, Tahoe National Forest, on left bank 0.6 mi downstream from French Meadows Dam, 4.1 mi upstream from Chipmunk Creek, and 14 mi south of Cisco.

DRAINAGE AREA.--47.9 mi².

PERIOD OF RECORD.--October 1951 to current year.

REVISED RECORDS.--WSP 1445: 1953-54. WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 4,920 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Oct. 1, 1962, at site 0.8 mi upstream at different datum.

REMARKS.--No estimated daily discharges. Considerable regulation by French Meadows Reservoir (station 11427400) 0.6 mi upstream beginning December 1964. Water diverted into basin from Duncan Creek to French Meadows Reservoir since December 1964. Water diverted out of basin from French Meadows Reservoir to Hell Hole Reservoir since December 1965. See schematic diagram of Middle Fork American and Rubicon River basins.

AVERAGE DISCHARGE.--13 years (water years 1952-64, prior to regulation by French Meadows Reservoir), 149 ft³/s, 107,900 acre-ft/yr; 24 years (water years 1965-88), 21.7 ft³/s, 15,720 acre-ft/yr.

COOPERATION.--Records provided by Placer County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,500 ft³/s, Jan. 31, 1963, gage height, 14.20 ft, from rating curve extended above 1,100 ft³/s on basis of peak flow at former site; minimum, 0.3 ft³/s, Oct. 4, 5, 21-25, 1960, Oct. 5, 6, 1961. Maximum discharge since construction of French Meadows Dam in 1964, 2,870 ft³/s, Mar. 8, 1986, gage height, 10.4 ft, from floodmarks, from flow over spillway of French Meadows Reservoir; minimum daily, 0.8 ft³/s, Oct. 22-25, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 25 ft³/s, Sept. 12, gage height, 5.13 ft; minimum daily, 4.7 ft³/s, Aug. 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.2	10	9.9	8.8	9.9	12	9.1	11	8.3	5.1	5.1	5.3
2	8.4	10	11	8.9	9.9	12	9.1	11	5.4	5.1	5.1	5.3
3	8.6	10	9.6	9.5	9.7	11	9.2	10	5.7	5.1	5.1	5.3
4	8.6	10	9.5	10	9.6	11	9.1	10	5.7	5.1	5.1	5.3
5	8.6	9.7	9.3	11	9.6	11	9.1	10	5.7	5.1	5.1	5.3
6	8.6	9.5	10	10	9.6	11	9.1	11	5.7	5.1	5.1	5.3
7	8.6	9.5	10	9.8	9.6	11	9.1	11	5.9	5.1	5.1	5.3
8	8.6	9.4	9.7	9.6	9.6	10	9.1	11	5.7	5.1	5.0	5.3
9	8.6	9.3	11	10	9.6	9.8	9.0	11	5.7	5.1	4.9	5.3
10	8.6	9.3	12	11	9.9	9.5	8.8	11	5.6	5.1	4.9	5.3
11	8.6	9.3	10	12	10	9.4	8.8	11	5.5	5.1	4.9	5.3
12	8.8	9.3	9.4	11	10	9.2	9.2	11	5.5	5.1	4.9	5.8
13	8.8	9.9	9.1	10	10	9.1	9.7	10	5.5	5.1	4.9	5.3
14	8.8	9.4	8.9	10	10	9.1	10	9.9	5.5	5.1	4.9	5.2
15	8.7	9.3	8.8	10	10	9.1	9.7	9.9	5.5	5.0	4.9	5.1
16	8.6	9.3	9.0	10	10	9.0	9.6	9.9	5.5	4.9	4.9	5.0
17	8.6	9.3	8.9	9.9	10	8.8	9.6	10	5.5	4.9	4.9	4.9
18	8.6	9.3	8.8	9.9	10	8.8	9.6	9.9	5.4	4.9	4.9	4.9
19	8.6	9.3	8.8	9.8	9.9	8.8	11	9.7	5.3	4.9	4.9	4.9
20	8.6	9.4	8.8	9.6	10	8.8	11	9.6	5.3	4.9	4.9	5.1
21	8.6	9.3	8.9	9.6	10	8.8	11	9.6	5.3	4.9	4.9	5.1
22	8.7	9.3	9.5	9.6	10	9.0	11	9.6	5.3	4.9	4.9	5.1
23	9.0	9.3	9.1	9.6	10	9.6	11	9.6	5.3	4.9	4.9	5.1
24	8.8	9.3	8.9	9.6	10	9.4	11	9.6	5.3	4.9	4.9	5.1
25	8.7	9.3	8.8	9.6	10	9.4	11	9.6	5.3	4.9	4.9	5.1
26	9.1	9.3	8.8	9.6	10	9.4	11	9.6	5.3	4.9	4.9	5.1
27	10	9.3	8.8	9.6	11	9.3	11	9.6	5.3	5.0	4.9	5.1
28	10	9.3	9.0	9.7	11	9.1	11	9.9	5.3	5.1	4.8	5.1
29	10	9.3	9.0	10	12	9.1	11	10	5.3	5.1	4.7	5.1
30	10	9.3	8.8	10	---	9.1	11	9.9	5.2	5.1	5.0	5.1
31	10	---	8.8	9.9	---	9.1	---	9.9	---	5.1	5.3	---
TOTAL	275.0	283.5	290.9	307.6	290.9	299.7	298.9	314.8	166.8	155.7	153.6	155.5
MEAN	8.87	9.45	9.38	9.92	10.0	9.67	9.96	10.2	5.56	5.02	4.95	5.18
MAX	10	10	12	12	12	12	11	11	8.3	5.1	5.3	5.8
MIN	8.2	9.3	8.8	8.8	9.6	8.8	8.8	9.6	5.2	4.9	4.7	4.9
AC-FT	545	562	577	610	577	594	593	624	331	309	305	308
a	0	0	0	0	0	7.9	0	430	11560	14400	16680	1040

CAL YR 1987 TOTAL 3537.5 MEAN 9.69 MAX 22 MIN 8.1 AC-FT 7020
WTR YR 1988 TOTAL 2992.9 MEAN 8.18 MAX 12 MIN 4.7 AC-FT 5940

a Diversion, in acre-feet, from French Meadows Reservoir to Hell Hole Reservoir through French Meadows powerplant, provided by Placer County Water Agency; not reviewed by U.S. Geological Survey.

SACRAMENTO RIVER BASIN

11427700 DUNCAN CREEK NEAR FRENCH MEADOWS, CA

LOCATION.--Lat 39°08'09", long 120°28'39", in NE 1/4 NW 1/4 sec.24, T.15 N., R.13 E., Placer County, Hydrologic Unit 18020128, Tahoe National Forest, on left bank 0.2 mi upstream from diversion dam, 0.5 mi downstream from Little Duncan Creek, 2 mi northwest of French Meadows, and 20 mi northeast of Foresthill.

DRAINAGE AREA.--9.94 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 5,270 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Sept. 3, 1965, at site 150 ft upstream at datum 9.56 ft higher.

REMARKS.--Estimated daily discharges: Dec. 8, 9, 12-27, 29, Dec. 31 to Jan. 4, and Jan. 15-17. Station is upstream from all diversion to French Meadows Reservoir. See schematic diagram of Middle Fork American and Rubicon River basins.

AVERAGE DISCHARGE.--28 years, 37.7 ft³/s, 27,310 acre-ft/yr.

COOPERATION.--Records provided by Placer County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,650 ft³/s, Dec. 22, 1964, gage height, 10.6 ft, from floodmarks, from rating curve extended above 400 ft³/s on basis of computation of flow over diversion dam; minimum daily, 0.10 ft³/s, several days during July and August 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 250 ft³/s, and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 5	1115	*371	*7.42				

Minimum daily, 0.30 ft³/s, Sept. 7-9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.39	1.1	14	6.9	13	38	33	49	16	2.8	.74	.34
2	.39	1.3	59	6.9	12	35	34	45	14	2.6	.70	.33
3	.39	1.3	16	6.9	12	36	37	43	12	2.5	.64	.37
4	.39	1.2	9.6	8.2	12	36	41	40	11	2.4	.63	.36
5	.39	1.1	7.6	131	12	37	41	36	11	2.3	.63	.37
6	.39	1.2	35	22	12	36	46	33	11	2.2	.62	.33
7	.39	1.3	19	13	12	36	50	33	13	2.1	.64	.30
8	.39	1.2	9.5	12	14	39	47	34	16	2.0	.60	.30
9	.40	1.6	22	18	15	43	44	33	15	1.9	.58	.30
10	.41	1.5	116	23	17	36	48	35	13	1.8	.55	.32
11	.44	1.3	44	20	18	32	53	42	11	1.7	.54	.32
12	.60	1.2	22	17	19	29	56	45	9.9	1.6	.52	.32
13	.62	11	15	16	19	28	58	45	9.1	1.6	.53	.34
14	.62	5.8	12	15	20	28	74	42	8.3	1.5	.54	.35
15	.59	2.7	9.8	14	21	27	60	43	7.8	1.4	.54	.36
16	.59	2.1	8.9	13	21	25	53	40	7.2	1.4	.54	.37
17	.55	3.7	8.0	12	19	26	52	45	6.8	1.2	.52	.38
18	.53	3.2	7.7	12	18	28	47	37	6.4	1.1	.50	.40
19	.53	2.3	7.7	12	17	33	47	32	5.8	1.0	.47	.42
20	.53	2.2	7.7	11	19	35	42	29	5.5	1.0	.45	.56
21	.53	2.8	8.0	11	20	35	37	28	5.2	1.0	.43	.62
22	.69	2.8	8.0	11	22	35	34	25	4.9	.97	.42	.57
23	2.8	2.3	8.0	12	23	49	36	22	4.5	.93	.42	.54
24	2.3	2.1	8.0	14	24	46	43	20	4.2	.94	.42	.51
25	1.1	2.0	8.0	14	25	48	46	18	4.2	.98	.41	.52
26	.95	1.8	7.7	14	27	56	55	16	4.0	.98	.39	.51
27	.93	1.8	7.4	14	29	55	61	14	3.5	.96	.36	.49
28	1.5	1.8	7.4	15	36	45	64	17	3.2	.89	.35	.46
29	1.9	1.6	7.4	15	37	41	62	23	3.1	.80	.36	.43
30	1.5	1.8	7.4	14	---	38	58	19	2.9	.78	.35	.42
31	1.2	---	7.7	13	---	34	---	17	---	.76	.34	---
TOTAL	24.93	69.1	535.5	536.9	565	1145	1459	1000	249.5	46.09	15.73	12.21
MEAN	.80	2.30	17.3	17.3	19.5	36.9	48.6	32.3	8.32	1.49	.51	.41
MAX	2.8	11	116	131	37	56	74	49	16	2.8	.74	.62
MIN	.39	1.1	7.4	6.9	12	25	33	14	2.9	.76	.34	.30
AC-FT	49	137	1060	1060	1120	2270	2890	1980	495	91	31	24

CAL YR 1987 TOTAL 5548.99 MEAN 15.2 MAX 258 MIN .39 AC-FT 11010
WTR YR 1988 TOTAL 5658.96 MEAN 15.5 MAX 131 MIN .30 AC-FT 11220

SACRAMENTO RIVER BASIN

11427750 DUNCAN CREEK BELOW DIVERSION DAM, NEAR FRENCH MEADOWS, CA

LOCATION.--Lat 39°07'59", long 120°28'58", in NE 1/4 SE 1/4 sec.23, T.15 N., R.13 E., Placer County, Hydrologic Unit 18020128, Tahoe National Forest, on right bank 800 ft downstream from unnamed right bank tributary, 1,000 ft downstream from Duncan Creek diversion dam, and 20 mi northeast of Foresthill.

DRAINAGE AREA.--10.5 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 5,210 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges for the following period of ice effect: Dec. 22 to Jan. 5. Natural flow affected by transmountain diversion through Duncan Creek diversion tunnel to French Meadows Reservoir (station 11427400). Maximum design flow of tunnel is 400 ft³/s. See schematic diagram of Middle Fork American and Rubicon River basins.

AVERAGE DISCHARGE.--24 years, 14.4 ft³/s, 10,430 acre-ft/yr.

COOPERATION.--Records provided by Placer County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,640 ft³/s, Dec. 22, 1964, gage height, 8.74 ft, in gage well, 10.0 ft, from floodmarks, from rating curve extended above 400 ft³/s on basis of computation of peak flow over diversion dam; no flow at times in 1965-66.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 26 ft³/s, Dec. 10, gage height, 1.95 ft; minimum daily, 0.25 ft³/s, Sept. 11-14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.41	.95	9.0	6.9	13	12	10	11	6.9	2.6	.74	.31
2	.41	1.1	14	6.9	13	12	9.9	11	4.9	2.7	.72	.31
3	.41	1.0	12	6.9	13	13	9.9	11	4.8	2.6	.70	.35
4	.41	.89	9.9	8.2	13	13	10	11	4.7	2.5	.69	.34
5	.40	.86	7.6	13	13	12	10	11	4.8	2.4	.65	.34
6	.38	1.0	10	13	13	12	10	10	4.8	2.3	.65	.31
7	.37	1.1	11	12	13	12	10	10	4.9	2.2	.65	.30
8	.39	1.0	9.4	12	13	12	10	10	4.9	2.1	.63	.28
9	.41	1.4	13	13	14	12	10	11	4.9	2.0	.59	.28
10	.43	1.3	21	14	15	12	10	10	4.8	1.9	.56	.27
11	.45	1.0	15	14	16	11	10	10	4.8	1.8	.56	.25
12	.68	.93	11	13	16	11	10	10	4.8	1.7	.54	.25
13	.68	7.0	9.3	13	16	11	10	10	4.8	1.7	.54	.25
14	.64	6.4	8.7	13	16	11	10	10	4.8	1.6	.55	.25
15	.59	2.8	8.4	13	16	11	10	10	4.8	1.6	.57	.27
16	.59	2.0	8.3	13	16	11	10	10	4.8	1.5	.56	.29
17	.59	3.4	8.0	12	15	10	10	10	4.8	1.4	.53	.31
18	.59	3.3	7.8	12	15	10	9.8	10	4.7	1.2	.51	.31
19	.57	2.2	7.7	12	14	10	10	10	4.6	1.2	.48	.32
20	.55	2.0	7.4	12	14	11	10	10	4.6	1.1	.45	.45
21	.55	2.9	7.7	12	14	11	10	10	4.6	1.1	.43	.59
22	.74	2.9	8.0	12	14	10	10	9.9	4.6	1.1	.40	.55
23	2.7	2.3	8.0	12	13	11	10	9.7	4.2	1.0	.40	.56
24	2.3	2.0	8.0	13	12	11	10	9.7	3.8	1.0	.38	.56
25	1.0	1.9	8.0	14	12	11	11	9.7	3.9	1.1	.37	.58
26	.79	1.7	7.7	14	11	11	12	9.7	3.8	1.1	.35	.60
27	.74	1.6	7.7	14	11	11	12	9.7	3.5	1.0	.34	.59
28	1.3	1.6	7.4	14	11	10	12	9.8	3.4	.88	.33	.55
29	1.8	1.5	7.4	14	12	10	11	10	3.2	.82	.31	.51
30	1.3	1.6	7.4	13	---	10	11	9.7	3.3	.81	.31	.48
31	1.0	---	7.7	13	---	10	---	9.7	---	.79	.31	---
TOTAL	24.17	61.63	293.5	377.9	397	345	308.6	313.6	136.2	48.80	15.80	11.61
MEAN	.78	2.05	9.47	12.2	13.7	11.1	10.3	10.1	4.54	1.57	.51	.39
MAX	2.7	7.0	21	14	16	13	12	11	6.9	2.7	.74	.60
MIN	.37	.86	7.4	6.9	11	10	9.8	9.7	3.2	.79	.31	.25
AC-FT	48	122	582	750	787	684	612	622	270	97	31	23

CAL YR 1987 TOTAL 2323.79 MEAN 6.37 MAX 164 MIN .30 AC-FT 4610
WTR YR 1988 TOTAL 2333.81 MEAN 6.38 MAX 21 MIN .25 AC-FT 4630

SACRAMENTO RIVER BASIN

11427760 MIDDLE FORK AMERICAN RIVER ABOVE MIDDLE FORK POWERPLANT, NEAR FORESTHILL, CA

LOCATION.--Lat 39°01'31", long 120°35'40", in NW 1/4 NW 1/4 sec.36, T.14 N., R.12 E., Placer County, Hydrologic Unit 18020128, Tahoe National Forest, on right bank 300 ft upstream from Middle Fork powerplant, 3.7 mi upstream from Big Mosquito Creek, and 11 mi east of Foresthill.

DRAINAGE AREA.--87.8 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 2,540 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to May 15, 1980, at datum 5.00 ft higher. May 15, 1980, to Oct. 11, 1984, at datum 4.00 ft higher.

REMARKS.--No estimated daily discharges. Considerable regulation by French Meadows Reservoir (station 11427400) 11 mi upstream. Transbasin diversions from French Meadows Reservoir to Hell Hole Reservoir (station 11428700) through French Meadows powerplant. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records provided by Placer County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--23 years, 104 ft³/s, 75,350 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,860 ft³/s, Jan. 13, 1980, gage height, 8.47 ft, datum then in use, from rating curve extended above 2,500 ft³/s; minimum daily, 5.3 ft³/s, Sept. 10, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 173 ft³/s, Jan. 11, gage height, 5.68 ft; minimum daily, 8.9 ft³/s, Sept. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	15	30	30	75	118	56	69	43	17	11	9.6
2	12	15	72	30	71	105	55	66	31	16	11	9.3
3	12	15	44	81	68	101	54	63	28	16	11	9.3
4	13	15	34	89	66	99	56	61	27	16	11	9.1
5	13	15	27	125	64	97	53	60	27	16	11	9.0
6	13	15	51	98	62	96	52	61	28	16	11	9.0
7	13	15	70	77	61	95	51	66	34	15	11	9.0
8	13	14	52	74	62	92	50	66	33	15	11	8.9
9	13	15	87	85	65	93	49	61	30	15	11	9.0
10	13	15	137	100	69	88	48	59	28	14	11	9.0
11	13	14	97	146	76	84	47	57	27	14	10	9.0
12	14	14	61	108	80	80	45	55	26	14	10	8.9
13	14	35	46	89	80	77	46	54	25	14	10	9.5
14	13	44	39	81	79	75	59	51	25	14	11	9.2
15	13	20	36	88	81	73	52	50	24	13	11	9.0
16	13	17	37	87	82	71	49	49	23	13	10	9.0
17	13	18	34	80	78	68	48	55	23	13	10	9.0
18	13	19	30	71	76	66	47	50	23	13	10	9.0
19	13	17	31	67	72	67	75	47	22	12	10	9.0
20	13	17	28	64	72	68	90	46	22	12	9.9	9.6
21	13	20	28	62	73	68	75	45	22	12	9.8	10
22	14	18	66	61	73	67	72	44	22	12	9.7	10
23	19	17	45	61	74	70	71	43	21	12	9.6	9.9
24	19	16	36	65	72	70	71	42	20	12	9.5	9.9
25	16	16	34	69	72	68	73	41	23	12	9.3	9.9
26	15	16	35	72	73	67	75	40	21	12	9.3	9.9
27	15	16	31	74	74	67	78	39	19	12	9.1	9.9
28	18	15	35	76	82	64	77	43	18	11	9.2	9.6
29	19	15	38	79	97	62	74	61	18	11	9.2	9.6
30	17	15	34	86	---	59	71	49	17	12	9.1	9.3
31	16	---	28	79	---	58	---	45	---	11	9.3	---
TOTAL	440	528	1453	2454	2129	2433	1819	1638	750	417	315.0	280.4
MEAN	14.2	17.6	46.9	79.2	73.4	78.5	60.6	52.8	25.0	13.5	10.2	9.35
MAX	19	44	137	146	97	118	90	69	43	17	11	10
MIN	12	14	27	30	61	58	45	39	17	11	9.1	8.9
AC-FT	873	1050	2880	4870	4220	4830	3610	3250	1490	827	625	556

CAL YR 1987 TOTAL 14070 MEAN 38.5 MAX 482 MIN 11 AC-FT 27910
WTR YR 1988 TOTAL 14656.4 MEAN 40.0 MAX 146 MIN 8.9 AC-FT 29070

SACRAMENTO RIVER BASIN

11427770 MIDDLE FORK AMERICAN RIVER BELOW INTERBAY DAM, NEAR FORESTHILL, CA

LOCATION.--Lat 39°01'35", long 120°36'09", in SW 1/4 SE 1/4 sec.26, T.14 N., R.12 E., Placer County, Hydrologic Unit 18020128, Tahoe National Forest, on right bank 500 ft downstream from Interbay Dam, 3.3 mi upstream from Big Mosquito Creek, and 10.6 mi east of Foresthill.

DRAINAGE AREA.--89.1 mi².

PERIOD OF RECORD.--October 1965 to current year (since October 1985, operated as low-flow station only).

GAGE.--Acoustic velocity meter system. Elevation of gage is 2,470 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to February 1986, water-stage recorder at same site. March 1986 to September 1987, nonrecording gage and V-notch sharp-crested weir at same site and datum as previous gage.

REMARKS.--No estimated daily discharges. Flow regulated by French Meadows Reservoir (station 11427400) and after Aug. 22, 1966, by Interbay Reservoir (usable capacity, 130 acre-ft between normal operating limits) 500 ft upstream. Water is diverted out of the basin from French Meadows Reservoir to Hell Hole Reservoir (station 11428700) and from Interbay Reservoir to Ralston powerplant. Water is diverted into the basin from Hell Hole Reservoir to Middle Fork powerplant (station 11428600) and through South Fork and Middle Fork Long Canyon Creek Diversion Tunnels (stations 11433060 and 11433080). See schematic diagram of Middle Fork American and Rubicon River basins. Beginning October 1985, only flows less than 35 ft³/s are computed.

COOPERATION.--Records provided by Placer County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--20 years (water years 1966-85), 66.2 ft³/s, 47,960 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (water years 1966-85), 9,900 ft³/s, Jan. 13, 1980, gage height, 7.95 ft; minimum daily, 1.0 ft³/s, Oct. 25-30, 1966; Jan. 19, 1967.

EXTREMES FOR CURRENT YEAR.--Minimum daily, 9.8 ft³/s, Sept. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	24	22	24	24	24	24	24	18	13	13	12
2	15	24	24	24	24	24	24	24	13	13	13	12
3	15	24	23	24	24	24	24	24	13	13	13	12
4	15	21	23	24	24	24	24	24	13	13	13	12
5	15	18	23	24	24	24	24	24	13	13	13	12
6	15	19	23	24	24	24	23	24	13	13	13	12
7	15	19	23	24	24	24	23	24	13	13	13	12
8	17	19	23	24	24	24	24	24	13	13	13	12
9	17	19	23	24	24	24	24	24	13	13	12	12
10	15	19	23	24	24	24	24	24	13	13	12	12
11	15	19	23	24	24	24	24	24	13	13	12	12
12	16	18	23	24	24	24	24	24	13	13	12	12
13	17	21	23	24	24	24	24	24	13	13	12	12
14	16	24	24	24	24	24	24	24	13	13	12	12
15	15	24	23	24	24	24	24	24	13	13	12	12
16	15	25	23	24	24	24	24	24	13	13	12	12
17	15	24	23	24	24	24	24	24	13	13	12	12
18	15	24	23	24	24	24	24	24	13	13	12	12
19	15	24	23	24	24	24	24	24	13	13	12	12
20	16	24	23	24	24	24	24	24	13	13	12	12
21	15	24	23	24	24	24	24	24	13	13	12	12
22	16	24	23	24	24	24	24	24	13	13	12	12
23	20	22	24	24	24	24	24	24	13	13	12	12
24	22	19	24	24	24	24	24	24	13	13	12	12
25	20	19	23	24	24	24	24	24	13	13	12	12
26	18	19	24	24	23	24	24	24	13	13	12	12
27	18	18	24	24	24	24	24	24	13	13	12	12
28	18	18	24	24	23	24	24	24	13	13	12	12
29	21	18	24	24	24	24	24	24	13	13	12	12
30	24	18	24	24	---	24	24	24	13	13	12	9.8
31	24	---	24	24	---	24	---	24	---	13	12	---
TOTAL	525	632	722	744	694	744	718	744	395	403	380	357.8
MEAN	16.9	21.1	23.3	24.0	23.9	24.0	23.9	24.0	13.2	13.0	12.3	11.9
MAX	24	25	24	24	24	24	24	24	18	13	13	12
MIN	15	18	22	24	23	24	23	24	13	13	12	9.8
AC-FT	1040	1250	1430	1480	1380	1480	1420	1480	783	799	754	710
a	4940	666	5340	11260	6250	2260	1820	2480	19840	28140	24060	19490

a Diversion, in acre-feet, through Ralston powerplant, provided by Placer County Water Agency; not reviewed by U.S. Geological Survey.

SACRAMENTO RIVER BASIN

11427940 RUBICON-ROCKBOUND TUNNEL NEAR MEEKS BAY, CA

LOCATION.--Lat 38°59'16", long 120°13'29", in NE 1/4 SE 1/4 sec.8, T.13 N., R.16 E., El Dorado County, Hydrologic Unit 18020128, Eldorado National Forest, on right bank at tunnel intake 100 ft upstream from diversion dam on Rubicon River, 3.5 mi upstream from Rubicon Springs, and 6.4 mi southwest of Meeks Bay.

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

GAGE.--Water-stage recorder. Datum of gage is 6,533.23 ft above National Geodetic Vertical Datum of 1929 (levels by Sacramento Municipal Utility District). Auxiliary water-stage recorder since Aug. 26, 1966, 220 ft downstream from tunnel outlet at different datum.

REMARKS.--Estimated daily discharges: Dec. 25. Records good. Tunnel diverts water from Rubicon River to Rockbound Lake which flows into Buck Island Lake. Water is then diverted via Buck-Loon tunnel (station 11428300) to Loon Lake for power development. See schematic diagram of Middle Fork American and Rubicon River basins.

AVERAGE DISCHARGE.--25 years, 106 ft³/s, 76,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 1,120 ft³/s, Dec. 23, 1964; no flow at times in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.02	7.3	14	47	59	95	158	13	.02	.05
2	.00	.00	6.9	6.9	12	40	81	76	144	11	.01	.07
3	.00	.00	22	9.4	11	42	102	73	147	8.9	.01	.07
4	.00	.00	18	21	10	46	86	81	160	7.0	.00	.07
5	.00	.00	12	73	9.7	53	91	71	116	5.1	.01	.07
6	.00	.00	22	60	9.6	55	139	60	83	3.5	.02	.07
7	.00	.00	46	34	9.7	51	179	52	80	2.6	.01	.06
8	.00	.00	29	24	12	53	152	55	97	1.6	.01	.05
9	.00	.00	51	22	15	76	121	50	95	.92	.01	.05
10	.00	.00	226	42	17	56	141	69	83	.37	.01	.05
11	.00	.00	230	35	19	40	174	141	76	.01	.01	.05
12	.00	.00	96	24	22	31	190	234	80	.01	.00	.05
13	.00	.03	45	19	24	27	200	279	89	.01	.01	.05
14	.00	12	25	17	24	27	207	230	44	.01	.01	.05
15	.00	16	19	16	28	34	164	247	3.0	.01	.01	.05
16	.00	11	15	16	31	33	134	286	64	.01	.00	.05
17	.00	14	12	16	25	33	140	242	84	.01	.00	.04
18	.00	23	9.8	15	21	43	136	183	81	.01	.00	.03
19	.00	16	8.9	14	17	66	117	170	81	.01	.0	.04
20	.00	12	7.1	12	17	86	113	169	80	.01	.0	.04
21	.00	13	7.0	12	19	96	101	191	80	.01	.01	.03
22	.00	16	24	12	24	79	94	217	73	.01	.00	.03
23	.00	12	27	13	31	117	80	210	59	.01	.00	.03
24	.00	8.1	21	15	37	145	91	192	50	.01	.00	.03
25	.00	3.8	14	18	44	133	97	174	50	.01	.00	.03
26	.00	1.6	13	19	50	151	112	166	48	.02	.00	.03
27	.00	.67	11	18	59	165	137	144	38	.02	.00	.02
28	.00	.12	9.6	21	64	114	143	134	29	.01	.02	.02
29	.00	.0	9.5	20	54	88	134	185	21	.02	.03	.01
30	.00	.00	9.1	17	---	86	124	145	17	.03	.02	.00
31	.00	---	8.0	15	---	65	---	132	---	.02	.02	---
TOTAL	0.00	159.32	1053.92	663.6	730.0	2178	3839	4753	2310.0	54.26	0.25	1.29
MEAN	.00	5.31	34.0	21.4	25.2	70.3	128	153	77.0	1.75	.008	.043
MAX	.00	23	230	73	64	165	207	286	160	13	.03	.07
MIN	.00	.00	.02	6.9	9.6	27	59	50	3.0	.01	.00	.00
AC-FT	.0	316	2090	1320	1450	4320	7610	9430	4580	108	.5	2.6
CAL YR 1987	TOTAL	17488.67	MEAN	47.9	MAX	485	MIN	.00	AC-FT	34690		
WTR YR 1988	TOTAL	15742.64	MEAN	43.0	MAX	286	MIN	.00	AC-FT	31230		

SACRAMENTO RIVER BASIN

11428300 BUCK-LOON TUNNEL NEAR MEEKS BAY, CA

LOCATION.--Lat 39°00'17", long 120°15'21", in SE 1/4 NW 1/4 sec.6, T.13 N., R.16 E., El Dorado County, Hydrologic Unit 18020128, Eldorado National Forest, on right bank at tunnel intake near left abutment of diversion dam, 7.4 mi southwest of Meeks Bay.

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

GAGE.--Water-stage recorder. Datum of gage is 6,425.0 ft above National Geodetic Vertical Datum of 1929 (levels by Sacramento Municipal Utility District).

REMARKS.--No estimated daily discharges. Records good. Tunnel diverts water from Buck Island Lake and discharges into Loon Lake (station 11429350). Buck Island Lake receives water from Rubicon River via Rubicon-Rockbound tunnel (station 11427940). Gates are closed at the tunnel entrance during the summer and opened each fall to raise the level of Buck Island Lake for recreational purposes. See schematic diagram of Middle Fork American and Rubicon River basins.

AVERAGE DISCHARGE.--25 years, 135 ft³/s, 97,810 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 1,240 ft³/s, Dec. 23, 1964; no flow at times in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	1.4	11	21	73	78	135	177	15	.12	.10
2	.00	.00	4.4	9.9	19	60	89	104	184	12	.12	.10
3	.00	.00	15	14	17	52	120	90	172	9.4	.12	.10
4	.00	.00	25	23	15	53	120	93	186	7.6	.12	.09
5	.00	.00	23	65	14	62	116	93	166	6.0	.12	.09
6	.00	.00	30	94	13	66	154	81	123	4.8	.12	.09
7	.00	.00	69	65	13	63	212	70	104	4.1	.12	.09
8	.00	.00	59	45	14	63	209	69	120	2.9	.12	.09
9	.00	.00	56	36	16	79	169	67	131	1.6	.12	.09
10	.00	.00	240	51	19	83	168	75	116	1.4	.12	.08
11	.00	.00	364	60	22	63	209	132	101	.51	.12	.08
12	.00	.00	189	45	25	46	215	253	97	.24	.12	.08
13	.00	.00	94	32	27	37	216	339	104	.14	.12	.08
14	.00	.04	57	26	29	33	216	306	57	.14	.11	.08
15	.00	4.0	38	26	31	35	217	297	.12	.14	.11	.07
16	.00	11	26	26	36	40	190	345	.79	.14	.11	.07
17	.00	16	21	26	34	41	180	330	45	.14	.11	.07
18	.00	25	17	23	30	47	178	257	71	.13	.11	.07
19	.00	26	15	20	25	70	161	217	73	.13	.11	.07
20	.00	22	12	18	21	103	151	210	74	.13	.11	.06
21	.00	20	11	17	21	126	137	225	73	.13	.11	.06
22	.00	19	23	15	24	119	126	260	70	.13	.11	.06
23	.00	19	37	15	30	134	109	262	62	.13	.11	.06
24	.00	15	33	17	37	198	110	244	52	.13	.11	.06
25	.00	11	25	20	45	185	126	221	46	.13	.11	.05
26	.00	7.1	19	22	54	195	143	207	45	.13	.10	.05
27	.00	4.5	16	23	63	212	173	185	40	.13	.10	.05
28	.00	2.9	16	24	76	175	188	166	32	.13	.10	.04
29	.00	1.9	16	27	79	129	180	224	25	.13	.10	.04
30	.00	1.2	15	27	---	114	164	210	19	.13	.10	.04
31	.00	---	13	23	---	96	---	176	---	.13	.10	---
TOTAL	0.00	205.64	1579.8	945.9	870	2852	4824	5943	2565.91	68.07	3.48	2.16
MEAN	.00	6.85	51.0	30.5	30.0	92.0	161	192	85.5	2.20	.11	.072
MAX	.00	26	364	94	79	212	217	345	186	15	.12	.10
MIN	.00	.00	1.4	9.9	13	33	78	67	.12	.13	.10	.04
AC-FT	.0	408	3130	1880	1730	5660	9570	11790	5090	135	6.9	4.3
CAL YR 1987	TOTAL	21985.70	MEAN	60.2	MAX	640	MIN	.00	AC-FT	43610		
WTR YR 1988	TOTAL	19859.96	MEAN	54.3	MAX	364	MIN	.00	AC-FT	39390		

SACRAMENTO RIVER BASIN

11428700 HELL HOLE RESERVOIR NEAR MEEKS BAY, CA

LOCATION.--Lat 39°03'54", long 120°24'50", in SE 1/4 NW 1/4 sec.16, T.14 N., R.14 E., Placer County, Hydrologic Unit 18020128, Eldorado National Forest, on right bank 0.3 mi upstream from Hell Hole Dam on Rubicon River and 15.6 mi west of Meeks Bay.

DRAINAGE AREA.--114 mi².

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Placer County Water Agency).

REMARKS.--Reservoir is formed by rockfill dam with earth core. Storage began Dec. 6, 1965. Usable capacity, 207,342 acre-ft between elevations 4,287.65 ft, invert of river outlet, and 4,630.0 ft, crest of ogee spillway. Dead storage 248 acre-ft. Reservoir is used to store water for hydroelectric power. Water is diverted into reservoir from French Meadows Reservoir (11427400) on the Middle Fork American River through French Meadows powerplant. Water is diverted out of reservoir to the Middle Fork American River through Middle Fork powerplant. See schematic diagram of Middle Fork American and Rubicon River basins. Records, including extremes, represent total contents at 2400 hours.

COOPERATION.--Records provided by Placer County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 211,050 acre-ft, Dec. 20, 1981, elevation, 4,632.75 ft; minimum since reservoir first filled, 37,499 acre-ft, Mar. 23, 1973, elevation, 4,428.28 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 155,200 acre-ft, June 9, 10, elevation, 4,584.6 ft; minimum, 103,400 acre-ft, Feb. 9, elevation, 4,526.6 ft.

Capacity table (elevation, in feet NGVD, and contents, in acre-feet)
(Provided by Placer County Water Agency, from 1966 survey)

4,340	5,220	4,400	24,200	4,550	122,700
4,360	9,840	4,450	49,600	4,600	171,900
4,380	16,200	4,500	83,000	4,650	233,400

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	111100	105200	104200	106700	105400	109500	123000	140800	153800	150000	136800	129000
2	110400	105100	104200	106800	104900	110000	123400	141100	154000	149600	136300	128500
3	109800	105100	104200	106800	104400	110400	123800	141600	154000	149500	135700	128000
4	109200	104900	104100	106800	104000	110800	124300	142000	153500	149000	135200	127900
5	108300	104900	104100	107200	103700	111300	124700	142400	153800	148400	134800	127200
6	107600	104900	104600	107500	103900	111700	125300	142800	153500	148400	134600	126300
7	107400	104800	104900	107700	104000	112200	125900	143200	154100	147700	135300	125600
8	107300	104800	104600	107700	103700	112600	126400	143500	154800	147200	134900	124600
9	107200	104600	105000	108000	103400	113100	126900	143900	155200	146300	134500	123700
10	107100	104600	106400	108400	103700	113500	127400	144100	155200	145800	134100	123100
11	107100	104500	106200	108900	103800	113800	127700	144300	154900	145000	133700	123000
12	107000	104500	106400	108700	104100	114100	128300	144900	155100	144600	133300	122200
13	106900	104700	106500	108500	104400	114300	129000	145500	154800	144200	133200	121400
14	106900	104700	106500	108300	104700	114600	129800	146100	154600	143700	133900	120300
15	106800	104700	106300	108100	104900	114900	130600	146700	154600	142900	133600	120100
16	106800	104700	105700	108200	105200	115200	131200	147300	154500	141800	133400	119700
17	106700	104700	105500	108200	105300	115500	131800	148000	154200	141300	133200	119200
18	106700	104700	105500	107900	105600	115800	132300	148500	153700	140800	133100	119200
19	106600	104700	105600	107500	105700	116200	133200	149000	153700	140500	133000	118300
20	106500	104700	105700	107200	105900	116700	134000	148900	153800	140000	132700	117400
21	106500	104700	105500	106700	106100	117100	134600	149200	153600	139400	132700	116600
22	106500	104600	105900	106500	106400	117600	135300	149700	153500	138900	132200	115600
23	106500	104600	106000	106600	106600	118300	135700	150100	153300	138700	132100	114700
24	106400	104600	106100	106800	106900	119000	136400	150400	153200	139200	132000	114200
25	106300	104600	106100	106500	107300	119700	137000	150700	153000	138700	131900	114200
26	106200	104500	106200	106200	107600	120400	137700	151000	152800	138100	131600	113400
27	105800	104500	106300	105900	108000	121000	138500	151200	151900	137700	130700	112600
28	105600	104500	106500	105700	108600	121400	139200	151600	151300	137000	130700	111700
29	105500	104500	106500	105400	109000	121900	139800	152100	151000	136900	129900	110800
30	105300	104100	106500	105700	---	122300	140300	152500	150700	137000	129300	110100
31	105300	---	106600	105800	---	122600	---	153200	---	137200	129100	---
MAX	111100	105200	106600	108900	109000	122600	140300	153200	155200	150000	136800	129000
MIN	105300	104100	104100	105400	103400	109500	123000	140800	150700	136900	129100	110100
a	4528.9	4527.4	4530.6	4529.6	4533.5	4549.9	4569.6	4582.7	4580.2	4566.3	4557.4	4534.9
b	-6400	-1200	+2500	-800	+3200	+13600	+17700	+12900	-2500	-13500	-8100	-19000
CAL YR 1987	b	+1300										
WTR YR 1988	b	-1600										

a Elevation, in feet NGVD, at end of month.

b Change in contents, in acre-feet.

SACRAMENTO RIVER BASIN

11428800 RUBICON RIVER BELOW HELL HOLE DAM, NEAR MEEKS BAY, CA

LOCATION.--Lat 39°03'24", long 120°24'25", in NE 1/4 NE 1/4 sec.21, T.14 N., R.14 E., Placer County, Hydrologic Unit 18020128, Eldorado National Forest, on right bank 600 ft downstream from outlet of dam, and 15.3 mi west of Meeks Bay.

DRAINAGE AREA.--114 mi².

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

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 4,231.52 ft above National Geodetic Vertical Datum of 1929 (levels by Placer County Water Agency).

REMARKS.--No estimated daily discharges. Flow completely regulated by Hell Hole Reservoir (station 11428700) 600 ft upstream from station. During years when Hell Hole Dam spills, records include flow which bypasses the station. Transbasin diversions upstream from station through Buck-Loon tunnel (station 11428300) to Loon Lake Reservoir (station 11429350); from Middle Fork American River basin through tunnel from French Meadows Reservoir (station 11427400) to Hell Hole Reservoir; from Hell Hole Reservoir through tunnel to Middle Fork American River powerplant. Diversion began Sept. 8, 1966. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records provided by Placer County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--22 years, 30.8 ft³/s, 22,310 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,700 ft³/s, Mar. 8, 1986, including flow over spillway; no flow Aug. 25 to Sept. 11, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 33 ft³/s, Oct. 12, gage height, 4.28 ft; minimum daily, 11 ft³/s, many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	22	21	11	11	11	11	12	15	11	11	11
2	21	21	22	11	11	12	11	12	11	11	11	11
3	21	21	22	13	11	11	11	12	11	11	12	11
4	21	21	22	15	11	11	11	12	11	11	12	11
5	21	21	22	14	11	11	12	12	11	11	11	11
6	21	21	22	13	11	11	11	12	11	11	11	11
7	21	21	22	12	11	11	12	12	12	11	11	11
8	21	21	22	12	11	11	11	12	11	11	11	11
9	25	21	24	14	11	11	11	12	11	11	11	11
10	28	21	23	13	11	11	11	12	11	11	11	11
11	27	21	22	14	11	11	12	12	11	11	11	11
12	32	21	22	12	11	11	12	12	11	11	11	11
13	32	21	22	12	11	11	12	12	11	11	11	11
14	29	21	21	12	11	11	12	16	11	11	11	11
15	21	21	15	12	11	11	12	23	11	11	11	11
16	21	21	12	12	11	11	12	23	11	11	11	11
17	21	21	11	11	11	11	11	23	11	11	11	11
18	21	21	11	11	11	11	11	22	11	11	11	11
19	21	21	11	11	11	11	12	22	11	11	11	11
20	21	21	11	11	11	12	14	22	12	11	11	11
21	24	21	11	11	11	12	13	22	14	11	11	11
22	30	21	13	11	11	11	12	22	11	11	11	11
23	33	21	11	12	11	12	12	22	11	11	11	11
24	33	21	11	12	11	12	12	22	11	11	11	11
25	33	21	11	12	11	12	12	22	11	11	11	11
26	31	22	11	12	11	12	12	22	11	11	11	11
27	27	22	11	11	11	12	12	22	11	11	11	11
28	22	22	11	11	11	12	12	21	11	11	11	11
29	22	21	11	11	11	12	12	22	11	11	11	11
30	22	21	11	11	---	12	12	22	11	11	11	11
31	22	---	11	11	---	11	---	22	---	11	11	---
TOTAL	765	634	503	371	319	352	353	548	339	341	343	330
MEAN	24.7	21.1	16.2	12.0	11.0	11.4	11.8	17.7	11.3	11.0	11.1	11.0
MAX	33	22	24	15	11	12	14	23	15	11	12	11
MIN	20	21	11	11	11	11	11	12	11	11	11	11
AC-FT	1520	1260	998	736	633	698	700	1090	672	676	680	655
a	5050	744	3910	8250	4000	85	260	1320	19220	28070	24120	19270

CAL YR 1987 TOTAL 6669 MEAN 18.3 MAX 33 MIN 11 AC-FT 13230
WTR YR 1988 TOTAL 5198 MEAN 14.2 MAX 33 MIN 11 AC-FT 10310

a Diversion, in acre-feet, from Hell Hole Reservoir through Middle Fork powerplant, provided by Placer County Water Agency.

SACRAMENTO RIVER BASIN

11429300 ROBBS PEAK POWERPLANT NEAR KYBURZ, CA

LOCATION.--Lat 38°53'50", long 120°22'38", in SE 1/4 SW 1/4 sec.11, T.12 N., R.14 E., El Dorado County, Hydrologic Unit 18020128, Eldorado National Forest, in powerplant on shore of Union Valley Reservoir, and 9.5 mi northwest of Kyburz.

PERIOD OF RECORD.--October 1962 to current year. Prior to October 1965, published as Robbs Peak tunnel near Riverton.

GAGE.--Discharge computed from powerplant output. Elevation of gage is 4,880 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to October 1965, water-stage recorder and concrete control in abandoned section of canal 0.5 mi upstream at different datum.

REMARKS.--No estimated daily discharges. Water is imported from Loon Lake (station 11429350) via Loon Lake powerplant or Gerle Creek (stations 11429340 and 11429500) to tunnel intake. Tunnel diverts at South Fork Rubicon River diversion dam in NE 1/4 sec.27, T.13 N., R.14 E., and discharges into Union Valley Reservoir (station 11441001). See schematic diagrams of Middle Fork American and Rubicon River basins and South Fork American River basin.

COOPERATION.--Records provided by Sacramento Municipal Utility District, rounded to U.S. Geological Survey standards.

AVERAGE DISCHARGE.--26 years, 247 ft³/s, 179,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 1,440 ft³/s, Dec. 22-24, 1964; no flow many days in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	267	165	1.0	54	351	84	131	235	218	222	1.0
2	215	313	196	10	210	306	52	85	209	13	231	1.0
3	267	381	188	101	201	280	55	309	220	1.0	224	1.0
4	263	346	166	33	207	291	76	305	24	1.0	229	1.0
5	283	375	16	144	204	314	127	178	1.0	278	243	1.0
6	272	371	48	107	215	300	91	37	201	249	1.0	33
7	285	347	208	80	226	141	52	49	250	254	1.0	1.0
8	353	368	110	195	218	105	116	93	219	253	248	6.0
9	398	371	126	88	199	177	72	86	214	44	350	1.0
10	376	373	300	149	253	123	59	141	209	1.0	304	31
11	342	359	223	108	269	69	82	214	1.0	212	245	1.0
12	356	365	32	79	268	101	57	222	19	251	293	1.0
13	294	251	50	64	248	80	80	336	226	288	1.0	1.0
14	357	243	77	25	261	68	201	75	218	281	1.0	1.0
15	162	230	38	58	272	77	115	70	210	294	264	2.0
16	113	224	12	61	277	88	143	328	177	49	283	1.0
17	230	234	.00	56	85	72	92	384	207	74	224	1.0
18	187	245	37	48	236	94	43	287	45	213	262	1.0
19	194	104	.00	33	229	124	136	350	1.0	321	259	.00
20	190	239	73	35	246	121	121	344	210	310	1.0	.00
21	190	242	.00	51	116	132	128	117	121	269	1.0	.00
22	176	247	56	53	239	101	176	56	209	298	176	.00
23	303	219	82	47	233	141	229	349	251	54	211	.00
24	289	237	.00	66	269	121	133	407	216	1.0	205	.00
25	310	300	26	71	120	116	195	382	1.0	273	220	.00
26	351	305	21	76	284	163	519	324	1.0	260	199	.00
27	221	304	49	6.0	243	125	369	78	219	276	1.0	.00
28	125	311	41	104	282	82	487	16	246	338	2.0	.00
29	135	307	38	120	310	93	291	90	227	34	1.0	.00
30	105	306	1.0	78	---	80	88	77	100	7.0	1.0	.00
31	101	---	47	65	---	63	---	65	---	1.0	1.0	---
TOTAL	7444.0	8784	2426.00	2212.0	6474	4499	4469	5985	4687.0	5416.0	4904.0	86.00
MEAN	240	293	78.3	71.4	223	145	149	193	156	175	158	2.87
MAX	398	381	300	195	310	351	519	407	251	338	350	33
MIN	1.0	104	.00	1.0	54	63	43	16	1.0	1.0	1.0	.00
AC-FT	14770	17420	4810	4390	12840	8920	8860	11870	9300	10740	9730	171

CAL YR 1987 TOTAL 47100.00 MEAN 129 MAX 492 MIN .00 AC-FT 93420
WTR YR 1988 TOTAL 57386.00 MEAN 157 MAX 519 MIN .00 AC-FT 113800

SACRAMENTO RIVER BASIN

11429350 LOON LAKE NEAR MEEKS BAY, CA

LOCATION.--Lat 38°58'59", long 120°19'22", in SE 1/4 SW 1/4 sec.8, T.13 N., R.15 E., El Dorado County, Hydrologic Unit 18020128, Eldorado National Forest, in powerplant intake structure, 1.6 mi southwest of right bank end of Loon Lake Dam on Gerle Creek, and 10 mi southwest of Meeks Bay.

DRAINAGE AREA.--7.96 mi².

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

REVISED RECORDS.--WDR CA-76-4: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Sacramento Municipal Utility District). Prior to Sept. 23, 1975, at site 1.6 mi northeast on right bank end of Loon Lake Dam at same datum.

REMARKS.--Reservoir is formed by an earthfill dam completed Dec. 27, 1963; storage began Dec. 5, 1963. Prior to September 1962, reservoir was formed by granite-block dam built in 1884, capacity, 8,000 acre-ft. Usable capacity, 73,900 acre-ft, between elevations 6,325 ft, invert of fishwater release valve, and 6,410 ft, crest of spillway. Dead storage, 2,300 acre-ft. Lake receives water from Rubicon River via Rubicon-Rockbound tunnel to Buck Island Lake and from Buck Island Lake to Loon Lake via Buck-Loon tunnel (stations 11427940, 11428300). Records, including extremes, represent total contents. See schematic diagram of Middle Fork American and Rubicon River basins.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 77,700 acre-ft, June 6, 1969, elevation, 6,411.1 ft; minimum since reservoir first filled, 3,690 acre-ft, Nov. 3, 1970, elevation, 6,330.3 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 51,100 acre-ft, Oct. 1, elevation, 6,390.9 ft; minimum, 4,320 acre-ft, Sept. 30, elevation, 6,332.4 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)
(Based on table provided by Sacramento Municipal Utility District dated June 1965)

6,330	3,600	6,370	28,500
6,340	7,200	6,390	50,000
6,350	12,500	6,412	79,000
6,360	19,600		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51100	34700	16700	19300	21700	14100	19500	29100	32400	28700	16200	5120
2	50500	34000	16400	19400	21400	13900	19700	29300	32400	28700	15600	5100
3	50000	33200	16100	19400	21000	13700	20000	29000	32400	28700	15200	5070
4	49400	32500	15800	19500	20700	13600	20200	28700	32700	28600	14700	5040
5	48800	31800	15800	19800	20400	13400	20500	28700	33000	28100	14200	5040
6	48200	30900	16200	19900	19900	13200	20800	28900	32900	27500	14200	5010
7	47600	30200	15900	20200	19600	13400	21300	29000	32700	27000	14200	4980
8	46800	29400	15900	19900	19300	13600	21800	29200	32800	26500	13700	4950
9	46000	28500	16100	20100	18900	13800	22100	29300	32700	26400	12900	4920
10	45300	27700	17000	20300	18600	14000	22500	29400	32600	26400	12400	4890
11	44600	27000	17900	20400	18300	14100	22900	29300	32700	25800	11900	4860
12	43800	26200	18300	20600	17900	14200	23400	29500	32900	25200	11300	4830
13	43200	25800	18500	20600	17600	14300	24000	29700	32700	24500	11200	4800
14	42500	25300	18500	20700	17300	14400	24800	30300	32400	23900	11200	4770
15	42100	24800	18500	20800	17000	14500	25300	30900	32100	23200	10600	4740
16	41700	24300	18600	20900	16600	14500	25800	31000	31700	23200	9990	4710
17	41300	23900	18600	21000	16700	14700	26200	31100	31400	23100	9350	4680
18	40900	23400	18600	21100	16500	14800	26600	31200	31500	22400	8780	4650
19	40400	23200	18600	21100	16100	15000	27000	31000	31600	21800	8130	4620
20	40000	22800	18600	21100	15700	15100	27500	30700	31600	21100	8130	4590
21	39700	22400	18700	21200	15400	15400	27800	31100	31400	20400	8110	4590
22	39200	22000	18900	21200	15100	15700	28100	31600	31100	19800	7590	4560
23	38500	21400	18900	21200	14900	16200	28100	31400	30800	19700	7020	4530
24	38000	21000	19000	21200	14700	16700	28300	31100	30500	19700	6470	4500
25	37300	20400	19100	21300	14800	17200	28700	30800	30600	19000	5850	4470
26	36700	19600	19100	21300	14700	17700	28500	30500	30600	18400	5380	4440
27	36200	19000	19100	21400	14500	18300	28600	30800	30200	17700	5350	4410
28	36100	18400	19200	21400	14400	18600	28400	31200	29800	16900	5320	4380
29	35700	17700	19300	21500	14300	18900	28400	31700	29400	16900	5230	4350
30	35500	17000	19300	21500	---	19200	28900	32100	29200	16800	5200	4320
31	35300	---	19300	21600	---	19300	---	32400	---	16800	5160	---
MAX	51100	34700	19300	21600	21700	19300	28900	32400	33000	28700	16200	5120
MIN	35300	17000	15800	19300	14300	13200	19500	28700	29200	16800	5160	4320
a	6376.9	6356.8	6359.6	6362.4	6353.0	6359.7	6370.4	6374.1	6370.8	6356.6	6335.2	6332.4
b	-15800	-18300	+2300	+2300	-7300	+5000	+9600	+3500	-3200	-12400	-11640	-840

CAL YR 1987 MAX 66600 MIN 15800 b -13900

WTR YR 1988 MAX 51100 MIN 4320 b -46780

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

SACRAMENTO RIVER BASIN

11429500 GERLE CREEK BELOW LOON LAKE DAM, NEAR MEEKS BAY, CA

LOCATION.--Lat 39°00'20", long 120°18'52", in NE 1/4 NE 1/4 sec.5, T.13 N., R.15 E., El Dorado County, Hydrologic Unit 18020128, Eldorado National Forest, on right bank 0.3 mi downstream from Loon Lake Dam, and 11 mi southwest of Meeks Bay.

DRAINAGE AREA.--8.01 mi².

PERIOD OF RECORD.--July 1910 to April 1914 (fragmentary), August 1962 to current year. Prior to August 1962, published as "near Rubicon Springs."

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Elevation of gage is 6,250 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to August 1962, nonrecording gage at site 1,400 ft upstream at different datum.

REMARKS.--Estimated daily discharges: Dec. 14-18. Records excellent. Beginning in 1884, flow regulated by Loon Lake (station 11429350). Original dam was dismantled during September and October 1962 to permit construction of a new earthfill dam, which was completed Dec. 27, 1963. Loon Lake receives water from Rubicon River via Buck-Loon tunnel (station 11428300). Since August 1971, most of the water is diverted past the station via Loon Lake powerplant (station 11429340) and returns to Gerle Creek at Gerle Creek Dam. See schematic diagram of Middle Fork American and Rubicon River basins.

AVERAGE DISCHARGE.--10 years (water years, 1911, 1963-71, prior to diversion to Loon Lake powerplant), 131 ft³/s, 94,910 acre-ft/yr; 16 years (water years 1972-88), 8.53 ft³/s, 6,180 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,240 ft³/s, unregulated, Feb. 1, 1963, gage height, 12.65 ft, from rating curve extended above 970 ft³/s on basis of slope-area measurement of peak flow; no flow Oct. 15, 1913. Maximum discharge since construction of Loon Lake Dam in 1963, 1,050 ft³/s, June 5, 1969, gage height, 9.03 ft; minimum daily, 3.6 ft³/s, Sept. 27, 28, Nov. 3, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21 ft³/s, Dec. 6, gage height, 2.28 ft; minimum daily, 8.0 ft³/s, several days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.6	8.3	10	8.9	9.5	8.7	9.1	8.6	9.2	8.6	8.5	8.9
2	8.6	8.3	10	8.9	9.5	8.7	9.1	8.6	9.2	8.6	8.6	8.9
3	8.6	8.2	9.2	8.9	9.5	8.7	9.2	8.6	9.2	8.6	8.8	8.9
4	8.6	8.0	9.2	9.6	9.5	8.9	9.2	8.6	9.2	8.6	8.7	8.9
5	8.6	8.1	9.0	9.7	9.5	8.9	9.2	8.6	9.2	8.6	8.7	8.9
6	8.4	8.3	11	9.2	9.5	8.8	9.0	8.6	9.2	8.8	8.8	8.9
7	8.1	8.2	9.2	9.2	9.5	8.9	8.9	9.0	9.5	9.0	9.1	8.9
8	8.3	8.0	9.2	9.2	9.5	9.4	8.9	8.9	9.2	8.6	9.2	8.9
9	8.3	8.1	11	10	9.5	8.9	8.9	8.6	9.2	8.6	9.4	8.9
10	8.3	8.0	12	9.4	9.7	8.6	8.9	8.6	9.2	8.6	9.1	8.9
11	8.3	8.1	9.6	9.2	9.6	8.6	8.9	8.6	9.2	8.6	8.8	8.8
12	8.3	8.3	9.4	9.2	9.5	8.6	8.9	8.6	9.2	8.5	8.3	8.5
13	8.3	10	9.2	9.2	9.3	8.7	9.4	8.6	9.2	8.3	8.5	8.6
14	8.3	8.4	9.2	9.2	9.3	8.9	10	8.6	9.1	8.4	8.5	8.6
15	8.3	8.0	9.2	9.2	9.4	8.7	9.2	8.8	8.9	8.6	8.7	8.8
16	8.3	8.0	9.2	9.2	9.2	8.7	9.2	8.9	8.9	8.6	8.5	8.9
17	8.3	8.5	9.2	9.2	9.2	8.9	9.2	9.0	8.9	8.6	8.7	8.6
18	8.3	8.0	9.2	9.2	9.2	9.2	8.8	8.9	8.6	8.6	8.5	8.8
19	8.1	8.2	9.2	9.2	9.2	9.4	9.1	8.9	8.6	8.6	8.4	8.8
20	8.3	8.6	9.2	9.2	9.2	9.4	8.9	8.9	8.7	8.6	8.3	9.0
21	8.3	8.7	9.6	9.2	9.3	9.1	8.8	8.8	8.9	8.4	8.5	8.9
22	8.5	8.6	10	9.2	9.3	9.2	8.6	8.8	8.7	8.3	8.5	8.9
23	8.9	8.6	9.5	9.2	9.3	10	9.3	8.7	8.6	8.3	9.1	8.9
24	8.2	8.4	9.5	9.2	9.4	9.4	9.7	8.6	8.8	8.3	8.7	8.9
25	8.0	8.3	9.5	9.5	9.4	9.6	9.2	8.6	9.1	8.4	9.2	8.8
26	8.0	8.3	9.5	9.5	9.5	9.7	8.9	8.6	9.5	8.6	9.0	8.7
27	8.1	8.3	9.3	9.5	9.4	9.4	8.9	8.6	9.5	8.6	8.9	8.6
28	8.5	8.3	9.2	9.5	9.4	9.2	8.6	9.7	9.5	8.6	8.9	8.6
29	8.3	8.2	9.2	9.5	9.0	9.2	8.6	9.9	9.6	8.6	8.9	8.6
30	8.3	8.6	9.2	9.5	---	8.9	8.6	9.2	9.8	8.6	8.9	8.6
31	8.3	---	9.0	9.5	---	9.0	---	9.2	---	8.5	8.9	---
TOTAL	258.6	249.9	295.9	288.3	272.3	280.3	271.2	273.2	273.6	265.2	271.6	263.9
MEAN	8.34	8.33	9.55	9.30	9.39	9.04	9.04	8.81	9.12	8.55	8.76	8.80
MAX	8.9	10	12	10	9.7	10	10	9.9	9.8	9.0	9.4	9.0
MIN	8.0	8.0	9.0	8.9	9.0	8.6	8.6	8.6	8.6	8.3	8.3	8.5
AC-FT	513	496	587	572	540	556	538	542	543	526	539	523
a	14940	17950	1970	365	8840	2160	2120	8310	8390	11130	9990	0

CAL YR 1987 TOTAL 3191.9 MEAN 8.74 MAX 14 MIN 8.0 AC-FT 6330 MEAN a 85.4 AC-FT a 61870
WTR YR 1988 TOTAL 3264.0 MEAN 8.92 MAX 12 MIN 8.0 AC-FT 6470 MEAN a 119 AC-Ft a 86170

a Diversion, in acre-feet, to Loon Lake powerplant, provided by Sacramento Municipal Utility District.

SACRAMENTO RIVER BASIN

11430000 SOUTH FORK RUBICON RIVER BELOW GERLE CREEK, NEAR GEORGETOWN, CA

LOCATION.--Lat 38°57'17", long 120°24'02", in SW 1/4 SW 1/4 sec.22, T.13 N., R.14 E., El Dorado County, Hydrologic Unit 18020128, Eldorado National Forest, on left bank 600 ft downstream from Gerle Creek, 1.2 mi downstream from South Fork Rubicon River diversion dam, and 18 mi east of Georgetown.

DRAINAGE AREA.--47.6 mi².

PERIOD OF RECORD.--February 1910 to June 1914 (published as Little South Fork Rubicon River below Gerle Creek near Quintette), August 1961 to current year.

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 4,970 ft above National Geodetic Vertical Datum of 1929, from topographic map. Feb. 1, 1910, to June 21, 1914, nonrecording gage at site about 700 ft downstream at different datum.

REMARKS.--No estimated daily discharges. Records excellent except those above 20 ft³/s, which are good. Beginning in 1884, flow regulated by Loon Lake (station 11429350). Original dam was dismantled during September and October 1962 to permit construction of a new earthfill dam completed Dec. 27, 1963. Loon Lake receives water from Rubicon River via Rubicon-Rockbound tunnel to Buck Island Lake and from Buck Island Lake to Loon Lake via Buck-Loon tunnel (stations 11427940 and 11428300). Prior to Dec. 3, 1961, water was diverted out of the basin in Georgetown Divide ditch. Water is diverted 1.2 mi upstream at South Fork Rubicon River diversion dam to Robbs Peak Powerplant (station 11429300). Diversion of up to 1,440 ft³/s to Silver Creek basin began in October 1962. See schematic diagram of Middle Fork American and Rubicon River basins.

AVERAGE DISCHARGE (unadjusted).--26 years (water years 1963-88), 24.0 ft³/s, 17,390 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,500 ft³/s, Jan. 31, 1963, gage height, 12.32 ft, from rating curve extended above 2,500 ft³/s on basis of slope-area measurement of peak flow; minimum, 0.8 ft³/s, Sept. 21, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 247 ft³/s, Feb. 12, gage height, 4.02 ft; minimum daily, 5.0 ft³/s, Jan. 1, Sept. 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.7	5.6	7.4	5.0	5.9	7.0	5.2	5.3	5.9	5.6	5.6	5.6
2	5.7	5.7	7.4	5.1	5.9	6.9	5.2	5.4	5.9	6.1	6.0	5.7
3	5.7	5.6	6.4	8.4	6.1	6.7	5.3	6.0	5.9	6.2	6.1	5.7
4	5.8	5.4	6.1	9.5	6.3	6.5	5.3	6.0	5.8	6.3	6.1	5.8
5	6.1	5.9	6.0	10	6.3	6.7	5.2	5.9	6.1	6.2	6.2	5.8
6	5.4	6.4	9.1	8.0	6.1	6.2	5.2	5.8	7.1	5.9	6.2	5.8
7	5.8	5.8	7.8	7.1	6.2	6.1	5.1	6.2	7.2	5.8	6.2	5.8
8	10	5.7	6.6	16	6.1	5.9	5.3	5.9	6.6	5.6	6.3	5.8
9	7.8	5.8	7.8	8.4	11	5.9	5.5	5.8	6.1	5.4	6.5	5.6
10	5.6	5.7	8.7	8.0	11	5.7	5.5	5.8	6.0	5.1	6.3	5.9
11	5.4	5.7	7.3	9.8	7.5	5.5	5.5	5.7	5.9	5.3	6.3	5.8
12	5.2	5.7	6.4	8.1	14	5.4	5.4	5.7	6.2	6.2	6.3	5.7
13	5.2	7.8	6.1	7.7	6.6	5.4	5.5	5.8	6.2	5.8	6.1	5.7
14	5.8	6.7	5.8	7.8	6.5	5.4	6.4	5.6	6.0	5.9	6.1	5.7
15	5.8	6.0	5.6	7.7	6.6	5.7	5.8	5.6	6.0	6.3	6.2	5.7
16	6.3	5.8	5.7	8.2	6.4	5.7	5.7	6.0	5.8	6.2	6.0	5.6
17	5.8	6.3	5.4	7.6	6.1	5.7	5.5	5.9	5.9	5.6	5.7	5.9
18	5.6	6.0	5.4	7.1	5.7	5.7	5.4	5.9	6.0	5.3	5.9	6.0
19	5.8	5.8	5.4	7.0	5.5	5.7	7.6	5.8	5.9	6.1	5.9	6.0
20	5.8	5.9	5.3	7.0	5.5	5.6	8.4	5.8	6.1	5.7	5.8	6.3
21	5.9	6.1	5.4	6.3	5.5	5.5	7.6	5.8	5.4	5.7	5.8	5.5
22	6.6	5.8	7.6	6.5	5.5	5.5	7.5	5.6	5.2	6.2	5.9	5.5
23	7.3	5.6	5.9	6.5	5.7	5.5	7.3	5.7	5.6	5.7	6.1	5.3
24	6.6	5.6	5.7	6.7	5.8	5.4	7.0	5.8	5.7	5.1	6.1	5.2
25	6.5	5.7	5.5	6.6	5.6	5.4	6.5	5.9	5.8	5.7	6.0	5.1
26	6.3	6.5	5.5	6.3	5.6	5.4	6.4	5.8	5.8	6.1	5.8	5.0
27	5.6	6.5	5.4	5.9	5.8	5.3	5.9	5.8	6.0	6.3	5.3	5.7
28	6.2	6.5	5.5	5.9	6.3	5.3	5.7	6.7	6.0	6.5	5.3	5.5
29	5.8	6.5	5.4	6.0	6.4	5.5	5.5	6.5	5.5	5.8	5.2	5.1
30	5.4	6.6	5.4	6.2	---	5.4	5.4	6.1	5.6	5.6	5.5	5.1
31	5.6	---	5.2	6.0	---	5.3	---	5.9	---	5.5	5.5	---
TOTAL	188.1	180.7	194.2	232.4	193.5	178.9	178.8	181.5	179.2	180.8	184.3	168.9
MEAN	6.07	6.02	6.26	7.50	6.67	5.77	5.96	5.85	5.97	5.83	5.95	5.63
MAX	10	7.8	9.1	16	14	7.0	8.4	6.7	7.2	6.5	6.5	6.3
MIN	5.2	5.4	5.2	5.0	5.5	5.3	5.1	5.3	5.2	5.1	5.2	5.0
AC-FT	373	358	385	461	384	355	355	360	355	359	366	335

CAL YR 1987 TOTAL 2315.2 MEAN 6.34 MAX 94 MIN 4.8 AC-FT 4590
WTR YR 1988 TOTAL 2241.3 MEAN 6.12 MAX 16 MIN 5.0 AC-FT 4450

SACRAMENTO RIVER BASIN

11431800 PILOT CREEK ABOVE STUMPY MEADOWS LAKE, CA

LOCATION.--Lat 38°53'41", long 120°34'02", in NE 1/4 NW 1/4 sec.18, T.12 N., R.13 E., El Dorado County, Hydrologic Unit 18020128, on right bank 2.1 mi upstream from Stumpy Meadows Dam and 12.5 mi east of Georgetown.

DRAINAGE AREA.--11.7 mi².

PERIOD OF RECORD.--October 1960 to current year. Prior to October 1971, published as "above Stumpy Meadows Reservoir."

GAGE.--Water-stage recorder. Elevation of gage is 4,280 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 23-26, 29, Jan. 1, 3, Feb. 3-6. Records good except those for estimated daily discharges, which are fair. No regulation or diversion upstream from station. See schematic diagram of Middle Fork American and Rubicon River basins.

AVERAGE DISCHARGE.--28 years, 25.9 ft³/s, 18,760 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,510 ft³/s, Feb. 17, 1986, gage height, 7.15 ft, from rating curve extended above 540 ft³/s on basis of slope-area measurement at gage height 6.31 ft.; maximum gage height, 8.05 ft, Jan. 31, 1963; minimum daily, 0.14 ft³/s, Aug. 16, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 140 ft³/s, and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 3	2130	*32	*1.99				

Minimum daily, 0.92 ft³/s, Sept. 7, 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	3.6	7.1	6.4	10	20	7.5	11	6.9	3.4	1.6	.96
2	1.7	3.7	11	6.5	9.9	18	7.2	11	6.6	3.3	1.5	.99
3	1.8	3.9	7.1	18	9.4	17	7.2	10	6.2	3.2	1.5	1.0
4	1.8	3.6	5.8	23	9.1	16	7.2	9.9	6.0	3.2	1.5	.98
5	1.9	3.4	5.4	26	8.8	15	6.9	9.7	6.1	3.2	1.5	.95
6	1.9	3.8	14	18	8.6	15	6.7	9.6	6.3	3.2	1.5	.93
7	1.9	4.0	14	14	8.4	15	6.7	10	7.5	3.1	1.5	.92
8	1.9	3.7	9.7	12	8.4	14	6.5	10	7.1	3.0	1.5	.92
9	1.9	3.8	13	13	8.4	14	6.4	9.4	6.1	3.0	1.4	.98
10	2.0	3.7	17	13	8.8	13	6.2	8.8	5.8	2.9	1.3	1.0
11	2.0	3.6	13	24	9.6	13	6.2	8.3	5.7	2.7	1.4	1.0
12	2.5	3.4	9.5	17	9.6	12	6.0	8.0	5.5	2.6	1.3	.96
13	3.1	7.8	7.7	14	9.6	12	6.5	8.0	5.3	2.6	1.4	.98
14	2.5	7.0	6.9	12	9.6	11	9.4	7.7	5.1	2.5	1.5	1.1
15	2.3	4.7	6.7	13	9.6	11	8.6	7.5	5.1	2.5	1.5	1.1
16	2.3	4.3	7.0	12	9.9	11	7.6	7.5	4.9	2.5	1.4	1.1
17	2.3	5.0	6.4	11	9.6	10	7.3	9.1	4.7	2.4	1.4	1.1
18	2.4	5.1	6.0	10	9.3	10	6.9	7.8	4.7	2.2	1.2	1.2
19	2.4	4.3	6.1	9.4	9.0	9.9	15	7.3	4.5	2.1	1.1	1.2
20	2.3	4.5	5.6	9.2	9.3	9.8	21	7.0	4.4	2.1	1.1	1.4
21	2.3	5.2	5.9	8.9	9.3	9.6	18	6.7	4.3	2.0	1.1	1.9
22	2.8	5.0	9.9	8.7	9.6	9.5	17	6.6	4.2	1.9	1.1	1.7
23	5.8	4.4	7.2	8.6	9.8	9.6	17	6.5	4.1	1.9	1.1	1.6
24	5.0	4.3	6.8	8.7	10	9.6	16	6.4	4.0	1.9	1.1	1.5
25	3.5	4.3	6.6	8.7	10	9.2	16	6.2	4.7	1.9	1.0	1.5
26	3.2	4.1	6.4	8.7	10	8.9	15	6.1	4.3	1.9	1.0	1.6
27	3.1	4.0	6.4	8.8	11	8.7	14	6.0	3.9	1.8	1.0	1.5
28	4.0	3.9	6.4	9.0	13	8.3	13	6.8	3.8	1.7	1.0	1.5
29	4.8	3.9	6.8	9.8	17	8.1	12	10	3.7	1.6	1.0	1.4
30	4.1	4.1	6.4	11	---	8.0	12	8.2	3.5	1.7	.97	1.3
31	3.7	---	6.3	11	---	7.7	---	7.3	---	1.6	.96	---
TOTAL	85.0	130.1	254.1	383.4	284.6	363.9	313.0	254.4	155.0	75.6	39.43	36.27
MEAN	2.74	4.34	8.20	12.4	9.81	11.7	10.4	8.21	5.17	2.44	1.27	1.21
MAX	5.8	7.8	17	26	17	20	21	11	7.5	3.4	1.6	1.9
MIN	1.7	3.4	5.4	6.4	8.4	7.7	6.0	6.0	3.5	1.6	.96	.92
AC-FT	169	258	504	760	565	722	621	505	307	150	78	72

CAL YR 1987 TOTAL 3173.0 MEAN 8.69 MAX 161 MIN 1.6 AC-FT 6290
WTR YR 1988 TOTAL 2374.80 MEAN 6.49 MAX 26 MIN .92 AC-FT 4710

LOCATION.--Lat 38°55'25", long 120°38'27", in NE 1/4 NW 1/4 sec.4, T.12 N., R.12 E., El Dorado County, Hydrologic Unit 18020128, Eldorado National Forest, on left bank 450 ft downstream from Mutton Canyon, 500 ft downstream from Georgetown Divide diversion dam, 2.5 mi downstream from Stumpy Meadows Dam, and 10 mi east of Georgetown.

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

GAGE.--Water-stage recorder. Elevation of gage is 3,760 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Stumpy Meadows Lake 2.5 mi upstream, usable capacity, 17,500 acre-ft, completed in November 1961. Georgetown Irrigation District ditch, capacity, about 60 ft³/s, diverts water out of Pilot Creek, 500 ft upstream from station. See schematic diagram of Middle Fork American and Rubicon River basins.

AVERAGE DISCHARGE.--27 years. 31.8 ft³/s. 23,040 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,330 ft³/s, Feb. 18, 1986, gage height, 10.86 ft, from rating curve extended above 970 ft³/s on basis of slope-area measurement at gage height 10.06 ft; minimum daily, 0.20 ft³/s, Sept. 24, Nov. 1-5, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14 ft³/s, Jan. 11, gage height, 3.64 ft; minimum daily, 0.56 ft³/s, Sept. 12.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	2.3	3.2	1.7	2.7	6.7	1.6	2.1	1.6	1.4	1.0	.68
2	2.0	2.3	3.6	1.7	2.5	4.3	1.6	2.1	1.5	1.4	1.0	.67
3	2.0	2.3	2.5	4.1	2.4	3.4	1.6	2.0	1.5	1.4	1.0	.66
4	2.0	2.3	2.3	4.1	2.3	2.9	1.6	2.0	1.5	1.4	1.0	.64
5	2.0	2.2	2.3	5.7	2.3	2.7	1.6	2.0	1.5	1.4	1.0	.63
6	2.0	2.3	4.6	3.5	2.3	2.6	1.6	2.1	1.5	1.4	1.0	.62
7	2.0	2.3	3.8	2.8	2.3	2.5	1.5	2.4	1.8	1.3	1.0	.62
8	2.0	2.3	3.3	3.3	2.3	2.4	1.5	2.3	1.6	1.3	.99	.63
9	2.0	2.3	5.8	3.7	2.3	2.3	1.5	2.0	1.5	1.3	.97	.61
10	2.0	2.3	5.1	3.8	2.4	2.3	1.5	1.9	1.4	1.3	.97	.62
11	2.0	2.2	3.4	8.0	2.6	2.2	1.4	1.9	1.4	1.3	.96	.60
12	2.1	2.2	2.9	4.0	2.5	2.2	1.4	1.8	1.4	1.3	.96	.56
13	2.1	3.2	2.7	3.4	2.4	2.1	1.5	1.9	1.3	1.3	.98	.57
14	2.1	2.7	2.5	3.2	2.4	2.1	2.1	1.8	1.8	1.2	.99	.59
15	2.1	2.3	2.5	3.8	2.4	2.0	1.7	1.7	2.5	1.2	.96	.59
16	2.1	2.3	2.7	3.6	2.3	2.0	1.7	1.7	2.6	1.2	.95	.59
17	2.0	2.4	2.7	3.2	2.3	1.9	1.6	2.1	2.1	1.2	.94	.62
18	2.0	2.3	2.5	3.0	2.3	1.9	1.6	1.8	1.8	1.1	.92	.63
19	2.0	2.2	2.5	2.8	2.3	1.8	4.8	1.7	1.7	1.1	.91	.62
20	2.0	2.4	2.5	2.7	2.3	1.8	5.9	1.6	1.6	1.1	.90	.70
21	2.0	2.7	2.6	2.7	2.3	1.8	3.9	1.6	1.6	1.1	.90	.75
22	2.3	2.3	5.0	2.7	2.3	1.8	3.4	1.5	1.6	1.1	.88	.72
23	2.9	2.1	3.4	2.7	2.3	1.8	3.5	1.5	1.6	1.1	.88	.71
24	2.4	2.1	2.9	2.7	2.2	1.7	3.0	1.5	1.5	1.1	.87	.70
25	2.3	2.1	2.8	2.6	2.1	1.7	2.6	1.4	1.7	1.1	.87	.70
26	2.2	2.1	2.6	2.6	2.1	1.7	2.4	1.4	1.6	1.1	.85	.71
27	2.2	2.1	2.6	2.5	2.1	1.7	2.2	1.5	1.5	1.1	.84	.71
28	2.3	2.1	2.7	2.5	2.4	1.7	2.2	1.9	1.5	1.1	.82	.68
29	2.5	2.1	2.3	2.9	3.1	1.7	2.2	2.4	1.4	1.0	.79	.65
30	2.3	2.1	1.7	4.2	---	1.7	2.2	1.8	1.4	1.0	.75	.64
31	2.3	---	1.7	3.0	---	1.7	---	1.6	---	1.0	.71	---
TOTAL	66.3	68.9	93.7	103.2	68.5	71.1	66.9	57.0	49.0	37.4	28.56	19.42
MEAN	2.14	2.30	3.02	3.33	2.36	2.29	2.23	1.84	1.63	1.21	.92	.65
MAX	2.9	3.2	5.8	8.0	3.1	6.7	5.9	2.4	2.6	1.4	1.0	.75
MIN	2.0	2.1	1.7	1.7	2.1	1.7	1.4	1.4	1.3	1.0	.71	.56
AC-FT	132	137	186	205	136	141	133	113	97	74	57	33

CAL YR 1987	TOTAL 1262.2	MEAN 3.46	MAX 20	MIN 1.5	AC-FT 2500
WTR YR 1988	TOTAL 729.98	MEAN 1.99	MAX 8.0	MIN .56	AC-FT 1450

SACRAMENTO RIVER BASIN

11433060 SOUTH FORK LONG CANYON CREEK DIVERSION TUNNEL NEAR VOLCANOVILLE, CA

LOCATION.--Lat 39°03'04", long 120°28'14", in SW 1/4 NE 1/4 sec.24, T.14 N., R.13 E., Placer County, Hydrologic Unit 18020128, Eldorado National Forest, on right bank at diversion dam, 3.3 mi upstream from confluence with North and South Forks Long Canyon Creek, and 17.2 mi east of Volcanoville.

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

GAGE.--Water-stage recorder and sharp-crested weir. Elevation of gage is 4,630 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Tunnel completed in September 1965; diversion began in February 1966. Flow is diverted from South Fork Long Canyon Creek to a tunnel from Hell Hole Reservoir to Middle Fork powerplant on the Middle Fork American River. See schematic diagram of Middle Fork American and Rubicon River basins.

AVERAGE DISCHARGE.--23 years, 8.94 ft³/s, 6,480 acre-ft/yr.

COOPERATION.--Records provided by Placer County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 251 ft³/s, Nov. 12, 1973; no flow for part of each year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER/1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	2.4	11	3.6	6.1	.00	.00	.00	.00
2	.00	.00	.00	.00	2.0	10	3.6	7.1	.87	.00	.00	.00
3	.00	.00	.00	.00	1.4	10	3.8	8.4	1.4	.00	.00	.00
4	.00	.00	.00	.00	1.4	10	4.3	8.0	1.2	.00	.00	.00
5	.00	.00	.00	.00	1.4	10	3.6	7.7	1.0	.00	.00	.00
6	.00	.00	.00	.00	1.4	9.8	3.6	8.0	1.2	.00	.00	.00
7	.00	.00	.00	.00	1.4	8.7	3.6	9.1	2.0	.00	.00	.00
8	.00	.00	.00	.00	1.8	8.7	3.3	9.8	2.2	.00	.00	.00
9	.00	.00	.00	.00	2.4	9.8	2.4	8.7	1.4	.00	.00	.00
10	.00	.00	.00	.00	3.6	8.0	2.4	7.7	1.0	.00	.00	.00
11	.00	.00	.00	3.5	5.2	6.7	2.4	6.7	.85	.00	.00	.00
12	.00	.00	.00	4.3	6.1	6.4	2.2	6.4	.55	.00	.00	.00
13	.00	.00	.00	3.1	5.8	6.1	2.6	6.4	.32	.00	.00	.00
14	.00	.00	.00	2.8	5.2	6.1	6.7	6.1	.16	.00	.00	.00
15	.00	.00	.00	3.1	5.4	6.1	6.0	5.4	.00	.00	.00	.00
16	.00	.00	.00	2.4	5.2	5.2	4.3	5.4	.00	.00	.00	.00
17	.00	.00	.00	1.8	4.3	5.2	3.8	7.0	.00	.00	.00	.00
18	.00	.00	.00	1.0	3.8	5.4	3.3	6.1	.00	.00	.00	.00
19	.00	.00	.00	.55	3.6	6.1	8.3	5.2	.00	.00	.00	.00
20	.00	.00	.00	.43	4.1	6.1	9.7	4.6	.00	.00	.00	.00
21	.00	.00	.00	.43	4.9	6.1	8.1	4.1	.00	.00	.00	.00
22	.00	.00	.00	.32	5.2	6.1	7.4	3.8	.00	.00	.00	.00
23	.00	.00	.00	.70	5.4	7.9	6.7	2.3	.00	.00	.00	.00
24	.00	.00	.00	1.9	5.8	7.4	8.4	.00	.00	.00	.00	.00
25	.00	.00	.00	3.3	5.8	6.7	8.7	.00	.00	.00	.00	.00
26	.00	.00	.00	3.6	6.4	7.4	8.7	.00	.00	.00	.00	.00
27	.00	.00	.00	3.6	6.7	6.7	8.0	.00	.00	.00	.00	.00
28	.00	.00	.00	3.8	8.8	6.1	7.0	.07	.00	.00	.00	.00
29	.00	.00	.00	4.1	10	5.2	6.4	1.8	.00	.00	.00	.00
30	.00	.00	.00	3.8	---	5.2	6.4	.55	.00	.00	.00	.00
31	.00	---	.00	3.3	---	4.6	---	.22	---	.00	.00	---
TOTAL	0.00	0.00	0.00	51.83	126.9	224.8	159.3	152.74	14.15	0.00	0.00	0.00
MEAN	.00	.00	.00	1.67	4.38	7.25	5.31	4.93	.47	.00	.00	.00
MAX	.00	.00	.00	4.3	10	11	9.7	9.8	2.2	.00	.00	.00
MIN	.00	.00	.00	.00	1.4	4.6	2.2	.00	.00	.00	.00	.00
AC-FT	.0	.0	.0	103	252	446	316	303	28	.0	.0	.0

CAL YR 1987 TOTAL 829.71 MEAN 2.27 MAX 29 MIN .00 AC-FT 1650
WTR YR 1988 TOTAL 729.72 MEAN 1.99 MAX 11 MIN .00 AC-FT 1450

SACRAMENTO RIVER BASIN

11433080 NORTH FORK LONG CANYON CREEK DIVERSION TUNNEL NEAR VOLCANOVILLE, CA

LOCATION.--Lat 39°02'57", long 120°28'56", in SW 1/4 NW 1/4 sec.24, T.14 N., R.13 E., Placer County, Hydrologic Unit 18020128, Eldorado National Forest, on left bank at diversion dam, 3.2 mi upstream from confluence of North and South Forks Long Canyon Creek and 16.9 mi east of Volcanoville.

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

GAGE.--Water-stage recorder and Parshall flume. Elevation of gage is 4,700 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Apr. 19 to May 2. Tunnel completed in September 1965 and diversions began in February 1966. Flow is diverted from North Fork Long Canyon Creek to a tunnel from Hell Hole Reservoir to Middle Fork powerplant on the Middle Fork American River. See schematic diagram of Middle Fork American and Rubicon River basins.

AVERAGE DISCHARGE.--23 years, 3.52 ft³/s, 2,550 acre-ft/yr.

COOPERATION.--Records provided by Placer County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 75 ft³/s, May. 25, 1983; no flow for part of each year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	3.2	9.1	2.6	3.2	.00	.00	.00	.00
2	.00	.00	.00	.00	2.8	9.3	2.5	1.6	.00	.00	.00	.00
3	.00	.00	.00	.00	2.4	9.9	2.6	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	2.4	9.1	3.0	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	2.3	8.5	2.5	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	2.4	8.3	2.4	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	2.5	7.9	2.4	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	3.6	8.0	2.0	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	4.5	8.1	1.8	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	5.7	6.4	1.6	.00	.00	.00	.00	.00
11	.00	.00	.00	3.1	7.3	5.4	1.4	.00	.00	.00	.00	.00
12	.00	.00	.00	3.8	7.5	4.7	1.3	.00	.00	.00	.00	.00
13	.00	.00	.00	2.4	6.6	4.4	1.4	.00	.00	.00	.00	.00
14	.00	.00	.00	2.7	6.6	4.4	3.5	.00	.00	.00	.00	.00
15	.00	.00	.00	3.3	7.0	4.2	2.8	.00	.00	.00	.00	.00
16	.00	.00	.00	2.8	6.0	3.8	2.3	.00	.00	.00	.00	.00
17	.00	.00	.00	2.4	4.8	3.8	2.0	.00	.00	.00	.00	.00
18	.00	.00	.00	2.0	4.5	4.1	1.7	.00	.00	.00	.00	.00
19	.00	.00	.00	1.7	4.1	4.4	4.4	.00	.00	.00	.00	.00
20	.00	.00	.00	1.6	4.9	4.5	4.7	.00	.00	.00	.00	.00
21	.00	.00	.00	1.5	5.4	4.4	3.8	.00	.00	.00	.00	.00
22	.00	.00	.00	1.6	5.7	4.2	3.8	.00	.00	.00	.00	.00
23	.00	.00	.00	2.3	6.0	6.2	3.6	.00	.00	.00	.00	.00
24	.00	.00	.00	3.8	5.9	5.5	3.6	.00	.00	.00	.00	.00
25	.00	.00	.00	4.7	5.9	5.0	3.5	.00	.00	.00	.00	.00
26	.00	.00	.00	5.0	5.9	5.2	3.5	.00	.00	.00	.00	.00
27	.00	.00	.00	4.8	6.4	4.7	3.3	.00	.00	.00	.00	.00
28	.00	.00	.00	5.2	8.8	3.9	3.3	.00	.00	.00	.00	.00
29	.00	.00	.00	4.5	9.5	3.3	3.2	.00	.00	.00	.00	.00
30	.00	.00	.00	4.4	---	3.2	3.2	.00	.00	.00	.00	.00
31	.00	---	.00	3.9	---	2.9	---	.00	---	.00	.00	---
TOTAL	0.00	0.00	0.00	67.50	150.6	176.8	83.7	4.80	0.00	0.00	0.00	0.00
MEAN	.00	.00	.00	2.18	5.19	5.70	2.79	.15	.00	.00	.00	.00
MAX	.00	.00	.00	5.2	9.5	9.9	4.7	3.2	.00	.00	.00	.00
MIN	.00	.00	.00	.00	2.3	2.9	1.3	.00	.00	.00	.00	.00
AC-FT	.0	.0	.0	134	299	351	166	9.5	.0	.0	.0	.0

CAL YR 1987 TOTAL 384.88 MEAN 1.05 MAX 19 MIN .00 AC-FT 763
WTR YR 1988 TOTAL 483.40 MEAN 1.32 MAX 9.9 MIN .00 AC-FT 959

SACRAMENTO RIVER BASIN

11433100 LONG CANYON CREEK NEAR FRENCH MEADOWS, CA

LOCATION.--Lat 39°01'16", long 120°30'53", in SE 1/4 NW 1/4 sec.34, T.14 N., R.13 E., Placer County, Hydrologic Unit 18020128, Eldorado National Forest, on right bank 75 ft downstream from North Fork Long Canyon, 6.5 mi south of French Meadows, and 18 mi east of Foresthill.

DRAINAGE AREA.--18.0 mi².

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

REVISED RECORDS.--WDR CA-86-4: 1980(M), 1982-84(M).

GAGE.--Water-stage recorder. Elevation of gage is 4,100 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Since February 1966, natural flow of stream affected by transbasin diversions 3 mi upstream from station through tunnels from South and North Forks Long Canyon Creek diversion dams (stations 11433060 and 11433080) to Middle Fork American River powerplant via tunnel from Hell Hole Reservoir (station 11428700). See schematic diagram of Middle Fork American and Rubicon River basins.

AVERAGE DISCHARGE.--22 years (water years 1967-88), 33.2 ft³/s, 24,050 acre-ft/yr.

COOPERATION.--Records provided by Placer County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,690 ft³/s, Dec. 23, 1964, gage height, 11.20 ft, from rating curve extended above 300 ft³/s on basis of slope-area measurements at gage heights 6.62 and 10.27 ft; minimum daily discharge, 0.08 ft³/s, Sept. 27, 28, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 88 ft³/s, Dec. 10, gage height, 3.52 ft; minimum daily, 0.22 ft³/s, Sept. 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.52	1.1	4.7	6.2	18	19	11	13	11	3.9	1.2	.45
2	.52	1.1	13	6.3	17	18	11	13	9.3	3.7	1.2	.45
3	.52	1.0	7.3	17	16	18	11	12	7.9	3.1	.95	.42
4	.49	1.1	4.9	27	15	17	11	11	7.6	2.8	.88	.37
5	.45	1.1	4.2	42	14	17	11	11	7.5	2.7	.85	.41
6	.45	1.6	16	31	13	16	11	11	7.6	2.6	.85	.43
7	.45	1.7	18	24	13	16	11	12	8.3	2.6	.85	.37
8	.45	1.5	9.0	21	13	15	11	13	8.4	2.5	.85	.37
9	.45	1.4	31	28	13	15	11	12	8.0	2.4	.76	.37
10	.48	1.4	63	36	14	14	11	11	7.7	2.3	.72	.43
11	.52	1.3	31	42	14	14	11	10	7.4	2.1	.72	.44
12	.65	1.3	18	26	15	13	11	9.9	7.3	2.1	.72	.36
13	.68	4.2	11	23	15	13	11	9.6	6.9	2.0	.72	.44
14	.64	6.0	8.7	20	15	13	12	9.2	6.6	1.9	.68	.37
15	.62	2.7	7.8	19	15	13	11	9.0	6.6	1.9	.72	.37
16	.62	2.2	7.7	18	14	12	11	8.8	6.0	1.8	.65	.33
17	.62	2.7	6.9	16	14	12	11	10	5.7	1.7	.62	.30
18	.62	2.9	6.3	15	13	12	11	9.0	5.5	1.5	.62	.30
19	.55	2.2	6.3	14	13	12	17	8.6	5.2	1.5	.59	.33
20	.54	2.5	5.8	13	13	12	19	8.1	5.1	1.4	.55	.42
21	.57	3.4	5.9	13	13	12	17	8.0	4.9	1.4	.52	.50
22	.94	2.9	18	13	13	11	17	7.8	4.8	1.5	.52	.48
23	3.1	2.7	11	14	13	12	16	8.1	4.6	1.5	.62	.39
24	2.2	2.5	8.3	15	13	11	16	9.7	4.4	1.5	.59	.40
25	1.2	2.3	8.1	16	13	11	16	9.4	4.9	1.5	.55	.31
26	1.0	1.9	7.6	17	13	11	15	9.0	4.7	1.5	.52	.30
27	1.0	1.8	7.1	17	13	11	15	8.7	4.5	1.5	.52	.30
28	1.9	1.8	7.1	17	14	11	14	9.4	4.2	1.4	.52	.30
29	2.2	1.7	7.3	18	15	11	14	14	4.0	1.3	.51	.22
30	1.4	1.7	6.7	20	---	11	14	12	3.9	1.3	.50	.23
31	1.3	---	6.1	19	---	11	---	12	---	1.2	.46	---
TOTAL	27.65	63.7	373.8	623.5	407	414	389	319.3	190.5	62.1	21.53	11.16
MEAN	.89	2.12	12.1	20.1	14.0	13.4	13.0	10.3	6.35	2.00	.69	.37
MAX	3.1	6.0	63	42	18	19	19	14	11	3.9	1.2	.50
MIN	.45	1.0	4.2	6.2	13	11	11	7.8	3.9	1.2	.46	.22
AC-FT	55	126	741	1240	807	821	772	633	378	123	43	22

CAL YR 1987 TOTAL 2883.55 MEAN 7.90 MAX 195 MIN .45 AC-FT 5720
WTR YR 1988 TOTAL 2903.24 MEAN 7.93 MAX 63 MIN .22 AC-FT 5760

SACRAMENTO RIVER BASIN

11433300 MIDDLE FORK AMERICAN RIVER NEAR FORESTHILL, CA

LOCATION.--Lat 39°00'22", long 120°45'35", in NW 1/4 NW 1/4 sec.4, T.13 N., R.11 E., Placer County, Hydrologic Unit 18020128, Tahoe National Forest, on right bank 1.6 mi downstream from Oxbow powerplant and 3.3 mi east of Foresthill.

DRAINAGE AREA.--524 mi².

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

CHEMICAL DATA: Water year 1979.

BIOLOGICAL DATA: Water year 1979.

GAGE.--Water-stage recorder. Elevation of gage is 1,070 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Oct. 22, 1965, at site 3.2 mi downstream at different datum. Oct. 22, 1965, to Aug. 28, 1985, at site 400 ft downstream at different datum.

REMARKS.--No estimated daily discharges. Flow regulated by French Meadows Reservoir, Hell Hole Reservoir, Loon Lake (stations 11427400, 11428700, and 11429350), Stumpy Meadows Lake, usable capacity, 17,500 acre-ft, and several smaller reservoirs. Robbs Peak powerplant (station 11429300) and Georgetown Divide ditch, capacity about 60 ft³/s, divert water out of basin above station. See schematic diagram of Middle Fork American and Rubicon River basins.

AVERAGE DISCHARGE.--30 years, 1,154 ft³/s, 836,100 acre-ft/yr.

COOPERATION.--Records provided by Placer County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 310,000 ft³/s, Dec. 23, 1964, gage height, 69.0 ft from floodmarks, site and datum then in use, caused by overtopping of the partly constructed Hell Hole Dam on the Rubicon River, from rating curve extended above 28,000 ft³/s on basis of slope-area measurement at gage height 38.0 ft and slope-conveyance study at gage height 69.0 ft, at site and datum then in use; next highest peak, 113,000 ft³/s, Feb. 1, 1963, gage height, 38.00 ft, site and datum then in use; minimum, 35 ft³/s, Oct. 10-20, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,430 ft³/s, Jan. 11, gage height, 14.56 ft; minimum daily, 67 ft³/s, Oct. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	281	92	128	186	687	568	238	315	392	642	408	450
2	381	89	546	161	717	512	213	292	564	349	651	489
3	368	87	315	555	655	443	204	282	495	104	646	316
4	323	87	245	896	545	428	240	259	510	339	643	92
5	511	87	146	1000	483	411	205	259	137	540	569	371
6	405	88	226	728	269	402	235	267	569	601	481	443
7	195	90	518	549	284	389	193	270	324	569	93	451
8	264	91	521	551	559	372	211	276	365	565	455	484
9	515	89	632	470	486	373	206	256	387	525	615	437
10	93	86	966	599	299	366	212	381	527	304	572	377
11	74	86	965	1050	343	334	326	435	374	622	545	91
12	78	86	362	897	342	304	205	233	135	558	516	392
13	88	116	259	754	338	363	186	232	546	596	473	449
14	90	191	215	638	331	286	251	200	589	709	86	544
15	90	113	351	776	327	302	227	210	530	646	457	160
16	87	99	524	566	320	274	218	214	573	654	469	198
17	71	96	377	684	360	266	226	262	475	391	464	308
18	69	98	172	604	301	282	191	207	465	582	435	90
19	70	99	160	645	299	269	330	225	109	540	440	394
20	69	96	157	607	284	254	523	436	330	630	306	493
21	67	105	237	609	272	286	420	270	565	680	86	483
22	78	104	326	525	300	271	399	173	507	576	423	494
23	100	100	351	326	317	261	418	190	571	524	420	486
24	117	97	209	337	309	295	388	186	498	88	432	292
25	115	94	193	606	284	263	368	169	241	620	450	92
26	106	89	167	613	286	275	349	162	116	641	448	385
27	101	88	168	658	315	265	391	185	590	640	448	437
28	101	87	220	618	336	245	355	159	620	642	96	508
29	102	87	241	630	407	252	362	292	553	722	392	516
30	105	270	228	455	---	251	314	238	597	350	490	398
31	94	---	161	412	---	209	---	197	---	100	458	---
TOTAL	5208	3087	10286	18705	11055	10071	8604	7732	13254	16049	13467	11120
MEAN	168	103	332	603	381	325	287	249	442	518	434	371
MAX	515	270	966	1050	717	568	523	436	620	722	651	544
MIN	67	86	128	161	269	209	186	159	109	88	86	90
AC-FT	10330	6120	20400	37100	21930	19980	17070	15340	26290	31830	26710	22060

CAL YR 1987 TOTAL 129332 MEAN 354 MAX 3480 MIN 66 AC-FT 256500
WTR YR 1988 TOTAL 128638 MEAN 351 MAX 1050 MIN 67 AC-FT 255200

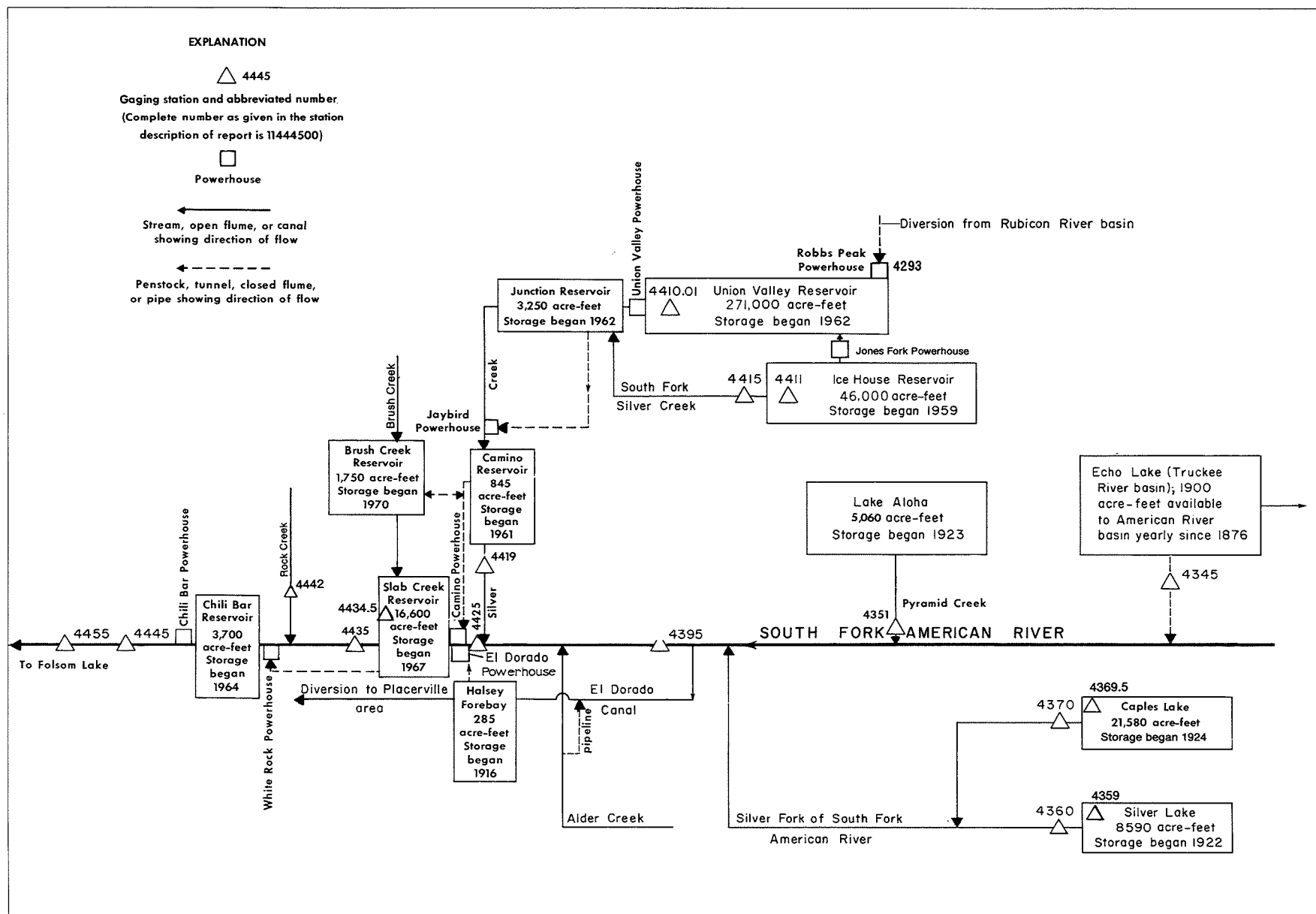


FIGURE 34.--Schematic diagram showing diversions and storage in South Fork American River basin.

SACRAMENTO RIVER BASIN

11435100 PYRAMID CREEK AT TWIN BRIDGES, CA

LOCATION.--Lat 38°48'57", long 120°06'58", in NW 1/4 SW 1/4 sec.9, T.11 N., R.17 E., El Dorado County, Hydrologic Unit 18020129, Eldorado National Forest, on right bank 0.5 mi northeast of Twin Bridges, 2.2 mi west of Phillips, and 3.6 mi downstream from Lake Aloha.

DRAINAGE AREA.--8.76 mi².

PERIOD OF RECORD.--October 1970 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 6,320 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to October 1987, at datum 1.00 ft higher.

REMARKS.--Estimated daily discharges: Dec. 13, 14, Jan. 3, 7, 11, 12, 18, 19, Feb. 2, 3, Mar. 19-23, Sept. 27-30. Flow regulated by Lake Aloha, capacity, 5,060 acre-ft. Lake of the Woods, Ropi Lake, and Toem Lake (unknown capacities) also regulate at times. See schematic diagram of South Fork American River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--18 years, 40.0 ft³/s, 28,980 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 858 ft³/s, June 26, 1971, gage height, 5.62 ft, present datum, from rating curve extended above 300 ft³/s; minimum daily, 0.07 ft³/s, Sept. 20-24, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 99 ft³/s, May 12, gage height, 3.10 ft; minimum daily, 0.16 ft³/s, Oct. 22, 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.19	2.0	8.1	9.1	9.6	15	19	28	54	9.4	50	2.2
2	.19	2.0	8.7	9.1	9.3	15	26	25	37	8.6	15	2.1
3	.19	2.5	9.3	13	9.1	15	28	27	36	7.7	5.6	2.1
4	.18	3.2	9.4	16	8.7	17	22	28	37	7.1	6.4	2.0
5	.18	3.3	7.8	18	8.7	18	30	24	26	7.5	67	2.0
6	.18	3.3	10	14	8.6	17	47	21	21	37	72	1.9
7	.18	3.5	15	12	9.2	15	49	21	23	44	71	1.8
8	.18	3.5	13	14	10	17	38	22	26	44	70	1.7
9	.18	3.5	39	17	11	20	34	23	27	44	69	1.7
10	.18	3.5	78	17	12	15	43	36	23	44	67	1.6
11	.18	3.5	50	15	12	14	52	60	21	43	64	1.5
12	.17	3.5	25	14	12	13	54	77	21	43	60	1.4
13	.17	6.9	18	12	13	12	53	73	21	43	55	1.3
14	.17	12	16	11	13	12	49	63	23	42	50	1.3
15	.17	9.3	14	12	14	13	37	73	22	45	41	1.2
16	.17	8.3	13	12	14	13	34	72	21	46	24	1.2
17	.17	13	12	13	12	14	39	56	19	45	9.0	1.1
18	.17	15	11	12	11	18	36	48	18	46	4.4	1.1
19	.17	14	10	11	10	20	31	49	17	45	3.3	1.1
20	.17	13	9.7	10	9.7	20	31	49	17	45	2.9	1.1
21	.17	15	10	9.9	11	20	26	54	17	46	2.7	1.0
22	.16	13	18	9.6	12	21	27	54	16	59	2.7	.91
23	.16	11	14	10	13	34	27	50	14	59	2.6	.83
24	.21	8.2	13	11	14	33	31	46	14	59	2.5	.76
25	.22	7.2	13	11	15	34	31	43	17	60	2.4	.70
26	.36	7.5	11	11	16	40	38	40	16	59	2.3	.64
27	.45	6.3	10	10	18	37	44	34	14	59	2.2	.62
28	.71	5.6	11	11	17	26	44	34	12	57	2.2	.60
29	1.1	5.3	11	11	15	23	41	51	11	56	2.3	.58
30	1.5	5.2	10	11	---	22	40	46	10	56	2.4	.56
31	1.9	---	9.8	10	---	19	---	40	---	55	2.3	---
TOTAL	10.48	213.1	507.8	376.7	347.9	622	1101	1367	651	1321.3	833.2	38.60
MEAN	.34	7.10	16.4	12.2	12.0	20.1	36.7	44.1	21.7	42.6	26.9	1.29
MAX	1.9	15	78	18	18	40	54	77	54	60	72	2.2
MIN	.16	2.0	7.8	9.1	8.6	12	19	21	10	7.1	2.2	.56
AC-FT	21	423	1010	747	690	1230	2180	2710	1290	2620	1650	77

CAL YR 1987 TOTAL 7570.39 MEAN 20.7 MAX 103 MIN .16 AC-FT 15020
WTR YR 1988 TOTAL 7390.08 MEAN 20.2 MAX 78 MIN .16 AC-FT 14660

LOCATION.--Lat 38°40'07", long 120°07'14", in NW 1/4 SE 1/4 sec.32, T.10 N., R.17 E., Amador County, Hydrologic Unit 18020129, Eldorado National Forest, on outlet structure, 3.5 mi southwest of Kirkwood.

PERIOD OF RECORD.--October 1985 to current year. Unpublished records for water years 1981-85 available in files of U.S. Geological Survey.

GAGE.--Nonrecording gage read periodically. Datum of gage is 7,184.3 ft above National Geodetic Vertical Datum of 1929 (levels by Pacific Gas & Electric Co.).

REMARKS.--Lake is formed by earthfill and rock masonry dam initially constructed in 1876 and enlarged in 1929. Capacity, 8,590 acre-ft between gage heights 0.0 ft, invert of outlet, and 22.7 ft, top of radial gates and flash boards. Released water is used for power development on South Fork American River. See schematic diagram of South Fork American River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 8,670 acre-ft, June 9, 1987, gage height, 22.9 ft;
minimum observed, 234 acre-ft, Jan. 2, 1987, gage height, 0.9 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 8,630 acre-ft, June 2-7, gage height, 22.8 ft; minimum observed, 456 acre-ft, Dec. 4, gage height, 1.7 ft.

Capacity table (gage height, in feet, and contents, in acre-feet)
(Based on survey by Pacific Gas & Electric Co., dated Mar. 19, 1941)

0.0	0	12.0	3,840
2.0	540	15.0	5,010
4.0	1,120	18.0	6,350
6.0	1,720	21.0	7,740
9.0	2,730	23.0	8,710

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
INSTANTANEOUS VALUES[illegible]

SACRAMENTO RIVER BASIN

11436000 SILVER LAKE OUTLET NEAR KIRKWOOD, CA

LOCATION.--Lat 38°40'18", long 120°07'19", in NE 1/4 SW 1/4 sec.32, T.10 N., R.17 E., El Dorado County, Hydrologic Unit 18020129, Eldorado National Forest, on right bank 1,000 ft downstream from Silver Lake Dam and 3.5 mi southwest of Kirkwood.
DRAINAGE AREA.--15.2 mi².

PERIOD OF RECORD.--September 1922 to current year. Records for water year 1923 incomplete, yearly estimate published in WSP 1315-A.

REVISED RECORDS.--WDR CA-75-4: 1927(M), 1929(M), 1932(M), 1937-38(M), 1940-45(M), 1950-53(M), 1955-58(M), 1963(M), 1965(M), 1967(M), 1969-70(M), 1973(M).

GAGE.--Water-stage recorder. Concrete control since Sept. 8, 1986. Datum of gage is 7,198.0 ft above National Geodetic Vertical Datum of 1929 (levels by Pacific Gas & Electric Co.).

REMARKS.--Estimated daily discharges: Dec. 12-14, July 14, 15. Low and medium flow regulated by Silver Lake (station 11435900) 1,000 ft upstream. Some water, in addition to that released through dam and over spillway, escapes from Silver Lake through porous rock formation and is measured at staff gage (station 11436500) 0.25 mi east of station. For leakage from Silver Lake, refer to listed monthly figures below. See schematic diagram of South Fork American River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE (adjusted for leakage from Silver Lake bypassing the gage).--66 years, 39.5 ft³/s, 28,620 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,160 ft³/s, Feb. 19, 1986, gage height, 6.22 ft, from rating curve extended above 430 ft³/s; no flow many days in February and March 1948, Jan. 13, 14, 1954, Nov. 3, 1959, to Feb. 5, 1960.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 47 ft³/s, Aug. 25, gage height, 3.97 ft; minimum daily, 0.03 ft³/s, Dec. 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.9	18	6.7	2.9	9.4	11	3.2	3.2	6.1	3.5	4.1	24
2	4.0	18	6.5	4.1	9.1	11	3.2	5.3	9.3	5.5	4.0	24
3	3.9	17	6.1	4.4	8.8	8.9	3.1	5.1	19	7.1	3.9	24
4	3.9	17	5.7	4.6	8.3	6.2	3.0	5.0	35	7.2	3.7	24
5	3.9	16	5.4	4.7	7.9	6.4	2.9	4.6	29	6.3	3.6	24
6	3.9	16	4.3	4.8	7.6	6.5	2.9	4.3	24	5.5	3.5	23
7	3.6	15	5.4	4.8	7.3	6.6	3.1	4.2	23	4.7	3.4	23
8	13	15	6.1	4.8	7.2	6.6	3.1	4.1	12	3.8	3.3	23
9	21	14	6.8	5.0	7.4	6.7	3.1	4.1	5.4	3.3	3.3	23
10	21	14	6.9	5.0	7.4	5.2	3.1	4.1	5.4	3.8	3.3	22
11	21	13	5.3	5.1	6.1	12	3.3	4.1	5.3	3.9	3.3	22
12	20	13	3.0	5.1	5.4	21	3.3	4.2	5.1	3.9	3.5	19
13	20	13	3.0	5.1	5.6	21	3.2	4.3	4.9	3.7	4.5	10
14	15	13	3.0	5.1	5.8	21	3.3	5.0	4.9	3.5	11	5.9
15	11	12	3.0	5.1	6.3	21	3.1	5.2	4.7	3.4	15	5.6
16	11	12	3.0	5.2	5.8	21	3.1	4.8	4.5	3.4	26	5.5
17	11	12	3.5	5.2	9.6	21	3.1	4.7	4.3	3.4	37	5.3
18	11	11	4.0	10	14	21	3.1	4.7	4.0	3.8	37	5.2
19	15	11	4.0	13	14	13	3.2	5.1	3.8	14	36	4.9
20	19	11	4.0	14	13	5.0	3.3	4.8	3.6	22	36	4.8
21	19	11	4.0	11	13	5.2	3.3	4.3	3.8	11	41	4.7
22	19	10	4.1	7.8	13	5.3	3.3	4.4	4.0	3.8	45	4.7
23	13	10	4.2	10	13	5.4	3.3	4.4	4.0	3.5	44	4.5
24	9.3	9.5	4.0	11	11	5.6	3.3	4.6	4.3	3.5	43	5.3
25	9.2	9.2	.04	11	8.6	5.0	3.3	4.6	3.9	3.9	45	5.3
26	14	8.2	.03	9.7	9.0	4.3	3.4	4.6	3.7	3.6	46	4.7
27	19	8.0	.13	9.3	9.4	4.2	3.3	4.6	3.6	4.2	35	4.6
28	19	7.7	.80	9.3	10	3.8	3.3	4.7	3.5	4.8	25	4.5
29	18	7.4	1.7	9.6	11	3.6	3.1	4.7	3.5	4.4	25	4.4
30	18	7.0	2.5	10	---	3.5	2.1	4.8	3.5	4.1	25	4.4
31	18	---	2.2	9.8	---	3.0	---	5.2	---	4.3	24	---
TOTAL	412.6	369.0	119.40	226.5	264.0	301.0	94.4	141.8	251.1	166.8	643.4	369.3
MEAN	13.3	12.3	3.85	7.31	9.10	9.71	3.15	4.57	8.37	5.38	20.8	12.3
MAX	21	18	6.9	14	14	21	3.4	5.3	35	22	46	24
MIN	3.6	7.0	.03	2.9	5.4	3.0	2.1	3.2	3.5	3.3	3.3	4.4
AC-FT	818	732	237	449	524	597	187	281	498	331	1280	733
a	0	0	0	0	0	0	22	476	781	566	226	5.7

CAL YR 1987 TOTAL 4944.17 MEAN 13.5 MAX 193 MIN .01 AC-FT 9810 MEAN a 3.30 AC-FT a 2390
WTR YR 1988 TOTAL 3359.30 MEAN 9.18 MAX 46 MIN .03 AC-FT 6660 MEAN a 2.86 AC-FT a 2080

a Leakage, in acre-feet, from Silver Lake, provided by Pacific Gas & Electric Co.

LOCATION.--Lat 38°42'27", long 120°02'55", in SW 1/4 SW 1/4 sec.18, T.10 N., R.18 E., Alpine County, Hydrologic Unit 18020129, Eldorado National Forest, on Caples Lake dam near the center of the earthfill portion, and 1.3 mi east of Kirkwood.

PERIOD OF RECORD.--October 1985 to current year. Unpublished records for water years 1981-85 available in files of U.S. Geological Survey.

REMARKS.--Lake is formed by one earthfill and one concrete dam at spillway; dam was completed and storage began in 1924. Capacity, 21,581 acre-ft, between gage heights 6.0 and 62.0 ft, top of flashboards. Released water flows past Caples Lake Outlet (station 11437000). In addition, when gage height is above spillway crest of 59.0 ft, there is leakage or spill; this water is included in Outlet gage record. Released water is used for power development on South Fork American River. See schematic diagram of South Fork American River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum observed contents, 21,581 acre-ft, many days in June and July 1986, gage height, 62.0 ft; minimum, 2,427 acre-ft, Mar. 30, 31, 1987, gage height, 20.7 ft.

Capacity table (gage height, in feet, and contents, in acre-feet)
(Based on survey by Pacific Gas & Electric Co., dated Mar. 24, 1934)

15.0	1,061	45.0	12,037
20.0	2,238	50.0	14,609
25.0	3,703	55.0	17,390
30.0	5,442	60.0	20,356
35.0	7,432	63.0	22,201
40.0	9,648		

[illegible]

SACRAMENTO RIVER BASIN

11437000 CAPLES LAKE OUTLET NEAR KIRKWOOD, CA

LOCATION.--Lat 38°42'31", long 120°03'02", in NW 1/4 SW 1/4 sec.18, T.10 N., R.18 E., Alpine County, Hydrologic Unit 18020129, Eldorado National Forest, on right bank 500 ft downstream from main dam and outlet gate of Caples Lake and 1.3 mi east of Kirkwood.

DRAINAGE AREA.--13.5 mi².

PERIOD OF RECORD.--September 1922 to current year. Records for water year 1945 incomplete, yearly estimate published in WSP 1315-A. Prior to October 1969, published as Twin Lakes Outlet near Kirkwood.

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder and concrete control below outlet gate. Elevation of gage is 7,730 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Flow regulated by Caples Lake (station 11436950) 500 ft upstream, capacity, 19,751 acre-ft at spillway level and 21,581 acre-ft with 3 ft of flashboards. There was no spill over Caples Lake spillway this year. No diversion upstream from station. See schematic diagram of South Fork American River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--(including flow over Caples Lake spillway).--66 years, 37.4 ft³/s, 27,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum combined daily discharge for outlet and spillway, 669 ft³/s, June 3, 1969; minimum daily, 0.1 ft³/s, Mar. 25-31, 1944, Nov. 27, 28, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 84 ft³/s, Dec. 30, gage height, 2.33 ft; minimum daily, 5.8 ft³/s, May 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.5	7.3	19	82	8.6	8.4	6.3	6.7	7.3	27	7.5	68
2	7.5	7.3	19	82	8.6	8.4	6.4	5.8	7.1	27	7.5	68
3	7.5	7.3	19	55	8.6	7.6	6.4	6.1	7.1	27	7.5	68
4	7.5	7.3	19	29	8.6	6.8	6.4	6.1	7.1	27	7.5	67
5	7.5	7.4	19	29	8.4	6.8	6.5	6.1	7.1	19	7.5	67
6	7.5	7.5	19	12	8.4	6.8	6.6	6.2	7.3	11	7.5	67
7	7.5	7.5	13	8.6	8.6	6.8	6.6	6.3	7.3	11	7.5	59
8	7.5	7.4	8.0	8.6	8.6	6.8	6.5	6.3	7.3	11	7.5	54
9	7.5	7.4	8.1	8.6	8.6	6.7	6.4	6.5	7.3	11	7.5	54
10	7.5	7.4	8.0	8.6	8.6	6.6	6.5	6.6	7.3	11	7.5	54
11	7.5	7.4	8.0	8.6	8.6	6.6	6.5	6.6	7.3	11	7.2	54
12	7.5	7.4	8.0	8.6	8.6	6.6	6.5	6.6	7.3	11	8.0	32
13	7.5	7.5	8.0	8.6	8.6	6.6	6.5	6.6	7.3	11	11	8.0
14	7.5	7.4	8.2	8.6	8.6	6.6	6.7	6.6	7.3	11	13	8.0
15	7.5	7.4	8.2	8.6	8.6	6.6	6.9	6.6	7.3	11	13	28
16	7.5	7.4	8.2	8.6	8.6	6.4	7.0	6.7	7.3	11	13	45
17	7.5	7.4	8.2	8.6	8.6	6.2	7.0	6.8	7.3	11	13	45
18	7.5	7.3	8.2	8.6	8.6	6.3	6.4	6.8	7.3	11	22	45
19	7.5	7.3	8.2	8.6	8.4	6.3	6.5	6.8	7.3	22	31	44
20	7.5	7.3	8.2	8.6	8.4	6.3	6.7	6.8	7.3	33	31	44
21	7.5	7.3	8.2	8.6	8.4	6.3	6.9	6.8	7.3	21	31	44
22	7.5	7.3	8.2	8.6	8.4	6.4	6.7	6.9	7.3	7.5	31	44
23	7.5	7.3	8.2	8.6	8.4	6.5	6.5	7.0	7.3	7.5	34	44
24	7.5	7.3	8.2	8.6	8.4	6.5	6.7	7.0	7.3	7.5	36	26
25	7.5	7.3	8.2	8.6	8.5	6.5	7.0	7.0	7.4	7.5	36	9.2
26	7.5	7.3	8.2	8.6	8.5	6.7	6.6	7.0	7.3	7.5	35	9.2
27	7.5	7.3	8.2	8.6	8.5	6.6	6.8	7.0	7.4	7.5	55	9.2
28	7.5	7.3	8.2	8.6	8.5	6.4	6.7	7.1	7.4	7.5	69	8.3
29	7.5	7.3	44	8.9	8.4	6.3	6.8	7.1	7.4	7.5	69	7.1
30	7.4	13	82	8.9	---	6.2	6.8	7.2	16	7.5	68	6.8
31	7.3	---	82	8.9	---	6.2	---	7.3	---	7.5	68	---
TOTAL	232.2	226.3	506.1	504.9	247.2	206.8	198.8	207.0	227.3	421.0	769.2	1186.8
MEAN	7.49	7.54	16.3	16.3	8.52	6.67	6.63	6.68	7.58	13.6	24.8	39.6
MAX	7.5	13	82	82	8.6	8.4	7.0	7.3	16	33	69	68
MIN	7.3	7.3	8.0	8.6	8.4	6.2	6.3	5.8	7.1	7.5	7.2	6.8
AC-FT	461	449	1000	1000	490	410	394	411	451	835	1530	2350

CAL YR 1987 TOTAL 4046.1 MEAN 11.1 MAX 82 MIN 3.5 AC-FT 8030
WTR YR 1988 TOTAL 4933.6 MEAN 13.5 MAX 82 MIN 5.8 AC-FT 9790

SACRAMENTO RIVER BASIN

11439500 SOUTH FORK AMERICAN RIVER NEAR KYBURZ, CA

LOCATION.--Lat 38°45'49", long 120°19'39", in SW 1/4 SW 1/4 sec.29, T.11 N., R.15 E., El Dorado County, Hydrologic Unit 18020129, Eldorado National Forest, on right bank 0.8 mi downstream from Silver Fork American River, and 1.9 mi southwest of Kyburz.

DRAINAGE AREA.--193 mi².

PERIOD OF RECORD.--August to December 1907, October 1922 to current year. Prior to October 1956, records for river and El Dorado Canal published separately; combined flow only, October 1956 to September 1960.

CHEMICAL DATA: Water years 1979, 1980.

BIOLOGICAL DATA: Water years 1979, 1980.

SUSPENDED SEDIMENT: Water year 1980.

WATER TEMPERATURE: Water years 1966-79.

REVISED RECORDS.--WSP 1445: 1923(M), 1925(M), 1927(M), 1928 (river only), 1935-37(M). WSP 1515: 1928 (combined). WSP 1931: Drainage area.

GAGE.--Water-stage recorder on river; water-stage recorder for canal diversion (station 11439000). Elevation of gage is 3,840 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Oct. 1, 1962, at datum 1.00 ft higher.

REMARKS.--No estimated daily discharges. Low and medium flows regulated by Silver Lake, Caples Lake (stations 11435900 and 11436950), Lake Aloha, and Echo Lake, total capacity, 37,100 acre-ft. See schematic diagram of South Fork American River basin. For records of combined discharge of river and canal, see following page.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--River only: 66 years (water years 1923-88), 301 ft³/s, 218,000 acre-ft/yr.

Combined river and diversion: 66 years (water years 1923-88), 415 ft³/s, 300,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--River only: Maximum discharge, 17,400 ft³/s, Dec. 23, 1964, gage height, 10.92 ft, from rating curve extended above 6,300 ft³/s on basis of contracted-opening measurement at gage height 10.40 ft; minimum daily, 0.13 ft³/s, Nov. 26, 1977.

Combined flow: Maximum discharge, 17,500 ft³/s, Dec. 23, 1964; minimum daily, 10 ft³/s, Oct. 17, 19, 1929.

EXTREMES FOR CURRENT YEAR.--River only: Maximum discharge, 383 ft³/s, May 16, gage height, 3.37 ft; minimum daily, 11 ft³/s, Sept. 13-18, 20.

Combined flow: Maximum discharge, 548 ft³/s, May 16; minimum daily, 19 ft³/s, Sept. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	18	22	67	23	24	33	109	153	22	23	21
2	19	18	22	57	23	19	65	89	92	22	23	17
3	18	18	22	75	24	19	97	82	73	22	23	13
4	18	18	22	32	24	19	47	90	89	22	27	13
5	17	18	22	21	24	25	65	70	68	23	24	13
6	17	18	23	19	23	28	146	58	37	25	24	12
7	17	18	22	19	24	21	196	51	49	24	23	12
8	17	18	22	20	24	20	162	53	55	24	23	12
9	17	18	25	20	23	55	111	49	38	24	22	12
10	17	18	91	20	26	23	156	69	19	24	24	12
11	17	18	62	20	31	18	198	155	18	24	25	12
12	17	18	21	20	27	21	215	246	18	25	22	12
13	17	18	23	20	23	20	202	284	18	25	22	11
14	17	18	21	20	20	19	254	225	19	24	22	11
15	17	18	21	21	19	18	196	259	20	24	22	11
16	17	18	21	21	19	18	156	292	20	25	23	11
17	17	18	21	21	19	18	144	234	19	26	23	11
18	17	18	20	24	19	18	134	178	19	26	23	11
19	17	18	20	28	19	38	128	160	23	26	23	12
20	17	18	21	28	19	51	142	151	24	28	23	11
21	17	18	20	28	19	66	117	163	23	25	23	12
22	17	18	21	25	19	34	112	175	23	22	22	13
23	17	18	20	23	19	87	94	157	23	23	22	12
24	17	20	20	22	19	146	127	141	24	23	23	12
25	16	22	22	23	19	128	153	115	25	23	23	31
26	16	22	21	22	18	175	188	99	24	23	23	31
27	16	22	22	22	32	205	223	73	25	23	22	24
28	16	22	21	23	51	105	198	63	29	23	23	22
29	18	22	20	23	32	71	169	167	27	23	23	21
30	19	22	38	23	---	77	164	115	22	23	23	19
31	18	---	48	23	---	40	---	139	---	22	23	---
TOTAL	534	566	817	830	681	1626	4392	4311	1116	738	714	447
MEAN	17.2	18.9	26.4	26.8	23.5	52.5	146	139	37.2	23.8	23.0	14.9
MAX	20	22	91	75	51	205	254	292	153	28	27	31
MIN	16	18	20	19	18	18	33	49	18	22	22	11
AC-FT	1060	1120	1620	1650	1350	3230	8710	8550	2210	1460	1420	887

CAL YR 1987 TOTAL 28831 MEAN 79.0 MAX 718 MIN 11 AC-FT 57190
WTR YR 1988 TOTAL 16772 MEAN 45.8 MAX 292 MIN 11 AC-FT 33270

COMBINED DISCHARGE, IN CUBIC FEET PER SECOND, OF SOUTH FORK AMERICAN RIVER
AND EL DORADO CANAL NEAR KYBURZ, CA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	46	46	142	88	182	196	273	316	81	86	101
2	22	47	56	131	78	168	229	254	256	85	61	102
3	21	49	56	150	87	173	261	247	239	85	40	102
4	21	47	54	119	87	175	210	255	255	84	39	101
5	20	45	51	136	81	184	229	235	234	81	68	100
6	20	47	66	122	78	187	310	223	203	82	103	99
7	20	48	102	102	82	180	359	216	215	99	102	98
8	20	43	64	85	86	181	325	218	220	95	99	85
9	41	41	92	92	94	219	274	214	203	91	96	84
10	58	40	228	131	101	181	320	234	177	89	94	84
11	58	39	205	113	107	151	362	320	165	88	93	83
12	61	38	91	84	113	155	380	411	159	87	88	82
13	59	49	63	90	118	154	367	450	159	89	83	48
14	56	70	62	81	117	155	415	390	160	85	82	33
15	47	50	61	83	125	162	355	424	157	87	87	51
16	44	45	56	80	131	153	318	457	143	88	76	74
17	43	50	50	78	112	152	308	400	133	86	82	86
18	41	66	44	72	120	169	298	343	125	83	72	84
19	40	54	47	72	105	201	289	325	121	82	80	84
20	46	53	41	82	113	214	299	316	125	114	84	87
21	46	56	47	82	117	229	270	328	120	121	85	85
22	49	57	97	73	125	197	265	340	110	102	91	84
23	61	49	70	77	134	251	247	322	100	96	90	83
24	45	45	60	90	140	309	280	306	96	97	94	83
25	37	40	67	101	147	292	311	280	106	97	94	55
26	34	34	57	99	155	339	351	264	106	99	97	38
27	42	38	56	96	180	368	386	238	90	97	94	24
28	51	39	49	98	202	268	361	228	80	94	100	22
29	57	32	47	100	187	234	332	331	90	91	101	21
30	51	38	73	100	---	241	327	279	82	90	102	19
31	46	---	122	92	---	203	---	302	---	88	101	---
TOTAL	1280	1395	2280	3053	3410	6427	9234	9423	4745	2833	2664	2182
MEAN	41.3	46.5	73.5	98.5	118	207	308	304	158	91.4	85.9	72.7
MAX	61	70	228	150	202	368	415	457	316	121	103	102
MIN	20	32	41	72	78	151	196	214	80	81	39	19
AC-FT	2540	2770	4520	6060	6760	12750	18320	18690	9410	5620	5280	4330
CAL YR 1987	TOTAL 52504	MEAN 144	MAX 878	MIN 20	AC-FT 104100							
WTR YR 1988	TOTAL 48926	MEAN 134	MAX 457	MIN 19	AC-FT 97040							

SACRAMENTO RIVER BASIN

11441001 UNION VALLEY RESERVOIR NEAR RIVERTON, CA

LOCATION.--Lat 38°51'49", long 120°26'15", in NW 1/4 NW 1/4 sec.29, T.12 N., R.14 E., El Dorado County, Hydrologic Unit 18020129, Eldorado National Forest, in valve control house near left bank at Union Valley Dam on Silver Creek, 0.7 mi upstream from Little Silver Creek, and 6.6 mi north of Riverton.

DRAINAGE AREA.--83.7 mi².

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Sacramento Municipal Utility District).

REMARKS.--Reservoir is formed by earthfill dam completed in December 1962; storage began May 1962. Usable capacity, 270,300 acre-ft between elevations 4,645.0 ft, minimum operating level, and 4,870.0 ft, top of radial spillway gates. Dead storage, 7,000 acre-ft. Reservoir receives water from the South Fork Rubicon River via Robbs Peak powerplant (station 11429300). Water is used for power development in the South Fork American River basin. Discharge to Union Valley powerplant (station 11441002) is shown as a line item below this table. Records, including extremes, represent total contents. See schematic diagrams of Middle Fork American and Rubicon River basins and South Fork American River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 279,100 acre-ft, July 9, 1974, elevation, 4,870.6 ft; minimum since reservoir first filled, 18,300 acre-ft, Jan. 13, 1977, elevation, 4,683.3 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 89,200 acre-ft, June 18, elevation, 4,779.4 ft; minimum, 30,200 acre-ft, Oct. 2, elevation, 4,710.5 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)
(Based on table provided by Sacramento Municipal Utility District, resurveyed in 1976)

4,680	17,000	4,780	90,000
4,700	25,000	4,800	118,900
4,720	35,300	4,820	154,400
4,740	48,800	4,840	197,400
4,760	66,800	4,870	277,300

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30600	46600	70400	64600	61600	54700	55600	68400	85000	87000	82500	73000
2	30200	47500	71100	64500	60900	54700	55400	68600	85500	86700	82400	72100
3	30700	48400	71800	65000	59900	54400	55600	69400	86000	86500	82200	71800
4	31200	49300	72400	64700	59200	54200	55300	70300	86000	86300	81800	71500
5	31300	50300	72700	65000	58200	55000	55100	70500	86000	86400	81700	71000
6	31300	51200	73300	65000	58400	56200	55000	70500	86400	86400	81400	70300
7	31300	52000	74000	64900	58700	55500	55000	70900	86900	86200	80900	69700
8	31500	53000	74300	65100	57700	55400	54900	71400	87200	86000	80700	68800
9	31800	53900	74900	65400	57100	55500	54800	71200	87600	85700	80800	67900
10	32700	54800	76400	66000	56300	55300	55100	71300	87900	85400	80500	67600
11	33300	55700	77400	66100	55900	55000	55200	71900	87800	85300	80700	67200
12	34200	56600	77500	66100	55500	55200	55400	72700	88000	85200	80500	66300
13	35000	57400	77600	66000	56300	55800	55700	73800	88300	85200	80100	65500
14	35900	58200	76300	65800	57100	55400	56400	74300	88500	85100	79700	64700
15	36400	58900	74800	65600	58000	55100	56900	74900	88600	85100	79500	63800
16	36700	59500	73300	66000	57400	54600	57600	75700	89000	85200	79900	63000
17	37400	60300	71900	66300	57100	54300	58200	76600	89100	85100	79700	62700
18	37900	61000	70500	65800	56200	54100	58700	77600	89000	84800	79400	62500
19	38400	61400	69700	65600	55300	54200	59000	78500	89000	84800	79100	61500
20	38900	62200	69100	65000	55800	54800	59500	79100	89000	84800	78700	60800
21	39400	62900	67900	64500	56200	54800	60000	79600	88700	84800	78300	59900
22	39900	63600	67800	64000	55600	54500	60500	80000	88700	84700	78000	59100
23	40800	64200	67500	63900	55100	54800	61100	80900	88700	84800	77700	58300
24	41600	64900	66900	63900	54300	54900	61800	82000	88500	84900	77400	58100
25	42500	65700	67300	63700	53200	55000	62300	82700	88300	84500	77100	57700
26	43300	66500	67600	63600	52600	55400	63800	83400	88200	84300	76900	56800
27	44000	67300	67700	62900	53500	55900	65000	83200	88000	84100	76600	56000
28	44500	68100	67000	62600	54300	56100	66500	83500	87800	84100	76300	55300
29	45000	68900	66300	62500	54100	56100	67500	84100	87600	83300	75400	54400
30	45600	69700	65600	62600	---	56000	68000	84600	87100	83000	74600	53600
31	46000	---	64700	62700	---	56100	---	84500	---	82700	73900	---
MAX	46000	69700	77600	66300	61600	56200	68000	84600	89100	87000	82500	73000
MIN	30200	46600	64700	62500	52600	54100	54800	68400	85000	82700	73900	53600
a	4736.2	4762.8	4757.9	4755.8	4746.5	4748.7	4761.1	4775.6	4777.7	4774.2	4766.6	4745.8
b	+14500	+23700	-5000	-2000	-8600	+2000	+11900	+16500	+2600	-4400	-8800	-20300
c	6330	24	17460	13790	30690	20480	11960	6990	13190	17650	20200	22630

CAL YR 1987 MAX 140300 MIN 30200 b -42700 c 234700

WTR YR 1988 MAX 89100 MIN 30200 b +22100 c 181400

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

c Diversion, in acre-feet, to Union Valley powerplant, provided by Sacramento Municipal Utility District.

SACRAMENTO RIVER BASIN

11441100 ICE HOUSE RESERVOIR NEAR KYBURZ, CA

LOCATION.--Lat 38°49'51", long 120°21'35", in SE 1/4 NW 1/4 sec.1, T.11 N., R.14 E., El Dorado County, Hydrologic Unit 18020129, Eldorado National Forest, in powerplant intake structure near right bank, 0.5 mi north of Ice House Dam on South Fork Silver Creek, and 5.2 mi northwest of Kyburz.

DRAINAGE AREA.--27.2 mi².

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

REVISED RECORDS.--WSP 1931: 1960.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Sacramento Municipal Utility District). Prior to July 15, 1985, at site 0.5 mi downstream at Ice House Dam at same datum.

REMARKS.--Reservoir is formed by an earthfill dam; storage began Dec. 15, 1959. Usable capacity, 45,800 acre-ft between elevations 5,327.5 ft, centerline of fishwater outlet, and 5,450.0 ft, top of spillway gates. Dead storage, 160 acre-ft. Reservoir is used to store water for power development. Reservoir is also forebay for Jones Fork powerplant (station 11440900) which diverts up to 350 ft³/s to powerplant completed in April 1985, then to Union Valley Reservoir (station 11441001). Records, including extremes, represent total contents. See schematic diagram of South Fork American River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 46,400 acre-ft, June 27, 1971, elevation, 5,450.6 ft; minimum since reservoir first filled, 1,450 acre-ft, Dec. 8, 1983, elevation, 5,347.9 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 21,800 acre-ft, Oct. 1, elevation, 5,408.8 ft; minimum, 9,500 acre-ft, Dec. 7, elevation, 5,379.7 ft.

Capacity table (elevation, in feet, and contents in acre-feet)
(Based on survey made in 1946)

5,345	1,080	5,400	17,600
5,350	1,760	5,420	27,400
5,360	3,840	5,440	39,200
5,380	9,600	5,451	46,700

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21600	15400	10300	9640	11000	11100	13500	17600	20600	20000	17400	14800
2	21300	15200	10100	9670	11000	11200	13700	17700	20600	20000	17300	14700
3	21100	15000	9950	9750	11000	11300	13800	17600	20600	20000	17200	14700
4	20900	14900	9790	9800	11100	11300	13900	17500	20800	20000	17100	14700
5	20600	14700	9630	9860	11100	11200	14100	17600	20900	19900	17000	14700
6	20400	14600	9510	9920	11100	11100	14300	17500	20900	19800	17000	14600
7	20200	14400	9540	9980	11100	11200	14500	17600	20900	19600	17000	14500
8	19900	14200	9590	10000	11200	11200	14700	17700	20800	19500	16900	14300
9	19700	14100	9670	10100	10900	11400	14900	17800	20800	19500	16800	14200
10	19500	13900	9860	10200	11000	11500	15100	17900	20800	19500	16700	14200
11	19200	13700	10000	10200	10700	11600	15100	17800	20800	19400	16600	14200
12	19000	13500	10100	10300	10500	11300	15100	17800	20900	19200	16500	14100
13	18800	13300	10200	10300	10300	11000	15100	17800	20900	19100	16500	14000
14	18600	13200	10200	10300	10100	11000	15200	18000	20800	18900	16500	13800
15	18400	13000	10200	10400	9940	11100	15200	18200	20800	18800	16400	13700
16	18300	12800	10200	10500	10000	11200	15300	18500	20700	18500	16200	13600
17	18100	12600	10300	10500	10100	11200	15500	18700	20700	18300	16100	13600
18	18000	12400	10300	10500	10100	11300	15500	18700	20700	18300	16000	13600
19	18000	12400	10300	10500	10100	11500	15700	18900	20800	18300	15900	13500
20	17700	12200	10300	10600	10200	11600	15800	19000	20700	18100	15900	13300
21	17600	12000	10400	10600	10200	11800	15900	19100	20700	18000	15900	13200
22	17500	11800	10400	10600	10300	11900	16000	19300	20600	17900	15800	13100
23	17300	11600	10300	10600	10400	12100	16100	19400	20500	17700	15700	13000
24	17000	11500	10100	10700	10400	12300	16300	19600	20500	17500	15600	12900
25	16800	11300	9880	10700	10500	12600	16400	19700	20500	17500	15500	12900
26	16600	11100	9700	10800	10600	12800	16700	19800	20600	17500	15400	12800
27	16400	10900	9520	10800	10700	13100	16900	19900	20500	17500	15300	12700
28	16200	10700	9560	10800	10800	12900	17100	20100	20400	17500	15300	12600
29	16000	10600	9590	10900	10900	13100	17300	20200	20300	17400	15200	12600
30	15800	10400	9610	10900	---	13200	17500	20400	20200	17400	15100	12500
31	15500	---	9620	10900	---	13400	---	20500	---	17400	15000	---
MAX	21600	15400	10400	10900	11200	13400	17500	20500	20900	20000	17400	14800
MIN	15500	10400	9510	9640	9940	11000	13500	17500	20200	17400	15000	12500
a	5395.2	5382.2	5380.1	5383.7	5383.7	5389.7	5399.7	5406.3	5405.5	5399.6	5393.8	5387.7
b	-6300	-5100	-780	+1280	0	+2500	+4100	+3000	-300	-2800	-2400	-2500

CAL YR 1987 MAX 34900 MIN 9510 b -9980
WTR YR 1988 MAX 21600 MIN 9510 b -9300

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

SACRAMENTO RIVER BASIN

11441500 SOUTH FORK SILVER CREEK NEAR ICE HOUSE, CA

LOCATION.--Lat 38°49'08", long 120°21'51", in NW 1/4 NW 1/4 sec.12, T.11 N., R.14 E., El Dorado County, Hydrologic Unit 18020129, Eldorado National Forest, on right bank 300 ft upstream from Peavine Creek, 0.4 mi downstream from Ice House Dam, and 4.8 mi northwest of Kyburz.

DRAINAGE AREA.--27.5 mi².

PERIOD OF RECORD.--October 1924 to current year.

REVISED RECORDS.--WSP 1395: 1928, 1938. WSP 1635: Drainage area at former site.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 5,290 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Oct. 1, 1959, at site 0.3 mi upstream at different datum.

REMARKS.--No estimated daily discharges. Records excellent. Flow regulated by Ice House Reservoir (station 11441100) beginning in December 1959. Diversion to Jones Fork powerplant (station 11440900) starting April 1985 bypasses station and returns to Silver Creek at Union Valley Reservoir (station 11441001). Diversion to Jones Fork powerplant is shown as a line item below this table. See schematic diagram of South Fork American River basin.

AVERAGE DISCHARGE (prior to diversion to Jones Fork powerplant).--60 years (1925-84), 78.1 ft³/s, 56,850 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,940 ft³/s, Dec. 23, 1955, gage height, 6.71 ft, site and datum then in use, from rating curve extended above 540 ft³/s on basis of slope-area measurement at gage height 6.69 ft; no flow Oct. 31 to Nov. 9, 1958. Maximum discharge since construction of Ice House Dam in 1959, 1,930 ft³/s, May 26, 1982, gage height, 5.74 ft, from rating curve extended above 730 ft³/s on basis of computation of flow over dam at gage height 5.66 ft; minimum daily, 1.2 ft³/s, Mar. 17-19, 1960.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21 ft³/s, Apr. 27, gage height, 2.73 ft; minimum daily, 5.0 ft³/s, Dec. 27-30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	5.7	6.5	5.2	5.7	6.0	5.8	5.7	5.7	5.4	5.3	5.7
2	5.3	5.8	6.1	5.2	5.7	6.1	5.9	5.4	5.7	5.4	5.4	5.7
3	5.4	5.6	5.4	6.0	5.7	6.3	5.9	5.4	5.7	5.2	5.4	5.8
4	5.4	5.7	5.3	5.9	5.7	6.3	5.6	5.4	5.7	5.2	5.4	5.9
5	5.3	5.8	5.3	6.1	5.7	6.2	5.5	5.4	5.7	5.4	5.4	5.8
6	5.5	5.9	5.6	5.8	5.7	6.1	5.7	5.4	5.7	5.7	5.4	5.5
7	5.8	5.9	5.4	5.7	5.7	6.1	5.4	5.6	5.7	5.9	5.4	5.4
8	5.8	5.9	5.2	5.7	5.8	6.1	5.4	5.5	5.7	5.9	5.4	5.4
9	6.2	5.9	6.1	5.8	5.7	5.9	5.4	5.4	5.5	5.9	5.4	5.4
10	6.0	5.9	5.8	5.7	5.8	5.9	5.4	5.4	5.5	5.9	5.4	5.4
11	5.7	6.1	5.4	6.0	5.8	6.1	5.4	5.4	5.4	5.9	5.4	5.5
12	5.7	6.2	5.3	5.7	5.7	6.2	5.4	5.4	5.4	5.9	5.4	5.8
13	5.6	6.5	5.2	5.7	5.7	6.3	5.5	5.4	5.6	5.9	5.4	5.6
14	5.6	6.2	5.2	5.7	5.7	6.2	5.9	5.4	5.5	5.7	5.4	5.4
15	5.8	6.2	5.2	5.8	5.7	6.2	5.7	5.4	5.5	5.7	5.4	5.4
16	5.7	6.4	5.2	5.7	5.7	6.2	5.7	5.5	5.4	5.7	5.4	5.4
17	5.7	6.5	5.2	5.7	5.7	6.3	5.7	5.4	5.4	5.7	5.3	5.4
18	5.7	6.4	5.2	5.7	5.7	6.4	5.5	5.4	5.5	5.7	5.4	5.4
19	5.7	6.5	5.2	5.7	5.7	6.2	5.8	5.4	5.8	5.7	5.7	5.4
20	5.9	6.6	5.2	5.7	5.7	6.0	5.8	5.4	5.6	5.7	5.7	5.5
21	6.1	6.4	5.3	5.7	5.8	5.9	5.8	5.4	5.7	5.7	5.7	5.4
22	6.3	6.5	6.2	5.7	5.8	5.9	5.7	5.4	5.4	5.5	5.7	5.4
23	6.3	6.5	5.5	5.8	5.7	5.9	5.6	5.4	5.4	6.2	5.7	5.6
24	6.2	6.3	5.6	5.9	5.7	5.9	5.5	5.4	5.4	6.0	5.7	5.4
25	5.9	6.1	5.4	5.7	5.7	5.9	5.4	5.4	5.5	5.3	5.7	5.4
26	6.1	6.2	5.2	5.7	5.8	5.9	5.4	5.6	5.4	5.2	5.7	5.4
27	6.2	6.2	5.0	5.7	5.8	5.9	5.6	5.7	5.4	5.2	5.7	5.5
28	6.3	6.2	5.0	5.7	5.9	5.9	5.4	5.8	5.4	5.2	5.7	5.6
29	6.2	6.2	5.0	5.7	5.9	5.7	5.8	5.9	5.4	5.2	5.6	5.4
30	6.0	6.2	5.0	5.7	---	5.7	5.9	5.7	5.4	5.2	5.7	5.4
31	5.9	---	5.1	5.7	---	5.8	---	5.7	---	5.2	5.9	---
TOTAL	180.6	184.5	167.3	177.5	166.4	187.5	168.5	170.1	166.1	173.4	171.2	165.3
MEAN	5.83	6.15	5.40	5.73	5.74	6.05	5.62	5.49	5.54	5.59	5.52	5.51
MAX	6.3	6.6	6.5	6.1	5.9	6.4	5.9	5.9	5.8	6.2	5.9	5.9
MIN	5.3	5.6	5.0	5.2	5.7	5.7	5.4	5.4	5.4	5.2	5.3	5.4
AC-FT	358	366	332	352	330	372	334	337	329	344	340	328
a	5970	5350	2170	20	1540	1490	1490	1450	2460	2480	2030	2040

CAL YR 1987 TOTAL 1886.6 MEAN 5.44 MAX 10 MIN 3.0 AC-FT 3940
WTR YR 1988 TOTAL 2078.4 MEAN 5.68 MAX 6.6 MIN 5.0 AC-FT 4120

a Diversion, in acre-feet, to Jones Fork powerplant, provided by Sacramento Municipal Utility District.

SACRAMENTO RIVER BASIN

11441900 SILVER CREEK BELOW CAMINO DIVERSION DAM, CA

LOCATION.--Lat 38°49'26", long 120°32'18", on line between secs.4 and 5, T.11 N., R.13 E., El Dorado County, Hydrologic Unit 18020129, Eldorado National Forest, on right bank 300 ft downstream from Round Tent Canyon, 0.4 mi downstream from diversion dam, and 5 mi northeast of Pollock Pines.

DRAINAGE AREA.--171 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 2,754.06 ft above National Geodetic Vertical Datum of 1929 (Sacramento Municipal Utility District bench mark).

REMARKS.--No estimated daily discharges. Records good. Flow is regulated by Ice House Reservoir (station 11441100) since 1959, Union Valley Reservoir (station 11441001) since 1962, and Junction and Camino Reservoirs. Diversion to Camino powerplant (station 11441895) since 1961 bypasses this station. See schematic diagram of South Fork American River basin.

AVERAGE DISCHARGE (unadjusted).--28 years, 93.5 ft³/s, 67,740 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,800 ft³/s, Feb. 17, 1986, gage height, 11.70 ft, from rating curve extended above 4,700 ft³/s on basis of slope-area measurement at gage height 11.28 ft; minimum daily, 1.0 ft³/s, Nov. 1, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 28 ft³/s, Jan. 11, gage height, 2.93 ft; minimum daily, 5.1 ft³/s, several days in May and June.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	11	6.7	6.9	9.2	8.1	6.5	6.1	5.1	5.7	5.7	6.4
2	11	8.4	6.7	6.9	8.3	7.2	6.5	5.9	5.2	5.5	5.8	6.5
3	11	6.9	6.5	11	7.8	7.1	6.6	5.9	5.2	5.5	5.8	6.8
4	11	6.9	6.5	14	7.4	7.0	6.5	5.9	5.1	5.5	5.7	6.4
5	11	6.8	6.5	18	7.2	7.0	6.5	5.8	5.1	5.5	5.8	6.4
6	11	6.9	7.3	15	7.1	7.1	6.5	5.8	5.2	5.4	5.7	6.4
7	11	6.9	7.2	12	6.9	6.9	6.5	5.9	5.2	5.4	5.8	6.5
8	11	6.9	6.8	9.4	6.8	6.8	6.4	5.9	5.2	5.4	5.9	6.5
9	10	7.0	9.3	11	6.8	6.7	6.3	5.7	5.2	5.5	5.8	6.3
10	10	7.0	9.1	12	6.6	6.4	6.3	5.4	5.2	5.3	5.9	6.5
11	11	6.6	8.8	19	6.8	6.3	6.3	5.3	5.2	5.3	5.9	6.5
12	12	6.6	8.0	14	6.8	6.4	6.3	5.2	5.1	5.3	5.9	6.3
13	13	6.9	7.7	11	6.5	6.3	6.1	5.5	5.1	5.4	6.0	6.5
14	11	6.7	7.2	9.8	6.5	6.3	6.2	6.0	5.1	5.3	6.0	6.4
15	11	7.3	7.0	10	6.5	6.4	6.5	6.0	5.4	5.4	6.1	6.5
16	11	7.1	6.9	9.9	6.4	6.3	6.1	5.8	5.3	5.3	6.1	6.4
17	11	6.9	6.8	9.0	6.3	6.4	6.2	5.6	5.1	5.4	5.9	6.4
18	11	6.5	6.8	8.1	6.4	6.6	6.3	5.5	5.1	5.6	6.0	6.7
19	11	6.5	6.9	7.7	6.4	6.6	6.3	5.2	5.6	5.5	5.9	6.4
20	11	6.8	6.8	7.4	6.4	6.5	6.6	5.2	5.2	5.5	6.2	7.4
21	11	6.7	6.7	7.3	6.5	6.5	6.6	5.3	5.2	5.3	6.3	7.2
22	11	6.6	8.7	7.2	6.4	6.4	7.7	5.2	5.1	5.7	6.3	6.7
23	10	6.6	8.3	7.3	6.4	6.6	8.7	5.1	5.1	5.6	6.1	6.3
24	11	6.5	8.0	7.4	6.6	6.4	8.5	5.1	5.3	5.5	6.1	6.2
25	11	6.3	7.7	7.5	6.5	6.4	8.2	5.1	5.2	5.5	6.2	6.6
26	11	6.3	7.6	7.7	6.7	6.5	7.6	5.2	5.1	5.7	6.3	6.6
27	11	6.3	7.1	7.7	6.6	6.5	7.1	5.4	5.2	5.6	6.5	6.5
28	11	6.5	7.1	7.7	6.7	6.5	6.8	5.5	5.2	5.6	6.5	6.3
29	11	6.6	7.1	8.1	6.5	6.6	6.6	5.2	5.3	5.6	6.4	6.5
30	11	6.6	7.2	9.6	---	6.5	6.3	5.1	5.3	5.6	6.6	6.2
31	11	---	7.1	9.4	---	6.6	---	5.2	---	5.8	6.4	---
TOTAL	341	207.6	228.1	309.0	198.0	205.9	201.6	171.0	155.9	170.2	187.6	195.3
MEAN	11.0	6.92	7.36	9.97	6.83	6.64	6.72	5.52	5.20	5.49	6.05	6.51
MAX	13	11	9.3	19	9.2	8.1	8.7	6.1	5.6	5.8	6.6	7.4
MIN	10	6.3	6.5	6.9	6.3	6.3	6.1	5.1	5.1	5.3	5.7	6.2
AC-FT	676	412	452	613	393	408	400	339	309	338	372	387

CAL YR 1987 TOTAL 4362.7 MEAN 12.0 MAX 53 MIN 6.3 AC-FT 8650
WTR YR 1988 TOTAL 2571.2 MEAN 7.03 MAX 19 MIN 5.1 AC-FT 5100

SACRAMENTO RIVER BASIN

11442500 SOUTH FORK AMERICAN RIVER BELOW SILVER CREEK, NEAR POLLOCK PINES, CA

LOCATION.--Lat 38°47'37", long 120°37'02", in NE 1/4 NE 1/4 sec.22, T.11 N., R.12 E., El Dorado County, Hydrologic Unit 18020129, Eldorado National Forest, on right bank 350 ft upstream from El Dorado powerplant, 2.4 mi downstream from Silver Creek, and 2.8 mi northwest of Pollock Pines.

DRAINAGE AREA.--449 mi².

PERIOD OF RECORD.--August to December 1923 (published as "below Silver Creek"), November 1969 to current year.

CHEMICAL DATA: Water year 1980, one sample.

BIOLOGICAL DATA: Water year 1980, one sample.

SUSPENDED SEDIMENT: Water year 1980, one sample.

GAGE.--Water-stage recorder. Datum of gage is 1,862.79 ft above National Geodetic Vertical Datum of 1929 (Pacific Gas & Electric Co. bench mark). Aug. 11 to Dec. 16, 1923, nonrecording gage at same site at different datum.

REMARKS.--No estimated daily discharges. Records good. There are diversions to Camino powerplant and El Dorado powerplant (stations 11441895 and 11439300) which bypass this station. Refer to listed monthly figures below. Flow regulated by storage, diversions, and powerplants. See schematic diagram of South Fork American River basin.

AVERAGE DISCHARGE (unadjusted).--18 years, 519 ft³/s, 376,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,500 ft³/s, Jan. 13, 1980, gage height, 17.83 ft, from rating curve extended above 13,000 ft³/s; minimum daily, 9.6 ft³/s, Oct. 19, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 426 ft³/s, May 16, gage height, 6.17 ft; minimum daily, 21 ft³/s, Sept. 8-10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	40	51	97	83	132	87	207	195	39	33	35
2	36	40	56	138	77	115	98	169	169	38	33	34
3	36	39	49	181	70	97	145	149	121	38	39	29
4	34	37	47	202	68	93	123	151	121	38	50	25
5	34	36	46	194	67	94	106	141	135	38	40	23
6	34	37	54	165	68	101	178	127	93	37	35	22
7	33	37	89	113	66	97	260	115	82	39	35	22
8	33	37	68	107	63	87	240	114	100	38	34	21
9	33	37	73	104	64	104	181	106	87	38	34	21
10	34	37	114	108	64	109	202	106	64	38	33	21
11	35	36	138	165	69	78	251	170	49	38	34	22
12	35	36	66	123	74	74	276	279	45	38	35	37
13	36	46	47	125	71	74	266	336	44	37	32	81
14	36	50	44	92	66	71	312	289	43	37	32	46
15	35	41	52	111	62	69	298	299	43	37	32	22
16	35	39	48	117	61	67	235	342	45	37	32	22
17	35	39	47	109	60	64	202	302	43	36	33	22
18	35	41	45	91	57	63	202	248	41	36	32	22
19	35	38	47	84	56	72	202	220	40	37	32	23
20	35	42	44	81	54	100	271	203	46	36	32	24
21	35	54	44	84	55	116	226	207	44	38	32	31
22	36	42	89	83	55	103	227	228	43	36	32	26
23	51	39	75	78	57	94	209	213	42	32	33	27
24	46	39	50	78	57	225	219	196	43	32	33	26
25	38	44	40	78	57	192	247	169	45	33	33	27
26	36	43	54	81	58	231	270	149	46	33	33	51
27	36	41	62	80	63	276	318	125	42	33	33	50
28	39	40	65	80	94	194	293	107	43	34	33	40
29	49	40	67	81	113	143	264	202	47	49	33	37
30	43	41	71	99	---	134	245	190	45	33	34	35
31	43	---	84	88	---	115	---	193	---	33	34	---
TOTAL	1147	1208	1926	3417	1929	3584	6653	6052	2046	1136	1055	924
MEAN	37.0	40.3	62.1	110	66.5	116	222	195	68.2	36.6	34.0	30.8
MAX	51	54	138	202	113	276	318	342	195	49	50	81
MIN	33	36	40	78	54	63	87	106	40	32	32	21
AC-FT	2280	2400	3820	6780	3830	7110	13200	12000	4060	2250	2090	1830
a	7530	698	19090	17970	32500	24550	14280	9590	14170	18460	20540	22500
b	821	930	2210	3490	4150	7370	7400	7780	4620	1460	1420	1190

CAL YR 1987 TOTAL 47988 MEAN 131 MAX 761 MIN 28 AC-FT 95180 a 252800 b 34450
WTR YR 1988 TOTAL 31077 MEAN 84.9 MAX 342 MIN 21 AC-FT 61640 a 201900 b 42830

a Diversion, in acre-feet, to Camino powerplant, provided by Sacramento Municipal Utility District.

b Diversion, in acre-feet, to El Dorado powerplant, provided by Pacific Gas & Electric Co.

SACRAMENTO RIVER BASIN

11443450 SLAB CREEK RESERVOIR NEAR CAMINO, CA

LOCATION.--Lat 38°46'21", long 120°41'58", in SW 1/4 NE 1/4 sec.25, T.11 N., R.11 E., El Dorado County, Hydrologic Unit 18020129, Eldorado National Forest, on left bank 100 ft upstream from dam on South Fork American River, 1,600 ft upstream from Iowa Canyon, and 2.7 mi northwest of Camino.

DRAINAGE AREA.--493 mi².

PERIOD OF RECORD.--May 1987 to current year. Unpublished records for water years 1969-86 available in files of U.S. Geological Survey.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Sacramento Municipal Utility District). Prior to May 26, 1987, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by concrete arch dam completed in 1967. Storage began in October 1967. Usable capacity, 16,600 acre-ft, between elevations 1,670 ft, invert of tunnel, and 1,850 ft, crest of spillway. Dead storage, 600 acre-ft. Reservoir receives water from South Fork American River and Silver Creek via El Dorado and Camino powerplants (stations 11439300 and 11441895) 10 mi upstream. Nearly the entire flow is diverted at this reservoir to White Rock powerplant (station 11443460). See South Fork American River near Camino (station 11443500) for additional information on diversions and releases from Slab Creek Reservoir. Records, including extremes, represent usable contents. See schematic diagram of South Fork American River basin.

COOPERATION.--Records were collected by Sacramento Municipal Utility District, under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 16,400 acre-ft, Sept. 21, 1987, elevation, 1,848.76 ft; minimum, 13,700 acre-ft, May 26, 1987, elevation, 1,835.93 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 16,296 acre-ft, Mar. 21, elevation, 1,848.48 ft, minimum, 14,234 acre-ft, July 4, elevation, 1,838.02 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)
(Based on survey by Sacramento Municipal Utility District dated October 1967)

1,730	1,660	1,800	8,100
1,740	2,310	1,820	11,100
1,750	3,000	1,840	14,600
1,760	3,800	1,850	16,600
1,780	5,650	1,853	17,200

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15000	16180	15034	15476	15268	15228	15138	15682	15794	15460	14806	14968
2	15180	16218	15028	15642	14982	15112	15280	15054	15916	15042	14608	15018
3	14838	16250	14962	15986	14972	15138	15394	15232	15560	14634	14668	14738
4	14638	16234	14870	15970	15034	15186	15034	15402	15538	14234	14842	14660
5	14650	16080	14766	15760	15090	15322	14922	15602	15504	14350	14990	14624
6	14804	15890	14714	15614	15088	15528	14934	15494	15064	14593	14760	14700
7	14680	15942	14902	14776	15106	14950	15318	15514	15042	14746	14754	14914
8	14792	16010	14986	14864	15214	15066	15668	15522	15344	15180	15046	14988
9	15202	15848	15130	15040	15360	14794	15838	15474	15560	14996	15250	15014
10	14826	15754	15386	15312	15662	14692	15808	15358	15782	14732	15516	14726
11	14724	15550	15788	15854	15920	14546	15618	15452	15648	15034	15574	14806
12	14772	15378	15914	15812	16016	15044	15506	15768	15460	15236	15786	14902
13	14874	15278	15914	15528	16054	15184	15504	16064	15244	15436	15708	14990
14	14960	15392	15376	14758	15942	15338	16220	16150	15126	15622	15602	15036
15	15010	15480	14938	14780	15900	15434	16008	15984	15102	15852	15884	15044
16	15104	15408	14896	14936	15864	15574	15560	16262	15122	15348	15628	15106
17	15008	15440	14904	15040	15430	15676	15354	16052	15386	14892	15580	14878
18	14976	15348	14676	14984	15296	15762	14858	15510	14956	14942	15602	14964
19	15026	15334	14828	14648	15242	15900	15162	15522	14680	15182	15522	15056
20	15080	15456	14974	14864	15386	16072	15722	15604	14888	15002	15470	15162
21	15518	15604	15200	14842	15584	16296	15290	15670	14816	15138	15346	15344
22	15954	15728	15282	14940	15474	15602	15054	15796	14896	15164	15612	15480
23	15854	15664	15280	15116	15360	15122	15492	15912	15260	14892	15818	15660
24	15994	15696	15094	15312	15544	14882	15922	16030	15572	14784	15796	15574
25	15876	15608	15170	15564	15662	14808	16204	16142	15260	14962	15772	15468
26	15864	15482	15244	15228	15740	15320	15782	15954	14936	15028	15552	15612
27	15786	15322	15320	15024	15842	15778	15728	15848	15106	14904	15346	15698
28	15914	15204	15278	14698	16112	15560	15596	15604	15232	14938	15314	15750
29	16052	15052	15290	15042	15890	15264	15704	15592	15384	14992	15256	15290
30	16188	15066	15410	15408	---	14864	15740	15568	15546	14882	15034	14762
31	16224	---	15368	15698	---	15232	---	15644	---	14768	14934	---
MAX	16224	16250	15914	15986	16112	16296	16220	16262	15916	15852	15884	15750
MIN	14638	15052	14676	14648	14972	14546	14858	15054	14680	14234	14608	14624
a	1848.12	1842.33	1843.84	1845.49	1846.45	1843.16	1845.70	1845.22	1844.73	1840.84	1841.67	1840.81
b	+1024	-1158	+302	+330	+192	-658	+508	-96	-98	-778	+166	-172

WTR YR 1988 MAX 16296 MIN 14234 b -438

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

SACRAMENTO RIVER BASIN

11443500 SOUTH FORK AMERICAN RIVER NEAR CAMINO, CA

LOCATION.--Lat 38°46'23", long 120°41'51", in SW 1/4 NE 1/4 sec.25, T.11 N., R.11 E., El Dorado County, Hydrologic Unit 18020129, in Slab Creek Dam valve house, 1,500 ft upstream from Iowa Canyon Creek, and 2.8 mi northwest of Camino.

DRAINAGE AREA.--493 mi².

PERIOD OF RECORD.--October 1922 to current year. Monthly discharge only for October 1922, WSP 1315-A. Records for river and American River flume, published separately October 1922 to September 1956, October 1962 to December 1964 when flume was destroyed. Records of river and flume combined October 1956 to September 1962.

REVISED RECORDS.--WSP 931: 1928, 1938, 1940(M). WSP 1931: Drainage area at former site.

GAGE.--Acoustic velocity meter. Elevation of gage is 1,625 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to May 26, 1987, water-stage recorder at different datum at site 1,000 ft downstream. See WSP 2131 for history of changes prior to Oct. 12, 1966.

REMARKS.--No estimated daily discharges. Flow regulated by six reservoirs, total usable capacity, 347,000 acre-ft. Since 1967 diversion from Slab Creek Dam to White Rock powerplant (station 11443460) bypasses this station. Echo Lake conduit (station 11434500) imports up to 1,900 acre-ft each year from Truckee River basin. Variable amounts of El Dorado Canal water, up to 40 ft³/s May to October, and about 7 ft³/s remainder of the year, diverted for irrigation and domestic use between Pollock Pines and Placerville. Water from Jenkinson Lake in North Fork Cosumnes River basin diverted to Camino and substituted for flow from El Dorado Canal in some years. Since October 1962, water is imported from the Upper Rubicon River basin by way of Robbs Peak powerplant (station 11429300). See schematic diagram of South Fork American River basin.

COOPERATION.--Records were collected by Sacramento Municipal Utility District, under general supervision of U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE.--37 years (water years 1923-59, prior to extensive regulation and transbasin diversion in South Fork American River basin), 961 ft³/s, 695,700 acre-ft/yr, combined flow of South Fork American River and American River flume; 8 years (water years 1960-67, transition period prior to bypass to White Rock powerplant), 1,062 ft³/s, 769,400 acre-ft/yr; 21 years (water years 1968-88), 149 ft³/s, 108,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,800 ft³/s, Dec. 23, 1955, gage height, 32.6 ft, from floodmarks, site and datum then in use, from rating curve extended above 24,000 ft³/s, on basis of computation of peak flow over dam; minimum daily, 1.3 ft³/s, Aug. 24, 1931.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 78 ft³/s, July 20; minimum daily, 10 ft³/s, many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	36	10	10	10	10	10	10	36	36	36	36
2	36	36	10	10	10	22	10	10	36	36	40	36
3	36	36	10	10	10	36	10	10	36	36	43	36
4	36	36	10	10	10	36	10	10	36	36	36	36
5	36	36	10	10	10	36	10	10	36	36	36	36
6	36	36	10	10	10	36	10	10	36	36	36	36
7	36	36	10	10	10	22	10	10	36	36	36	36
8	36	36	10	10	10	10	10	10	36	36	36	36
9	36	36	10	10	10	10	10	10	36	36	36	36
10	36	36	10	10	10	10	10	10	36	36	36	36
11	36	36	10	10	10	10	10	10	36	36	36	36
12	36	36	10	10	10	10	10	10	36	36	36	36
13	36	36	10	10	10	11	10	10	36	37	36	36
14	36	36	10	10	10	11	10	10	36	36	36	36
15	36	37	10	10	10	11	10	10	36	36	36	36
16	36	26	10	10	10	10	10	10	36	36	36	36
17	36	10	10	10	10	10	10	10	36	36	36	36
18	36	10	10	10	10	10	10	10	36	36	36	36
19	36	10	10	10	10	10	10	10	36	38	36	36
20	36	10	10	10	10	10	10	10	36	50	36	36
21	36	10	10	10	10	10	10	10	36	36	36	36
22	36	10	10	10	10	10	10	10	36	36	36	36
23	36	10	10	10	10	10	10	10	36	36	36	36
24	36	10	10	10	10	10	10	10	36	36	37	36
25	36	10	10	10	10	10	10	10	36	36	36	36
26	36	10	10	10	10	10	10	10	36	36	36	38
27	36	10	10	10	10	10	10	10	36	36	36	42
28	36	10	10	10	10	10	10	10	36	36	36	36
29	36	10	10	10	10	10	10	10	36	38	39	36
30	36	10	10	10	---	10	10	10	36	36	36	36
31	36	---	10	10	---	10	---	22	---	36	36	---
TOTAL	1116	707	310	310	290	441	300	322	1080	1135	1131	1088
MEAN	36.0	23.6	10.0	10.0	10.0	14.2	10.0	10.4	36.0	36.6	36.5	36.3
MAX	36	37	10	10	10	36	10	22	36	50	43	42
MIN	36	10	10	10	10	10	10	10	36	36	36	36
AC-FT	2210	1400	615	615	575	875	595	639	2140	2250	2240	2160
a	7740	4920	25440	28530	40660	38520	33040	27650	20620	20240	21210	21580

CAL YR 1987 TOTAL 9861 MEAN 27.0 MAX 52 MIN 10 AC-FT 19560 a 360000

WTR YR 1988 TOTAL 8230 MEAN 22.5 MAX 50 MIN 10 AC-FT 16320 a 290200

a Diversion, in acre-feet, to White Rock powerplant, provided by Sacramento Municipal Utility District.

SACRAMENTO RIVER BASIN

11444201 ROCK CREEK NEAR PLACERVILLE, CA

LOCATION.--Lat 38°47'39", long 120°46'28", in NE 1/4 SW 1/4 sec.20, T.11 N., R.11 E., El Dorado County, Hydrologic Unit 18020129, on left bank 500 ft downstream from Rock Creek Road and 4.0 miles north of Placerville.

DRAINAGE AREA.--73.0 mi².

PERIOD OF RECORD.--October 1986 to current year.

GAGE.--Water-stage recorder and broad-crested weir; water-stage recorder and sharp-crested weir. Elevation of gages is 1,305 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 1-13, 1986. Records good except for estimated daily discharges, which are fair. No estimated daily discharges for the 1988 water year. Records good. Flow at this station has two components which are combined for publication: flow over a broad-crested weir (station 11444200) and flow over a sharp-crested weir (station 11444260). Water is diverted immediately upstream to Rock Creek powerplant (station 11444280), returning to Rock Creek at its confluence with the South Fork American River.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 497 ft³/s, Mar. 13, 1987; no flow Sept. 29 to Oct. 3, 1987.

EXTREMES FOR 1987 WATER YEAR (Not previously published).--Maximum discharge, 497 ft³/s, Mar. 13; no flow Sept. 29, 30.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 284 ft³/s, Jan. 11; no flow, Oct. 1-3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES
(NOT PREVIOUSLY PUBLISHED)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	20	21	26	25	26	34	25	12	6.3	2.7	2.3
2	23	16	20	35	34	26	34	21	11	6.3	2.7	3.5
3	22	16	20	87	37	26	34	19	11	6.0	2.6	3.1
4	21	15	20	64	26	26	31	19	11	6.1	2.4	3.2
5	21	15	25	32	28	61	30	18	11	6.0	2.2	3.6
6	21	14	24	26	26	123	29	17	11	5.7	1.9	4.0
7	20	15	21	23	25	60	29	17	11	5.7	1.9	4.3
8	20	14	20	20	24	48	28	16	10	5.6	1.8	4.4
9	20	12	17	21	23	44	28	16	9.9	5.4	1.9	4.2
10	20	13	19	20	23	37	27	18	9.4	4.4	1.9	4.0
11	20	14	19	19	37	40	26	16	9.2	4.1	1.9	4.1
12	20	14	19	19	29	82	25	15	9.2	5.1	1.9	4.2
13	20	16	19	19	265	258	24	15	8.7	6.5	2.1	4.5
14	20	17	19	19	80	171	23	15	8.2	6.5	2.1	4.7
15	18	19	19	19	57	198	23	16	9.2	6.5	2.4	4.7
16	18	19	18	19	45	107	22	15	10	5.7	2.3	5.3
17	18	19	18	19	37	76	21	15	9.8	5.1	2.2	5.2
18	18	20	19	18	41	64	20	15	9.2	3.9	1.8	4.6
19	15	23	22	19	36	59	20	15	9.0	4.1	1.8	4.3
20	17	23	22	17	34	54	20	17	8.8	4.1	1.9	4.2
21	18	27	18	18	32	56	19	18	8.7	3.9	2.4	4.0
22	18	22	22	18	31	54	19	16	8.2	5.6	2.3	3.8
23	18	22	25	18	29	76	19	15	7.9	7.1	2.0	3.7
24	18	23	21	27	29	77	19	14	7.4	5.7	2.1	3.8
25	18	23	19	32	29	61	19	14	7.2	3.7	2.2	3.9
26	18	23	18	25	28	53	18	15	6.7	3.3	2.1	4.1
27	18	23	18	23	27	48	18	16	6.5	3.3	2.1	4.2
28	16	23	18	70	26	44	18	14	6.4	2.8	1.8	2.0
29	15	30	18	30	---	41	18	14	6.5	2.7	1.6	.00
30	16	24	17	32	---	38	25	14	6.4	2.7	2.0	.00
31	17	---	19	27	---	36	---	12	---	2.7	1.9	---
TOTAL	587	574	614	861	1163	2170	720	502	270.5	152.6	64.9	111.90
MEAN	18.9	19.1	19.8	27.8	41.5	70.0	24.0	16.2	9.02	4.92	2.09	3.73
MAX	25	30	25	87	265	258	34	25	12	7.1	2.7	5.3
MIN	15	12	17	17	23	26	18	12	6.4	2.7	1.6	.00
AC-FT	1160	1140	1220	1710	2310	4300	1430	996	537	303	129	222
a	0	0	0	65	381	0	0	0.1	0	0	8.5	2.8

WTR YR 1987 TOTAL 7790.90 MEAN 21.3 MAX 265 MIN .00 AC-FT 15450

a Discharge, in acre-feet, through Rock Creek powerplant, provided by Sithe Energies U.S.A., Inc.; not reviewed by U.S. Geological Survey.

SACRAMENTO RIVER BASIN

11444201 ROCK CREEK NEAR PLACERVILLE, CA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	8.9	22	22	23	86	11	18	14	4.8	3.0	2.3
2	.00	10	28	17	21	63	11	18	13	1.2	2.7	2.2
3	.00	9.3	19	50	20	29	11	17	13	1.1	3.0	2.2
4	.44	8.5	14	46	20	23	12	17	12	.88	2.9	2.2
5	3.2	8.4	13	86	19	19	10	17	12	.80	3.0	1.8
6	6.6	9.1	26	56	19	18	10	17	12	.89	2.9	1.5
7	3.8	10	36	41	19	16	10	19	14	.89	3.0	1.8
8	3.9	9.9	28	20	18	15	10	21	15	.76	3.0	1.9
9	4.0	10	36	23	18	14	10	18	13	1.8	3.0	1.6
10	4.6	11	34	34	17	13	10	17	12	4.9	2.8	2.1
11	4.5	11	29	134	15	13	10	16	11	4.9	2.8	1.8
12	4.6	11	20	70	14	13	10	15	11	4.7	2.8	2.0
13	4.7	18	16	47	17	12	11	16	11	4.7	2.8	1.8
14	4.9	23	12	37	16	12	20	15	10	4.7	2.9	2.0
15	4.9	13	10	73	16	11	19	14	9.4	4.7	2.9	3.6
16	4.9	10	13	81	16	11	15	14	9.6	4.5	2.9	4.1
17	4.9	12	16	68	15	11	13	19	9.4	4.4	2.9	4.8
18	2.8	13	12	36	15	10	12	17	8.8	3.6	2.6	4.5
19	.46	12	16	22	15	10	35	15	8.5	3.7	2.6	3.0
20	8.1	14	14	37	15	10	99	14	8.2	3.5	2.5	.21
21	8.2	20	11	33	14	9.8	49	13	7.9	3.5	2.5	3.5
22	9.3	14	52	28	15	9.5	29	13	7.9	3.5	2.4	5.9
23	13	13	40	28	19	9.5	48	13	7.6	3.5	2.5	5.9
24	10	12	21	26	19	9.4	35	13	7.3	3.5	2.5	4.9
25	8.3	13	15	23	18	8.9	28	9.9	8.4	3.5	2.3	4.2
26	8.0	13	13	22	16	8.7	24	11	8.0	3.7	2.3	5.0
27	7.9	13	12	21	14	8.3	21	12	7.4	3.5	1.6	5.0
28	8.8	13	23	20	14	7.9	20	13	6.9	3.3	2.3	5.2
29	10	13	43	21	22	7.8	19	22	6.6	3.1	2.3	4.6
30	10	14	25	35	---	8.2	19	16	6.4	3.1	2.3	4.6
31	8.9	---	30	26	---	11	---	14	---	3.0	2.3	---
TOTAL	173.70	370.1	699	1283	499	508.0	641	483.9	301.3	98.62	82.3	96.21
MEAN	5.60	12.3	22.5	41.4	17.2	16.4	21.4	15.6	10.0	3.18	2.65	3.21
MAX	13	23	52	134	23	86	99	22	15	4.9	3.0	5.9
MIN	.00	8.4	10	17	14	7.8	10	9.9	6.4	.76	1.6	.21
AC-FT	345	734	1390	2540	990	1010	1270	960	598	196	163	191
a	---	---	---	---	---	---	---	---	---	---	---	---

CAL YR 1987 TOTAL 7258.70 MEAN 19.9 MAX 265 MIN .00 AC-FT 14400

WTR YR 1988 TOTAL 5236.13 MEAN 14.3 MAX 134 MIN .00 AC-FT 10390

a Discharge, in acre-feet, through Rock Creek powerplant; data was unavailable from Sithe Energies U.S.A., Inc. at time of publication.

SACRAMENTO RIVER BASIN

11444500 SOUTH FORK AMERICAN RIVER NEAR PLACERVILLE, CA

LOCATION.--Lat 38°46'16", long 120°48'55", in NE 1/4 SW 1/4 sec.25, T.11 N., R.10 E., El Dorado County, Hydrologic Unit 18020129, on right bank 700 ft downstream from Chili Bar Dam, 0.5 mi upstream from Big Canyon, and 2.5 mi north of Placerville.

DRAINAGE AREA.--598 mi².

PERIOD OF RECORD.--August 1911 to July 1920 (monthly discharge only for some periods, published in WSP 1315-A), July 1964 to current year.

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 931.05 ft above National Geodetic Vertical Datum of 1929 (levels by Pacific Gas & Electric Co.). Aug. 11, 1911, to July 31, 1920, nonrecording gage 0.6 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Flow regulated by storage, diversions, and powerplants. See schematic diagram of South Fork American River basin.

COOPERATION.--Records provided by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

AVERAGE DISCHARGE (prior to extensive regulation and transbasin diversion).--9 years (water years 1912-20), 1,132 ft³/s, 820,100 acre-ft/yr; 24 years (water years 1965-88), 1,505 ft³/s, 1,090,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,300 ft³/s, Dec. 23, 1964, gage height, 17.4 ft, from floodmarks, from rating curve extended above 18,000 ft³/s on basis of computations of flow over dam; minimum daily, 0.2 ft³/s, Nov. 12, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,660 ft³/s, Dec. 15, gage height, 6.83 ft; minimum daily, 101 ft³/s, Nov. 20-23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	480	119	120	351	789	1090	488	534	462	425	333	634
2	431	117	134	303	1100	994	371	667	628	513	342	507
3	484	109	129	331	1020	1050	365	613	439	489	403	394
4	482	102	169	740	739	677	732	366	503	729	391	389
5	397	104	126	1040	877	573	640	356	519	366	329	390
6	298	108	129	958	392	397	642	399	438	366	455	290
7	346	108	131	964	374	1100	479	459	415	154	459	418
8	365	107	347	370	718	791	431	320	366	365	332	474
9	152	104	124	366	1050	652	525	447	414	397	339	556
10	351	105	127	317	736	670	507	566	347	371	349	472
11	151	110	129	342	746	637	551	631	473	364	343	457
12	129	110	131	944	739	467	912	356	390	162	351	347
13	112	110	135	746	377	365	667	310	442	412	421	399
14	114	114	1130	803	415	349	376	516	437	410	421	546
15	115	108	1540	486	464	493	786	540	453	317	262	556
16	115	105	1400	453	887	637	530	628	401	374	296	543
17	117	112	831	574	962	529	513	886	325	447	474	416
18	119	112	1140	829	821	581	793	489	417	692	547	419
19	109	109	434	682	1060	390	495	414	537	338	584	278
20	116	101	221	405	347	381	468	210	405	336	449	341
21	112	101	740	461	385	859	867	393	391	476	437	345
22	113	101	542	445	625	578	509	447	406	352	130	675
23	121	101	686	325	1100	695	402	398	357	472	311	409
24	126	104	564	315	1070	888	350	387	454	476	360	427
25	125	106	460	489	1020	685	562	367	471	329	403	401
26	128	104	301	579	831	432	473	416	433	327	615	364
27	128	104	274	597	436	462	650	518	416	341	417	324
28	128	110	354	717	375	1080	454	431	393	479	407	438
29	125	110	714	547	1100	270	400	570	404	541	367	663
30	122	106	704	367	---	872	444	441	443	441	691	746
31	122	---	424	327	---	515	---	629	---	427	637	---
TOTAL	6333	3221	14390	17173	21555	20159	16382	14704	12979	12688	12655	13618
MEAN	204	107	464	554	743	650	546	474	433	409	408	454
MAX	484	119	1540	1040	1100	1100	912	886	628	729	691	746
MIN	109	101	120	303	347	270	350	210	325	154	130	278
AC-FT	12560	6390	28540	34060	42750	39990	32490	29170	25740	25170	25100	27010

CAL YR 1987 TOTAL 216028 MEAN 592 MAX 2010 MIN 101 AC-FT 428500
WTR YR 1988 TOTAL 165857 MEAN 453 MAX 1540 MIN 101 AC-FT 329000

SACRAMENTO RIVER BASIN

11445500 SOUTH FORK AMERICAN RIVER NEAR LOTUS, CA

LOCATION.--Lat 38°49'07", long 120°56'45", in NW 1/4 SW 1/4 sec.11, T.11 N., R.9 E., El Dorado County, Hydrologic Unit 18020129, on left bank 0.4 mi downstream from Greenwood Creek, 2.4 mi northwest of Lotus, and 3.3 mi northwest of Coloma.

DRAINAGE AREA.--673 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1951 to current year.

REVISED RECORDS.--WSP 1931: Drainage area. WDR CA-75-4: 1964, 1966, 1970.

GAGE.--Water-stage recorder. Elevation of gage is 635 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharge: Dec. 8. Records good. Flow regulated by storage, diversions, and powerplants. See schematic diagram of South Fork American River basin.

AVERAGE DISCHARGE.--11 years (water years 1952-62, prior to extensive regulation and transbasin diversion), 1,109 ft³/s, 802,900 acre-ft/yr; 26 years (water years 1963-88), 1,539 ft³/s, 1,115,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 71,800 ft³/s, Dec. 23, 1955, gage height, 21.37 ft; minimum daily, 14 ft³/s several days during July 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known since 1862 and prior to beginning of record, 20.4 ft from floodmarks, Nov. 21, 1950, discharge, 64,500 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,970 ft³/s, Dec. 15, gage height, 7.49 ft; minimum daily, 103 ft³/s, Nov. 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	471	122	128	415	616	1240	525	565	471	351	323	625
2	411	122	149	359	1120	1260	491	782	547	446	324	497
3	452	118	151	427	1120	1120	444	690	514	437	372	383
4	457	106	185	755	736	867	785	438	486	704	373	375
5	391	107	154	1140	994	637	619	418	511	358	305	373
6	288	114	181	1090	542	522	807	450	447	342	420	286
7	326	115	199	1060	429	975	603	528	409	154	423	386
8	346	114	425	506	593	1010	569	389	372	382	313	456
9	156	112	195	509	1120	748	535	496	406	400	315	513
10	326	113	193	434	723	740	666	616	345	392	321	464
11	155	117	179	473	749	713	663	669	454	352	314	439
12	144	118	171	1090	912	603	1010	444	381	157	318	339
13	112	135	169	754	419	430	746	362	421	381	378	382
14	110	134	968	896	455	415	579	542	415	391	385	473
15	109	129	1360	785	457	550	812	533	400	305	243	568
16	107	116	1430	801	871	696	632	715	431	350	274	525
17	106	126	837	869	974	618	588	842	314	413	448	408
18	105	125	1050	891	758	644	931	624	367	585	516	405
19	105	116	650	946	1220	456	661	452	497	392	541	290
20	117	111	234	521	455	450	672	197	388	323	452	339
21	116	111	691	534	425	833	976	483	359	441	430	340
22	115	106	509	530	568	678	713	473	375	345	152	607
23	128	103	737	412	1070	808	520	416	338	443	304	392
24	137	116	608	389	1080	991	461	413	405	451	350	423
25	134	116	554	536	1010	793	658	381	435	325	346	391
26	135	118	350	504	896	546	559	411	410	312	567	357
27	135	121	310	720	554	500	727	517	386	324	465	318
28	136	122	282	701	425	986	544	419	352	397	401	424
29	134	122	907	738	911	568	482	580	333	536	338	615
30	131	119	880	420	---	919	507	441	400	435	633	682
31	128	---	503	393	---	674	---	631	---	415	634	---
TOTAL	6223	3524	15339	20598	22202	22990	19485	15917	12369	12039	11978	13075
MEAN	201	117	495	664	766	742	649	513	412	388	386	436
MAX	471	135	1430	1140	1220	1260	1010	842	547	704	634	682
MIN	105	103	128	359	419	415	444	197	314	154	152	286
AC-FT	12340	6890	30420	40860	44040	45600	38650	31570	24530	23880	23760	25930

CAL YR 1987 TOTAL 221747 MEAN 608 MAX 2130 MIN 103 AC-FT 439800
WTR YR 1988 TOTAL 175739 MEAN 480 MAX 1430 MIN 103 AC-FT 348600

SACRAMENTO RIVER BASIN

11445500 SOUTH FORK AMERICAN RIVER NEAR LOTUS, CA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1957-68, 1970 to current year.

CHEMICAL DATA: Water years 1958-66, 1978 to November 1980, December 1983 to current year.

BIOLOGICAL DATA: Water years 1979-80.

WATER TEMPERATURE: Water years 1960-68, 1970 to current year.

SEDIMENT DATA: Water years 1957-62.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: December 1959 to September 1968, February 1970 to current year.

INSTRUMENTATION.--Temperature recorder December 1959 to September 1968, and since February 1970.

REMARKS.--Interruptions in record were due to malfunction of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum recorded, 29.5 °C, July 20, 1968, Aug. 12, 22, 1977; minimum recorded, 1.0 °C, several days in 1960 and 1962.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 24.5 °C, July 16, 26, 27; minimum recorded, 4.5 °C, several days in December, January, and February.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

		STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED SATUR- ATION)	HARD- NESS (MG/L AS CACO3)	
DEC										
10...	1115	195	80	7.6	11.0	755	11.0	101	31	
MAR										
10...	1020	376	40	7.4	5.0	750	12.6	100	13	
JUN										
09...	1030	158	43	7.5	17.0	755	9.4	98	14	
SEP										
15...	1050	158	27	7.1	17.5	745	9.7	104	10	
DATE		HARD- NESS NONCARB WH WAT TOT FLD 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)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER WHOLE IT-FLD MG/L)	ALKA- LITY, CARBON- ATE IT-FLD (MG/L CACO3)
DEC										
10...	3	7.0	3.4	3.7	20	0.3	0.8	--	--	--
MAR										
10...	0	3.3	1.1	2.5	29	0.3	0.5	17	14	14
JUN										
09...	0	3.7	1.2	2.7	28	0.3	0.7	21	17	17
SEP										
15...	0	2.6	0.77	1.9	29	0.3	0.5	13	11	11
DATE		ALKA- LITY WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	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 AC-FT)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)
DEC										
10...	29	6.6	4.2	0.10	11	58	54	0.08	<0.010	<0.010
MAR										
10...	15	2.1	3.0	0.10	7.8	30	29	0.04	<0.010	<0.010
JUN										
09...	17	1.8	2.6	<0.10	9.7	27	33	0.04	<0.010	<0.010
SEP										
15...	12	1.2	1.5	<0.10	6.2	23	22	0.03	<0.010	<0.010

See footnote at end of table.

SACRAMENTO RIVER BASIN

11445500 SOUTH FORK AMERICAN RIVER NEAR LOTUS, CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)
DEC 10...	<0.100	0.020	<0.010	--	--	<0.010	<0.010
MAR 10...	<0.100	<0.010	<0.010	0.40	<0.010	<0.010	<0.010
JUN 09...	<0.100	<0.010	<0.010	<0.20	<0.010	<0.010	<0.010
SEP 15...	<0.100	<0.010	<0.010	0.20	0.010	<0.010	<0.010

< Actual value is known to be less than the value shown.

WATER TEMPERATURE, DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	20.0	18.0	16.5	15.5	9.5	8.5	5.5	4.5	7.0	6.0	7.0	6.0
2	20.0	18.0	16.0	15.5	10.5	9.5	6.0	5.0	7.0	5.5	8.0	5.5
3	20.5	18.0	15.5	14.5	12.0	10.5	6.0	6.0	6.5	4.5	8.0	6.0
4	20.0	18.0	15.0	14.0	11.5	10.0	7.0	6.0	6.5	4.5	8.5	6.0
5	20.0	18.0	15.0	14.0	10.0	9.5	6.5	6.0	6.5	4.5	9.0	6.5
6	20.0	18.0	15.0	14.5	10.0	9.5	6.5	5.5	6.5	4.5	9.5	7.5
7	20.5	17.5	16.0	14.5	11.0	9.5	6.0	5.5	7.0	5.0	9.5	7.0
8	20.0	17.5	15.5	14.0	10.0	9.0	7.0	6.0	7.0	5.5	9.0	6.0
9	20.0	17.5	16.0	14.5	10.0	9.5	6.5	6.5	7.0	5.0	9.0	6.5
10	19.0	17.0	15.5	14.5	11.0	10.5	7.5	6.5	7.5	5.0	8.5	6.0
11	19.5	17.0	15.5	14.0	11.5	10.0	9.0	7.0	---	---	8.5	5.5
12	20.0	18.0	14.5	13.5	10.0	8.0	7.0	5.5	---	---	9.0	5.5
13	20.0	18.0	14.0	14.0	7.5	6.0	6.5	5.5	7.0	5.0	9.0	6.5
14	19.5	17.5	14.5	13.0	8.5	5.5	6.5	6.0	7.0	5.5	9.5	7.0
15	19.0	17.0	13.0	12.0	8.0	7.5	7.0	6.0	7.0	5.5	10.0	8.0
16	18.5	16.5	12.5	12.0	8.0	7.5	7.0	6.5	7.0	5.0	9.5	7.0
17	18.5	16.0	12.5	12.0	7.5	7.0	7.5	6.5	6.5	4.0	9.5	6.5
18	18.0	15.5	14.0	12.5	7.0	6.0	6.5	6.0	7.0	4.0	9.5	7.5
19	17.5	15.5	14.0	12.5	8.0	7.0	6.5	5.0	7.0	4.5	10.5	7.5
20	17.0	15.5	12.5	11.5	7.5	6.5	6.5	5.0	7.0	4.5	11.0	8.5
21	17.5	15.5	12.5	11.5	7.5	6.5	6.5	5.0	7.5	5.5	10.5	8.0
22	17.0	16.5	12.5	11.5	7.5	7.0	7.0	5.5	7.5	5.5	10.5	7.0
23	17.5	16.5	12.0	10.5	6.5	5.5	7.0	5.5	7.5	5.0	9.0	8.0
24	18.5	16.5	11.0	10.0	6.0	5.0	7.5	5.5	7.5	5.0	10.0	7.0
25	18.5	16.5	11.0	9.5	6.0	5.0	7.0	5.5	7.5	5.0	10.5	7.0
26	18.0	16.5	10.0	8.5	5.5	4.5	6.5	5.5	7.5	5.0	11.5	7.5
27	17.5	16.5	9.5	8.0	5.5	4.5	7.0	5.5	7.5	6.0	11.0	9.0
28	18.5	17.5	9.5	8.5	6.5	5.5	6.5	5.5	9.0	7.0	11.0	7.5
29	18.0	17.5	9.0	8.0	6.0	5.5	6.5	6.0	8.0	6.5	12.0	7.5
30	17.5	16.5	8.5	8.0	6.0	5.5	8.0	6.5	---	---	11.0	8.5
31	17.0	16.0	---	---	5.5	4.5	7.5	6.5	---	---	11.5	7.5
MONTH	20.5	15.5	16.5	8.0	12.0	4.5	9.0	4.5	---	---	12.0	5.5

SACRAMENTO RIVER BASIN

11445500 SOUTH FORK AMERICAN RIVER NEAR LOTUS, CA--Continued

WATER TEMPERATURE, DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	12.0	9.0	13.5	10.0	---	---	22.5	19.0	23.0	20.0	---	---
2	12.0	9.0	13.5	10.0	---	---	23.5	19.5	23.5	20.5	---	---
3	11.0	9.5	13.5	10.5	---	---	22.0	18.5	23.5	19.5	---	---
4	12.0	9.5	14.0	11.5	---	---	20.5	18.5	22.5	20.0	---	---
5	12.5	8.5	13.5	12.0	---	---	20.5	17.5	23.5	20.5	---	---
6	12.5	9.0	13.0	11.5	---	---	22.0	18.5	22.0	19.5	---	---
7	12.5	9.5	12.5	12.0	---	---	24.0	19.0	21.5	19.0	---	---
8	12.0	9.0	14.0	12.0	---	---	23.5	20.5	22.5	19.5	---	---
9	13.0	10.0	15.0	12.5	---	---	22.5	19.5	23.5	20.0	---	---
10	13.5	9.5	15.5	13.0	---	---	23.5	20.0	23.5	20.5	---	---
11	13.0	10.5	16.0	13.0	---	---	22.5	20.0	23.0	20.0	---	---
12	12.0	10.5	15.5	13.0	---	---	24.0	19.5	22.5	20.0	---	---
13	11.0	10.0	16.5	13.5	---	---	24.0	21.0	22.0	19.0	---	---
14	11.0	10.0	16.5	14.0	---	---	23.0	20.0	21.5	18.5	---	---
15	11.5	10.5	17.0	14.0	---	---	23.5	20.0	22.5	19.0	---	---
16	11.0	10.5	15.0	13.0	---	---	24.5	20.5	23.0	19.0	20.0	17.5
17	11.5	10.5	14.5	13.0	---	---	24.0	21.0	22.0	19.5	19.0	17.0
18	12.0	10.0	16.0	11.5	---	---	24.0	20.0	21.5	18.5	19.0	17.0
19	11.0	10.5	---	---	---	---	23.0	18.5	21.5	18.5	18.5	17.0
20	11.5	10.5	---	---	---	---	24.0	20.5	21.0	18.5	19.5	17.0
21	13.0	10.0	---	---	---	---	24.0	21.0	---	---	19.5	17.5
22	11.0	10.5	---	---	---	---	23.0	20.0	---	---	19.5	17.5
23	13.5	10.5	---	---	---	---	23.0	21.0	---	---	19.5	16.5
24	13.5	11.0	---	---	---	---	22.0	20.5	---	---	19.5	17.0
25	14.0	11.5	---	---	---	---	21.5	20.5	---	---	19.0	18.0
26	14.0	11.5	---	---	---	---	24.5	20.5	---	---	19.0	17.0
27	14.0	12.5	---	---	---	---	24.5	22.0	---	---	19.5	17.5
28	13.0	12.0	---	---	---	---	24.0	20.5	---	---	19.5	17.0
29	13.0	12.0	---	---	22.0	19.0	22.5	20.0	---	---	19.5	17.5
30	13.5	11.0	---	---	22.5	19.0	22.5	20.0	---	---	20.0	17.0
31	---	---	---	---	---	---	22.5	20.0	---	---	---	---
MONTH	14.0	8.5	---	---	---	---	24.5	17.5	---	---	---	---

SACRAMENTO RIVER BASIN

11446200 FOLSOM LAKE NEAR FOLSOM, CA

LOCATION.--Lat 38°42'29", long 121°09'22", in NW 1/4 NE 1/4 sec.24, T.10 N., R.7 E., Sacramento County, Hydrologic Unit 18020128, near center of dam on American River, 0.7 mi downstream from South Fork American River, and 2.3 mi northeast of Folsom.

DRAINAGE AREA.--1,861 mi².

PERIOD OF RECORD.--February 1955 to current year. Prior to October 1959, published as Folsom Reservoir near Folsom.

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation).

REMARKS.--Reservoir is formed by concrete gravity-type dam with rolled-earth-wing dams, auxiliary dams, and dikes, completed May 14, 1956; storage began Feb. 25, 1955. Total capacity, 1,010,300 acre-ft between elevations 205.5 ft, invert of lower tier of river outlets, and 466.0 ft, gross pool elevation, all of which is available for release. Spillway design flood pool elevation, 475.4 ft, capacity, 1,120,200 acre-ft. Records, including extremes, represent usable contents at 2400 hours.

COOPERATION.--Records provided by U.S. Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,024,400 acre-ft, June 15, 1963, elevation, 467.23 ft; minimum since storage pool first filled, 140,600 acre-ft, Nov. 20, 21, 1977, elevation, 347.57 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 506,500 acre-ft, May 3, elevation, 415.00 ft; minimum, 218,200 acre-ft, Sept. 30, elevation, 369.08 ft.

Capacity table (elevation, in feet NGVD, and contents, in acre-feet)
(Provided by U.S. Bureau of Reclamation, from 1955 Survey)

345	133,100	380	270,000	440	732,900
350	148,000	390	327,800	460	942,600
360	181,900	400	393,300	480	1,176,000
370	222,300	420	548,300		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	425000	308200	261100	301300	402100	450700	477300	504700	484900	433600	288500	242500
2	420200	306100	260900	301600	405800	454500	475900	505800	484700	432000	282900	242200
3	415800	303700	262200	302300	409000	457300	474500	506500	485200	428600	277100	241700
4	411200	301200	262300	306700	411200	459400	473700	506000	485200	425200	272800	240800
5	406500	298900	262200	312800	413600	460600	472600	504100	484900	422100	269000	239600
6	402100	296900	262300	319000	415000	462000	473400	499800	484400	419400	266600	238200
7	397200	294700	263600	322800	416100	463600	473900	495100	484100	417600	263600	237400
8	392100	292500	264700	325500	416900	465600	474300	490300	483900	415900	259800	236800
9	386900	290200	266100	327900	419800	466800	474100	487000	483700	413200	258000	236400
10	382100	287900	269600	330500	421500	468100	474400	487200	483100	410600	257300	236100
11	376600	285600	273900	335800	422900	468900	474800	488000	483200	407200	256600	235500
12	370600	283400	275800	341400	425000	469400	476200	488400	482600	402200	256000	234000
13	365300	281700	276100	345200	425600	469300	476800	488700	481800	397200	255600	233200
14	362000	279900	277200	348800	426600	470000	478000	489100	481500	391900	255000	232600
15	359100	278100	279400	353000	427500	469900	479000	489100	481100	385500	253500	232800
16	354600	276400	283100	358700	429100	470400	479700	489700	478600	379700	252700	231900
17	350000	274800	284800	366800	431100	471100	480200	490300	473500	374000	252100	230700
18	345400	273200	287000	372200	432300	471600	481100	491200	467000	368100	251400	230000
19	340500	271700	288100	376200	434600	471600	484100	491200	461600	362500	251100	228500
20	335800	270400	287800	379000	435300	471600	488100	490600	457300	355500	250800	228200
21	332300	269200	288700	381200	435600	472400	491700	490700	455400	347800	250100	227600
22	328900	268400	289100	383200	436300	473100	494400	490300	455000	339900	248400	227300
23	326600	267600	291500	384700	438200	473900	496000	489700	452700	334600	247500	226600
24	325000	266700	292700	385900	440300	475700	497000	488900	448700	329100	247000	226500
25	323200	265600	293600	387100	442300	476800	498300	488300	443600	323300	246100	224800
26	321100	264600	293900	389500	444200	477500	499400	487300	438800	318500	245200	222600
27	318800	263700	293800	392100	444800	477800	501000	486500	435900	313200	244800	221000
28	316900	262900	294600	394300	445000	478900	502400	486000	435500	307900	244200	219500
29	314900	262100	297300	397200	446900	479700	503400	485500	434700	304600	242800	218500
30	312600	261400	299800	399100	---	479200	504300	485400	434200	301000	242500	218200
31	310400	---	300800	400500	---	478400	---	485300	---	294700	242600	---
MAX	425000	308200	300800	400500	446900	479700	504300	506500	485200	433600	288500	242500
MIN	310400	261400	260900	301300	402100	450700	472600	485300	434200	294700	242500	218200
a	387.11	378.21	385.45	401.02	407.39	411.48	414.72	412.36	405.69	384.38	374.42	369.08
b	-119300	-49000	+39400	+99700	+46400	+31500	+25900	-19000	-51100	-139500	-52100	-24400
c	2233	707	367	449	1319	2672	2661	3752	4762	4827	3162	2369

CAL YR 1987 b -164800

WTR YR 1988 b -211500

a Elevation, in feet NGVD, at end of month.

b Change in contents, in acre-feet.

c Evaporation, in acre-feet; not reviewed by U.S. Geological Survey.

SACRAMENTO RIVER BASIN

11446500 AMERICAN RIVER AT FAIR OAKS, CA

LOCATION.--Lat 38°38'08", long 121°13'36", in SE 1/4 NE 1/4 sec.17, T.9 N., R.7 E., Sacramento County, Hydrologic Unit 18020111, on right bank 2,100 ft downstream from Nimbus Dam, 2.4 mi east of Fair Oaks, 8.1 mi downstream from South Fork, and at mile 22.2.

DRAINAGE AREA.--1,888 mi².

PERIOD OF RECORD.--November 1904 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

WATER TEMPERATURE: Water years 1961-65.

CHEMICAL DATA: Water years 1960-62.

REVISED RECORDS.--WSP 1181: 1928(M). WSP 1515: 1907(M), 1910, 1931(M), 1943(M). WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 71.53 ft above National Geodetic Vertical Datum of 1929. See WSP 2131 for history of changes prior to July 15, 1970.

REMARKS.--Estimated daily discharges: Mar. 9-18. Records good. Flow regulated by Folsom Lake beginning Feb. 25, 1955 (station 11446200). Some minor regulation of high flows by temporary pondage during period of construction January 1953 to February 1955. Diurnal fluctuations from Folsom powerplant re-regulated by Nimbus Reservoir, capacity, 2,800 acre-ft between normal operating elevations 118.5 and 125.0 ft and by Nimbus powerplant. Many diversions above station for irrigation, municipal, and domestic water supply. Diversions of San Juan Suburban Water District, city of Folsom, city of Roseville, and State of California are made at Folsom Dam. Diversion to Folsom South Canal from Nimbus Reservoir started in June 1973. Some inflow from Bear and Yuba River basins.

AVERAGE DISCHARGE.--50 years (water years 1905-55, prior to regulation by Folsom Lake), 3,741 ft³/s, 2,708,000 acre-ft/yr; 33 years (water years 1956-88, unadjusted for storage or diversion), 3,871 ft³/s, 2,805,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 180,000 ft³/s, Nov. 21, 1950, gage height, 31.85 ft, site and datum then in use; minimum, 3.6 ft³/s, Aug. 16, 1924. Maximum discharge since construction of Folsom Dam in 1953, 134,000 ft³/s, Feb. 19, 1986, gage height, 27.96 ft, present datum; minimum, 86 ft³/s, Apr. 7, 1955.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,610 ft³/s, July 21, gage height, 7.79 ft; minimum daily, 966 ft³/s, Dec. 31.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3060	1290	998	994	1030	1030	1530	1030	1020	1030	3270	1020
2	3010	1250	1020	984	1030	1030	1530	1030	1030	1520	3280	1030
3	2920	1240	983	1020	1040	1030	1530	1040	1030	1980	3270	1020
4	2910	1240	1010	995	1040	1020	1530	1400	1030	1980	2780	1020
5	2990	1230	998	1030	1030	1020	1530	1820	1020	1980	2230	1030
6	3010	1230	1020	993	1030	1030	1040	3290	1020	1900	2180	1030
7	3000	1260	977	1020	1030	1020	1040	3550	1020	1500	2180	1030
8	2970	1260	1020	1020	1030	1020	1020	3270	1030	1520	2160	1030
9	2960	1270	1010	1020	1030	1030	1020	2440	1030	1990	1480	1030
10	2980	1270	1020	1020	1040	1030	1020	1160	1030	1990	1030	1030
11	3000	1280	1030	1020	1030	1030	1020	1010	1020	2030	1010	1030
12	2960	1280	1020	1020	1030	1020	1020	1010	1020	2920	1010	1030
13	2960	1310	1040	1020	1040	1030	1020	1010	1020	2960	1010	1030
14	1960	1320	1040	1020	1030	1020	1020	1010	1020	3510	1000	1030
15	1550	1320	1060	1020	1040	1030	1020	1000	1140	3520	1010	1030
16	2470	1320	1100	1020	1030	1030	1020	1000	2100	3510	1000	1030
17	2450	1010	976	1030	1010	1030	1020	1020	3110	3550	1000	1030
18	2410	1000	1000	1030	1020	1020	1020	1020	4040	3520	1010	1040
19	2430	1010	1000	1030	1020	1020	1030	1020	3030	3480	1010	1040
20	2450	1050	1020	1030	1010	1000	1030	1020	2290	4020	1010	1030
21	2020	1050	1050	1030	1020	1000	1030	1020	1400	4480	1010	1030
22	1990	1060	1030	1040	1020	1020	1010	1020	1020	4550	1010	1030
23	1570	1070	1030	1030	1020	1020	1020	1030	1790	3290	1030	1030
24	1290	1060	1060	1030	1020	1020	1020	1030	2980	3220	1040	1030
25	1250	1020	1030	1030	1030	1020	1030	1020	2980	3260	1050	1550
26	1250	1060	1010	1030	1030	1020	1030	1020	2700	3270	1030	1550
27	1290	1040	1060	1030	1030	1030	1030	1030	1390	3260	1010	1560
28	1290	1030	1040	1030	1020	1030	1030	1030	1020	3260	1000	1560
29	1280	1030	1050	1030	1030	1020	1050	1030	1020	2770	1010	1560
30	1290	1040	1020	1030	---	1510	1030	1030	1010	2760	1030	1290
31	1280	---	966	1030	---	1530	---	1030	---	3280	1020	---
TOTAL	70250	34900	31688	31676	29810	32710	33290	41440	47360	87810	45170	33780
MEAN	2266	1163	1022	1022	1028	1055	1110	1337	1579	2833	1457	1126
MAX	3060	1320	1100	1040	1040	1530	1530	3550	4040	4550	3280	1560
MIN	1250	1000	966	984	1010	1000	1010	1000	1010	1030	1000	1020
AC-FT	139300	69220	62850	62830	59130	64880	66030	82200	93940	174200	89590	67000

CAL YR 1987 TOTAL 556409 MEAN 1524 MAX 3500 MIN 966 AC-FT 1104000

WTR YR 1988 TOTAL 519884 MEAN 1420 MAX 4550 MIN 966 AC-FT 1031000

SACRAMENTO RIVER BASIN

11447650 SACRAMENTO RIVER AT FREEPORT, CA
(National stream-quality accounting network station)

LOCATION.--Lat 38°27'15", long 121°29'54", in SW 1/4 SW 1/4 sec.13, T.7 N., R.4 E., Sacramento County, Hydrologic Unit 18020109, on left bank 630 ft downstream from drawbridge at Freeport and 11 mi south of Sacramento.

DRAINAGE AREA.--Indeterminate.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1904 to July 1905 (gage heights only), June to November 1921, October 1948 to current year. Prior to October 1979, published as Sacramento River at Sacramento (station 11447500). Gage heights collected in the vicinity of "at Sacramento" gage November 1879 to May 1888 and December 1890 to September 1963 are contained in reports of National Weather Service.

GAGE.--Water-stage recorder and acoustic velocity system. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Nov. 16, 1956, nonrecording gage and water-stage recorder at various sites in vicinity of I Street Bridge in Sacramento 13 mi upstream at datum of low-water mark of Oct. 23, 1856, 0.12 ft NGVD. Nov. 17, 1956, to Sept. 30, 1979, at site 1,000 ft upstream from I Street Bridge.

REMARKS.--Estimated daily discharges: Dec. 25-27, Mar. 2, 8, 9, 26, 27, Apr. 4, 28, May 26, June 4, July 5, and Sept. 24. Records good. Natural flow of stream affected by storage reservoirs, power development, diversions for irrigation, return flow from irrigated areas, and tide. Flood flows bypass station through Yolo Bypass (stations 11426000 and 11453000). Flows are considered equivalent to those at I Street Bridge.

AVERAGE DISCHARGE.--40 years (water years 1949-88), 24,000 ft³/s, 17,388,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD (since 1949).--Maximum discharge, 117,000 ft³/s, Feb. 19, 1986, elevation, 25.00 ft; minimum daily, 3,970 ft³/s, Oct. 15, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge known prior to Nov. 21, 1950, 103,000 ft³/s, Jan. 17, 1909, elevation, 29.6 ft, site then in use at present datum, from reports of California Department of Water Resources.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 38,600 ft³/s, Jan. 7, elevation, 7.07 ft; minimum daily, 7,060 ft³/s, Oct. 27. At I Street Bridge, maximum elevation 10.48 ft, Jan. 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11700	7580	9110	16400	19300	10100	14900	9480	10700	12100	15500	11200
2	12500	8070	8950	14600	19000	10900	14800	8550	10300	12500	15400	11400
3	12200	7540	10600	13600	17700	11100	15000	7670	10000	12600	15700	12200
4	11700	7470	15400	14600	16400	11100	15800	7970	9890	13400	15600	12400
5	11500	7540	18800	26800	15400	10900	16800	9670	9600	13800	14800	12300
6	12000	7910	16700	36000	14300	10600	16900	11600	9800	14200	14800	12300
7	10900	7430	16900	37200	13800	10600	16600	12100	9840	13500	14900	12700
8	11100	7280	18300	36700	13200	10400	16900	12900	10200	13200	15000	12100
9	10800	7440	21800	34700	13000	10300	16900	13600	10300	13400	14700	11500
10	11300	7370	21900	33600	12700	10200	17100	15400	11000	13300	13600	12600
11	10700	7490	23600	34200	12000	9770	17600	15800	10500	13200	12900	12300
12	10600	7550	27500	34800	11700	9390	17900	15600	9860	14000	13100	11100
13	10500	7670	26400	33600	11700	9070	18100	15400	9080	14300	12500	12000
14	10100	8670	21900	30900	11800	8980	18200	14100	8000	14600	12900	11600
15	8800	8240	18400	27900	11500	9300	17900	12400	7110	15300	13600	11500
16	9490	8030	16200	26300	11600	9790	18000	11500	8060	15400	14000	11500
17	9100	8480	14800	29600	11000	9970	17700	10700	10500	15400	14300	11600
18	8290	8740	15000	33900	11400	9590	17700	10600	12600	15100	14200	11200
19	8040	8640	15300	33100	10400	9540	18200	11500	12300	15000	13600	10700
20	8170	8330	14900	29600	9850	10200	20000	11800	11700	15300	13300	11700
21	8420	9010	13400	26200	9710	11600	21100	10800	11400	15500	12500	11200
22	7760	8790	12600	23700	9610	13200	20600	10100	11100	16000	12600	11500
23	7560	8850	11900	21500	9680	14000	19200	9320	12000	15800	11600	10900
24	7360	8660	11700	19900	9590	13700	17200	8560	13000	15800	12400	10400
25	7430	8940	11600	18400	9470	13200	17200	8800	13400	16100	12100	11300
26	7360	8280	11500	17300	9060	12600	16500	8390	13000	15800	11700	11200
27	7060	8160	11500	16900	9150	13000	14700	8580	11000	16700	10900	10800
28	7500	8330	11400	16500	9540	14200	13700	8350	9710	16400	11500	11000
29	7960	8750	11400	16200	9890	14400	12300	8770	10200	16800	10900	11300
30	8940	8640	12300	16100	---	15100	11100	9680	11200	14600	10500	10600
31	7940	---	16300	16600	---	15000	---	10500	---	14800	10800	---
TOTAL	294780	243880	488060	787400	353450	351800	506600	340190	317350	453900	411900	346100
MEAN	9509	8129	15740	25400	12190	11350	16890	10970	10580	14640	13290	11540
MAX	12500	9010	27500	37200	19300	15100	21100	15800	13400	16800	15700	12700
MIN	7060	7280	8950	13600	9060	8980	11100	7670	7110	12100	10500	10400
AC-FT	584700	483700	968100	1562000	701100	697800	1005000	674800	629500	900300	817000	686500

CAL YR 1987 TOTAL 4823660 MEAN 13220 MAX 38000 MIN 7060 AC-FT 9568000
WTR YR 1988 TOTAL 4895410 MEAN 13380 MAX 37200 MIN 7060 AC-FT 9710000

SACRAMENTO RIVER BASIN

11447650 SACRAMENTO RIVER AT FREEPORT, CA--Continued

WATER-QUALITY RECORDS

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

CHEMICAL DATA: Water year 1959 to current year.

BIOLOGICAL DATA: Water years 1974-81.

WATER TEMPERATURE: Water year 1960 to current year.

SEDIMENT DATA: Water year 1957 to current year (prior to water year 1980, published as 11447500 Sacramento River at Sacramento).

PERIOD OF DAILY RECORD.--

CHEMICAL DATA: June 1960 to June 1963.

SPECIFIC CONDUCTANCE: June 1960 to June 1963, February 1974 to July 1975.

WATER TEMPERATURE: June 1960 to current year.

SUSPENDED-SEDIMENT DISCHARGE: October 1956 to current year.

INSTRUMENTATION.--Temperature recorder since June 1960.

REMARKS.--Temperature recorder located on right bank 1.9 mi northwest of Freeport and 7.4 mi southwest of State Capitol Building in Sacramento. Records of sediment discharge from 1957 to 1979 were obtained at Sacramento and are considered equivalent. Period of missing temperature record due to recorder malfunction. Additional monthly chemical and trace element data are available in files of the U.S. Geological Survey.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum recorded, 27.0 °C, Sept. 8, 1977; minimum recorded, 4.5 °C, Dec. 12-15, 1972.

SEDIMENT CONCENTRATION: Maximum daily mean, 1,960 mg/L, Dec. 24, 1964; minimum daily mean, 4 mg/L, Mar. 16, 1988.

SEDIMENT LOAD: Maximum daily, 525,000 tons, Dec. 24, 1964; minimum daily, 106 tons, Mar. 16, 1988.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 25.0 °C, Sept. 5, 6; minimum recorded, 6.0 °C, Dec. 28, Jan. 1.

SEDIMENT CONCENTRATION: Maximum daily mean, 504 mg/L, Dec. 13; minimum daily mean, 4 mg/L, Mar. 16.

SEDIMENT LOAD: Maximum daily, 42,400 tons, Jan. 6, 7; minimum daily, 106 tons, Mar. 16.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
DEC									
09...	1045	19800	156	17.5	11.0	50	770	10.4	93
MAR									
08...	1230	E10100	203	7.7	14.5	7.5	770	10.9	106
JUN									
07...	1030	5120	214	7.8	18.0	8.0	765	8.6	91
SEP									
13...	1130	13900	225	7.4	20.0	11	765	8.0	88
		COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS NONCARB WH WAT TOT FLD AS CACO3	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO
DEC									
09...	290	440	62	3	13	7.2	9.4	24	0.5
MAR									
08...	--	--	72	0	15	8.4	13	28	0.7
JUN									
07...	K42	K49	72	0	15	8.3	14	29	0.7
SEP									
13...	K41	110	85	0	16	11	16	29	0.8

See footnotes at end of table

SACRAMENTO RIVER BASIN

11447650 SACRAMENTO RIVER AT FREEPORT, CA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER IT-FLD (MG/L)	ALKA- LILITY, CARBON- ATE IT-FLD (MG/L CACO3)	ALKA- LILITY WH WAT TOTAL FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)
DEC 09...	1.6	71	58	59	12	11	0.30	21	112
MAR 08...	1.4	89	73	72	14	9.8	0.10	20	123
JUN 07...	1.4	93	76	76	13	8.6	0.30	21	128
SEP 13...	1.3	108	89	89	12	8.8	0.10	20	129

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)
DEC 09...	113	0.15	<0.010	0.350	0.040	0.030	0.50	0.150
MAR 08...	126	0.17	<0.010	0.150	0.030	<0.010	0.30	0.050
JUN 07...	128	0.17	<0.010	0.150	0.040	0.020	0.50	0.050
SEP 13...	139	0.18	<0.010	<0.100	<0.010	<0.010	0.50	0.050

DATE	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	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)
DEC 09...	0.040	0.030	40	2	25	<0.5	<1	<1
MAR 08...	0.030	0.020	<10	2	27	<0.5	4	<1
JUN 07...	0.050	0.010	30	2	43	<0.5	<1	<1
SEP 13...	0.050	0.040	<10	2	31	<0.5	<1	<1

DATE	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)	MERCURY DIS- SOLVED (UG/L AS HG)
DEC 09...	<3	3	79	<5	<4	13	<0.1
MAR 08...	<3	6	22	<5	<4	7	<0.1
JUN 07...	<3	4	29	<5	4	5	<0.1
SEP 13...	<3	5	22	<5	<4	2	<0.1

See footnote at end of table

SACRAMENTO RIVER BASIN

11447650 SACRAMENTO RIVER AT FREEPORT, CA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	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)
DEC 09...	<10	1	<1	<1	98	<6	4
MAR 08...	<10	<1	<1	<1	120	<6	5
JUN 07...	<10	2	<1	<1	110	<6	5
SEP 13...	<10	1	<1	<1	130	<6	<3

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 SR/ YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	RADIUM 226, DIS- SOLVED RADON METHOD (PCI/L)	URANIUM DIS- SOLVED EXTRAC- TION (UG/L)
DEC 09...	--	--	--	--	--	--	--	--
MAR 08...	<0.4	<0.4	2.2	<0.4	1.7	<0.4	0.03	0.29
JUN 07...	--	--	--	--	--	--	--	--
SEP 13...	0.4	0.4	1.7	<0.4	1.3	<0.4	--	--

1 Laboratory value.

E Estimated value.

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

< Actual value is known to be less than the value shown.

CROSS-SECTIONAL DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	SEDI- MENT, SUS- PENDE (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
MAR										
08...*	1300	180	193	7.9	14.5	770	10.9	105	23	89
08...*	1310	290	193	7.9	14.5	770	10.8	104	20	96
08...*	1320	368	193	7.8	14.5	770	10.8	104	20	95
08...*	1330	460	193	7.9	14.5	770	10.9	105	23	97
08...*	1340	525	196	7.9	14.5	770	10.9	105	21	95
JUN										
07...*	1110	180	213	7.8	18.0	765	8.6	90	18	68
07...*	1120	290	214	7.8	18.0	765	8.5	89	14	78
07...*	1130	368	214	7.8	18.0	765	8.6	90	14	74
07...*	1145	460	213	7.8	18.0	765	8.5	89	16	95
07...*	1150	525	214	7.8	18.0	765	8.6	90	17	92

* Instantaneous streamflow at the time of cross-sectional measurement: Mar. 8, 10, 100 ft³/s (estimated); June 7, 5, 120 ft³/s.

SACRAMENTO RIVER BASIN

11447650 SACRAMENTO RIVER AT FREEPORT, CA--Continued

WATER TEMPERATURE, DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---	---	---	10.0	---	6.5	6.0	10.0	10.0	14.5	14.0
2	---	---	---	---	10.5	---	6.0	---	10.0	9.5	14.0	13.5
3	---	---	17.0	16.5	11.5	---	6.5	---	9.5	9.0	14.0	14.0
4	---	---	16.5	15.5	11.5	---	6.5	---	9.0	9.0	14.0	14.0
5	---	---	16.0	16.0	12.0	---	7.0	6.5	9.0	9.0	14.0	13.5
6	---	---	16.0	15.5	12.0	---	7.0	---	9.0	9.0	14.0	14.0
7	---	---	15.5	15.5	12.0	---	7.0	---	9.5	9.0	14.0	13.5
8	---	---	15.5	15.0	12.0	---	8.0	---	9.5	9.0	14.5	14.0
9	---	---	15.5	15.0	11.5	---	8.5	8.0	10.0	9.5	14.5	14.5
10	---	---	15.5	15.5	11.5	---	8.5	---	11.0	10.0	14.0	13.5
11	---	---	15.0	15.0	11.0	---	9.0	---	11.5	11.0	13.5	13.0
12	---	---	15.0	15.0	10.5	---	9.0	---	12.0	11.5	13.0	12.5
13	---	---	15.0	15.0	10.0	---	9.0	9.0	12.0	12.0	13.0	12.5
14	---	---	15.0	14.5	8.5	---	9.0	---	12.0	12.0	13.5	12.5
15	---	---	14.5	---	8.0	---	9.0	---	12.5	12.0	13.5	13.0
16	---	---	13.5	---	7.0	7.0	9.0	---	12.0	11.5	13.5	13.0
17	---	---	13.5	---	7.0	---	9.5	9.0	11.5	11.0	14.0	13.5
18	---	---	14.0	13.0	7.0	---	9.5	---	11.0	11.0	14.5	14.0
19	---	---	13.0	---	7.5	---	8.5	---	11.0	11.0	15.0	14.5
20	---	---	---	---	8.0	7.5	8.0	---	11.0	11.0	15.5	15.0
21	---	---	13.0	---	8.0	---	8.0	8.0	11.5	11.0	15.5	15.5
22	---	---	12.5	12.0	8.5	---	8.5	---	12.0	11.5	16.0	15.5
23	---	---	12.5	---	8.5	---	8.5	8.5	12.0	11.5	16.0	16.0
24	---	---	12.0	---	8.0	7.5	9.0	8.5	12.5	12.0	16.0	15.5
25	---	---	11.5	---	7.5	7.0	9.5	9.0	13.0	12.5	16.0	15.5
26	---	---	11.5	11.0	7.0	---	9.5	9.5	13.5	13.0	16.0	15.5
27	---	---	11.0	10.0	6.5	---	10.0	9.5	14.0	13.5	16.0	15.5
28	---	---	10.5	---	6.5	6.0	10.0	10.0	14.5	14.0	15.5	14.0
29	---	---	10.5	10.0	6.5	---	10.0	10.0	14.5	14.0	14.0	14.0
30	---	---	10.0	10.0	6.5	---	10.5	10.0	---	---	14.0	13.5
31	---	---	---	---	6.5	---	10.5	10.0	---	---	13.5	13.0
MONTH	---	---	---	---	12.0	---	10.5	---	14.5	9.0	16.0	12.5
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	14.0	13.5	17.0	16.5	19.5	19.0	22.5	22.5	24.0	23.5	24.5	24.0
2	14.0	14.0	17.0	16.5	19.5	19.0	22.5	22.5	23.5	20.0	24.5	24.0
3	14.5	14.5	18.0	17.0	20.0	19.5	22.5	22.5	23.0	22.0	24.5	24.0
4	14.5	14.5	18.0	17.5	20.0	19.5	22.5	22.0	23.0	22.5	24.5	24.5
5	15.0	14.5	17.5	17.5	19.5	19.0	22.0	21.5	23.0	22.0	25.0	24.5
6	15.5	15.0	17.5	16.0	19.0	18.5	22.0	21.5	22.5	22.0	25.0	24.5
7	16.0	15.5	16.0	15.0	18.5	18.0	22.5	22.0	22.5	21.5	24.5	24.0
8	16.0	15.5	15.5	15.0	18.0	17.5	22.5	22.5	22.5	22.0	24.0	23.0
9	16.0	15.0	16.0	15.5	18.5	18.0	23.0	22.5	22.5	22.0	23.0	22.0
10	16.0	15.5	17.0	16.0	18.5	18.0	23.5	23.0	22.5	22.0	22.0	21.5
11	16.0	15.5	17.5	17.0	19.5	18.5	23.5	23.0	22.0	22.0	21.5	21.0
12	16.5	16.0	18.0	17.5	20.0	19.0	23.0	22.5	22.0	21.5	21.0	20.0
13	16.5	16.0	18.5	18.0	21.0	20.0	23.0	22.5	21.5	21.0	20.0	20.0
14	16.0	15.5	19.0	18.5	22.0	21.0	23.0	22.5	21.0	21.0	20.0	20.0
15	15.5	15.0	19.5	19.0	22.5	22.0	23.0	22.5	21.0	21.0	20.0	20.0
16	15.0	14.5	19.5	19.0	22.5	22.0	23.5	22.5	21.5	21.0	20.0	20.0
17	14.5	14.5	19.0	18.5	22.5	22.0	24.0	23.0	22.0	21.5	20.0	20.0
18	14.5	14.5	19.5	19.0	22.5	21.5	24.5	23.5	22.5	22.0	20.0	19.5
19	14.5	14.5	20.0	19.5	23.0	22.0	24.5	---	23.0	22.0	19.5	19.0
20	14.5	14.5	20.5	20.0	23.0	22.0	24.0	23.5	23.0	22.0	19.0	18.5
21	14.5	14.0	21.5	20.5	22.5	22.0	24.0	23.5	22.5	22.0	18.5	18.5
22	14.0	14.0	21.5	21.5	23.5	22.5	24.0	23.5	22.5	22.5	18.5	18.5
23	14.5	14.0	22.0	21.5	24.0	23.0	23.5	23.5	23.0	22.5	18.5	18.5
24	15.0	14.5	22.5	21.5	24.0	23.0	24.0	23.0	23.0	22.5	19.0	18.5
25	15.5	15.0	22.0	21.0	23.0	22.5	24.0	23.0	23.5	23.0	19.0	18.5
26	16.5	15.5	21.5	21.0	22.5	22.5	23.5	22.5	24.0	23.5	18.5	18.5
27	17.5	16.5	21.5	21.0	23.5	22.5	24.0	23.0	24.5	24.0	19.0	18.5
28	17.5	17.0	21.0	20.5	24.0	23.0	24.0	23.5	24.5	24.0	19.5	19.0
29	17.5	17.5	20.5	19.5	23.5	23.0	24.5	23.5	24.5	24.0	19.5	19.0
30	17.5	17.0	20.0	19.5	23.0	22.5	24.5	24.0	24.5	24.0	20.5	19.5
31	---	---	20.0	19.0	---	---	24.5	24.0	24.5	24.0	---	---
MONTH	17.5	13.5	22.5	15.0	24.0	17.5	24.5	---	24.5	20.0	25.0	18.5

SACRAMENTO RIVER BASIN

11447650 SACRAMENTO RIVER AT FREEPORT, CA--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	11700	12	379	7580	13	266	9110	10	246
2	12500	15	506	8070	12	261	8950	12	290
3	12200	13	428	7540	11	224	10600	14	401
4	11700	12	379	7470	10	202	15400	16	665
5	11500	10	310	7540	9	183	18800	30	1520
6	12000	9	292	7910	8	171	16700	98	4420
7	10900	21	618	7430	10	201	16900	130	5930
8	11100	18	539	7280	9	177	18300	150	7410
9	10800	17	496	7440	8	161	21800	157	9240
10	11300	17	519	7370	6	119	21900	160	9460
11	10700	16	462	7490	10	202	23600	150	9560
12	10600	16	458	7550	11	224	27500	89	6570
13	10500	15	425	7670	12	249	26400	504	35800
14	10100	15	409	8670	13	304	21900	312	18700
15	8800	10	238	8240	14	311	18400	120	5960
16	9490	11	282	8030	12	260	16200	66	2890
17	9100	12	295	8480	12	275	14800	38	1520
18	8290	13	291	8740	11	260	15000	40	1620
19	8040	14	304	8640	10	233	15300	48	1980
20	8170	15	331	8330	10	225	14900	54	2170
21	8420	16	364	9010	6	146	13400	34	1230
22	7760	15	314	8790	10	237	12600	22	748
23	7560	19	388	8850	14	335	11900	34	1090
24	7360	14	278	8660	12	281	11700	32	1010
25	7430	11	221	8940	10	241	11600	32	1000
26	7360	12	238	8280	10	224	11500	20	621
27	7060	13	248	8160	9	198	11500	14	435
28	7500	14	283	8330	8	180	11400	18	554
29	7960	13	279	8750	7	165	11400	21	646
30	8940	12	290	8640	6	140	12300	30	996
31	7940	14	300	---	---	---	16300	32	1410
TOTAL	294780	---	11164	243880	---	6655	488060	---	136092
JANUARY			FEBRUARY			MARCH			
1	16400	32	1420	19300	80	4170	10100	12	327
2	14600	30	1180	19000	76	3900	10900	16	471
3	13600	28	1030	17700	54	2580	11100	17	509
4	14600	42	1660	16400	50	2210	11100	18	539
5	26800	136	9840	15400	40	1660	10900	19	559
6	36000	438	42400	14300	37	1430	10600	20	572
7	37200	337	33800	13800	32	1190	10600	22	630
8	36700	264	26200	13200	36	1280	10400	20	562
9	34700	240	22500	13000	34	1190	10300	26	723
10	33600	220	20000	12700	31	1060	10200	20	551
11	34200	176	16300	12000	24	778	9770	19	501
12	34800	146	13700	11700	18	569	9390	14	355
13	33600	128	11600	11700	16	505	9070	8	196
14	30900	94	7840	11800	14	446	8980	6	145
15	27900	78	5880	11500	12	373	9300	9	226
16	26300	80	5680	11600	10	313	9790	4	106
17	29600	140	11200	11000	12	356	9970	12	323
18	33900	152	13900	11400	21	646	9590	27	699
19	33100	135	12100	10400	19	534	9540	30	773
20	29600	112	8950	9850	16	426	10200	28	771
21	26200	92	6510	9710	18	472	11600	24	752
22	23700	122	7810	9610	21	545	13200	20	713
23	21500	90	5220	9680	17	444	14000	18	680
24	19900	80	4300	9590	17	440	13700	31	1150
25	18400	66	3280	9470	12	307	13200	44	1570
26	17300	55	2570	9060	10	245	12600	40	1360
27	16900	40	1830	9150	8	198	13000	33	1160
28	16500	42	1870	9540	6	155	14200	28	1070
29	16200	28	1220	9890	8	214	14400	25	972
30	16100	29	1260	---	---	---	15100	27	1100
31	16600	56	2510	---	---	---	15000	30	1210
TOTAL	787400	---	305560	353450	---	28636	351800	---	21275

SACRAMENTO RIVER BASIN

11447650 SACRAMENTO RIVER AT FREEPORT, CA--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	14900	26	1050	9480	24	614	10700	12	347
2	14800	24	959	8550	27	623	10300	18	501
3	15000	20	810	7670	30	621	10000	23	621
4	15800	30	1280	7970	26	559	9890	22	587
5	16800	46	2090	9670	22	574	9600	22	570
6	16900	46	2100	11600	26	814	9800	24	635
7	16600	38	1700	12100	24	784	9840	27	717
8	16900	36	1640	12900	20	697	10200	24	661
9	16900	34	1550	13600	22	808	10300	19	528
10	17100	32	1480	15400	30	1250	11000	22	653
11	17600	38	1810	15800	43	1830	10500	22	624
12	17900	36	1740	15600	54	2270	9860	22	586
13	18100	30	1470	15400	42	1750	9080	20	490
14	18200	28	1380	14100	30	1140	8000	18	389
15	17900	28	1350	12400	20	670	7110	14	269
16	18000	25	1210	11500	16	497	8060	12	261
17	17700	30	1430	10700	28	809	10500	24	680
18	17700	40	1910	10600	23	658	12600	30	1020
19	18200	46	2260	11500	26	807	12300	26	863
20	20000	80	4320	11800	28	892	11700	24	758
21	21100	66	3760	10800	30	875	11400	20	616
22	20600	60	3340	10100	20	545	11100	18	539
23	19200	58	3010	9320	12	302	12000	16	518
24	17200	52	2410	8560	10	231	13000	23	807
25	17200	40	1860	8800	8	190	13400	24	868
26	16500	36	1600	8390	12	272	13000	20	702
27	14700	32	1270	8580	16	371	11000	30	891
28	13700	13	481	8350	10	225	9710	10	262
29	12300	18	598	8770	8	189	10200	14	386
30	11100	20	599	9680	8	209	11200	12	363
31	---	---	---	10500	10	283	---	---	---
TOTAL	506600	---	52467	340190	---	22359	317350	---	17712
JULY			AUGUST			SEPTEMBER			
1	12100	10	327	15500	26	1090	11200	10	302
2	12500	12	405	15400	30	1250	11400	12	369
3	12600	20	680	15700	36	1530	12200	11	362
4	13400	30	1090	15600	34	1430	12400	10	335
5	13800	43	1600	14800	28	1120	12300	10	332
6	14200	26	997	14800	32	1280	12300	12	399
7	13500	20	729	14900	30	1210	12700	14	480
8	13200	24	855	15000	34	1380	12100	11	359
9	13400	34	1230	14700	16	635	11500	10	310
10	13300	30	1080	13600	18	661	12600	12	408
11	13200	28	998	12900	14	488	12300	14	465
12	14000	34	1290	13100	16	566	11100	16	480
13	14300	19	734	12500	18	607	12000	17	551
14	14600	20	788	12900	12	418	11600	19	595
15	15300	24	991	13600	14	514	11500	22	683
16	15400	26	1080	14000	12	454	11500	24	745
17	15400	44	1830	14300	12	463	11600	26	814
18	15100	40	1630	14200	14	537	11200	32	968
19	15000	30	1210	13600	13	477	10700	24	693
20	15300	24	991	13300	14	503	11700	22	695
21	15500	30	1260	12500	16	540	11200	20	605
22	16000	32	1380	12600	17	578	11500	18	559
23	15800	34	1450	11600	18	564	10900	14	412
24	15800	40	1710	12400	20	670	10400	16	449
25	16100	37	1610	12100	22	719	11300	18	549
26	15800	16	683	11700	23	727	11200	14	423
27	16700	14	631	10900	24	706	10800	16	467
28	16400	15	664	11500	26	807	11000	12	356
29	16800	18	816	10900	13	383	11300	11	336
30	14600	18	710	10500	11	312	10600	10	286
31	14800	23	919	10800	10	292	---	---	---
TOTAL	453900	---	32368	411900	---	22911	346100	---	14787
YEAR	4895410		671986						

SACRAMENTO RIVER BASIN

11447650 SACRAMENTO RIVER AT FREEPORT, CA--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE WATER (DEG C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT						
14...	1045	8490	17.0	25	573	86
NOV						
24...	1100	8430	12.0	10	228	92
DEC						
09...	1045	19800	11.0	100	5350	96
JAN						
13...	1045	31900	9.0	124	10700	82
MAR						
08...	1320	E10100	14.5	20	545	95
JUN						
07...	1115	5120	18.0	16	274	85
JUL						
06...	1045	12400	21.5	26	870	96
SEP						
13...	1010	13900	20.0	24	901	96

E Estimated value.

SACRAMENTO RIVER BASIN

11449500 KELSEY CREEK NEAR KELSEYVILLE, CA

LOCATION.--Lat 38°55'39", long 122°50'33", in SE 1/4 SE 1/4 sec.34, T.13 N., R.9 W., Lake County, Hydrologic Unit 18020116, on left bank 1.6 mi downstream from Widow Creek and 3.5 mi south of Kelseyville.

DRAINAGE AREA.--36.6 mi².

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

REVISED RECORDS.--WSP 1285: 1947-48(M), 1950-52(P). WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,475.44 ft above National Geodetic Vertical Datum of 1929. Prior to July 16, 1955, at site 600 ft upstream at different datum.

REMARKS.--Estimated daily discharges: Oct. 1-10, July 11 to Sept. 30. Records good except for estimated daily discharges, which are fair. Some minor diversions above station.

AVERAGE DISCHARGE.--42 years, 74.9 ft³/s, 54,260 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,200 ft³/s, Jan. 26, 1983, gage height, 13.31 ft; maximum gage height, 13.48 ft, Jan. 5, 1965; minimum daily, 0.18 ft³/s, Aug. 15-23, 25, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,400 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 6	0945	*2,660	*9.41				

Minimum daily, 0.72 ft³/s, Sept. 6, 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	4.6	208	56	85	27	12	12	8.4	2.8	1.1	.77
2	1.4	4.6	360	53	77	25	12	12	8.3	2.7	1.1	.77
3	1.3	4.6	221	668	70	23	12	11	8.0	2.6	1.1	.77
4	1.3	4.6	249	812	64	22	12	11	8.1	2.6	1.1	.75
5	1.3	4.5	133	322	59	22	12	11	8.5	2.5	1.1	.73
6	1.3	4.4	902	196	55	21	12	12	8.3	2.4	1.1	.72
7	1.3	4.5	285	165	52	20	11	19	9.5	2.3	1.1	.72
8	1.2	4.9	372	149	49	20	11	25	10	2.2	1.0	.73
9	1.2	5.7	295	141	46	19	11	17	9.1	2.1	1.0	.75
10	1.7	5.5	263	147	43	19	11	14	8.6	2.0	1.1	.78
11	2.0	5.1	150	212	41	18	11	13	7.9	2.0	1.1	.77
12	2.2	4.9	95	144	39	18	10	12	7.4	1.9	1.1	.83
13	2.3	9.5	67	120	37	17	10	13	6.9	1.9	1.1	.94
14	2.3	9.7	52	106	35	17	11	11	6.4	1.7	1.1	1.0
15	2.2	6.5	50	224	34	17	11	11	6.1	1.7	1.1	1.1
16	2.1	6.0	103	425	32	16	11	11	5.8	1.7	1.1	1.1
17	2.2	13	106	334	31	16	11	12	5.8	1.6	1.1	1.1
18	2.3	14	86	245	30	16	10	11	5.5	1.5	1.1	1.2
19	2.3	8.1	74	191	28	15	44	10	5.1	1.4	1.1	1.2
20	2.4	16	60	151	27	15	45	9.5	4.8	1.3	1.1	1.3
21	2.6	22	59	127	27	14	23	9.0	4.5	1.3	1.0	1.4
22	2.9	11	68	113	26	14	19	8.7	4.3	1.2	1.0	1.5
23	4.9	8.6	54	98	25	14	24	8.6	4.0	1.2	.98	1.5
24	5.2	7.7	45	86	25	14	18	8.4	3.7	1.2	.93	1.6
25	4.4	7.3	39	77	24	14	16	8.1	3.5	1.1	.88	1.6
26	3.8	7.0	35	71	24	13	15	8.1	3.4	1.1	.83	1.7
27	3.8	6.9	34	65	23	13	14	8.2	3.3	1.1	.81	1.9
28	6.5	6.9	121	61	33	13	13	8.4	3.2	1.1	.80	1.9
29	6.0	6.8	128	152	28	13	14	9.1	3.0	1.1	.79	1.9
30	4.9	35	90	138	---	13	13	8.7	2.9	1.1	.78	1.8
31	4.6	---	67	97	---	12	---	8.4	---	1.1	.78	---
TOTAL	85.4	259.9	4871	5946	1169	530	459	351.2	184.3	53.5	31.38	34.83
MEAN	2.75	8.66	157	192	40.3	17.1	15.3	11.3	6.14	1.73	1.01	1.16
MAX	6.5	35	902	812	85	27	45	25	10	2.8	1.1	1.9
MIN	1.2	4.4	34	53	23	12	10	8.1	2.9	1.1	.78	.72
AC-FT	169	516	9660	11790	2320	1050	910	697	366	106	62	69

CAL YR 1987 TOTAL 14292.43 MEAN 39.2 MAX 1210 MIN .83 AC-FT 28350
WTR YR 1988 TOTAL 13975.51 MEAN 38.2 MAX 902 MIN .72 AC-FT 27720

SACRAMENTO RIVER BASIN

11450000 CLEAR LAKE AT LAKEPORT, CA

LOCATION.--Lat 39°02'21", long 122°54'44", in NE 1/4 NE 1/4 sec.25, T.14 N., R.10 W., Lake County, Hydrologic Unit 18020116, in concrete block building at 410 Esplanada Street in Lakeport.

DRAINAGE AREA.--528 mi².

PERIOD OF RECORD.--1874-1900 (incomplete), January 1913 to April 1982, October 1984, to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,318.26 ft above National Geodetic Vertical Datum of 1929 (California State Land Commission bench mark). Prior to July 8, 1947, nonrecording gage, and July 8, 1947, to Mar. 17, 1949, at municipal wharf at foot of Third Street in Lakeport at datum 0.33 ft higher. Mar. 18, 1949, to Sept. 30, 1967, at private pier at foot of Fourth Street at datum 0.33 ft higher. Gage relocated at same datum, Apr. 20, 1982, and published "at Clearlake" for 1982-84.

REMARKS.--This natural lake is regulated by gates on a dam at outlet, completed in 1915. Capacity between gage heights 0.00 and 7.56 ft, limits stipulated by court decree of 1920, about 319,000 acre-ft. Water is released down natural channel of Cache Creek from which it is diverted for irrigation (station 11451000).

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 11.34 ft, Feb. 21, 1986, minimum observed, -3.50 ft, Sept. 24-27, 1920.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 4, 1983, reached a stage of 11.24 ft, present datum, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 6.01 ft, Feb. 28; minimum daily, 0.80 ft, Oct. 21.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.06	.84	1.00	2.57	5.66	5.88	5.83	5.63	4.95	4.13	3.10	2.09
2	1.05	.85	1.07	2.59	5.68	5.91	5.82	5.62	4.92	4.11	3.06	2.05
3	1.03	.85	1.12	2.76	5.69	5.91	5.81	5.60	4.88	4.06	3.04	2.02
4	1.02	.85	1.17	3.32	5.70	5.92	5.80	5.56	4.84	4.02	2.99	2.00
5	1.01	.84	1.24	3.65	5.72	5.91	5.80	5.57	4.80	4.00	2.98	1.97
6	.98	.83	1.36	3.82	5.74	5.91	5.80	5.56	4.79	3.96	2.87	1.94
7	.96	.83	1.56	3.91	5.75	5.92	5.74	5.58	4.79	3.94	2.84	1.92
8	.95	.82	1.69	4.00	5.76	5.91	5.75	5.58	4.78	3.90	2.81	1.88
9	.94	.83	1.84	4.11	5.77	5.88	5.75	5.58	4.76	3.87	2.81	1.85
10	.93	.83	1.94	4.21	5.78	5.90	5.73	5.58	4.73	3.82	2.79	1.82
11	.92	.83	2.04	4.30	5.79	5.90	5.72	5.57	4.71	3.76	2.76	1.79
12	.90	.82	2.10	4.40	5.80	5.89	5.69	5.54	4.69	3.72	2.72	1.74
13	.89	.82	2.10	4.46	5.80	5.89	5.67	5.52	4.68	3.69	2.67	1.69
14	.89	.83	2.11	4.53	5.81	5.89	5.67	5.50	4.67	3.62	2.64	1.66
15	.88	.82	2.13	4.65	5.81	5.89	5.66	5.48	4.64	3.58	2.60	1.63
16	.86	.83	2.22	4.82	5.82	5.88	5.65	5.44	4.61	3.56	2.57	1.60
17	.84	.89	2.26	4.99	5.81	5.88	5.63	5.42	4.59	3.54	2.52	1.58
18	.83	.90	2.28	5.11	5.82	5.89	5.64	5.40	4.57	3.52	2.50	1.57
19	.83	.89	2.30	5.22	5.83	5.89	5.68	5.39	4.55	3.48	2.47	1.50
20	.82	.92	2.31	5.27	5.82	5.88	5.70	5.37	4.53	3.47	2.44	1.51
21	.80	.94	2.33	5.32	5.82	5.88	5.68	5.34	4.50	3.44	2.40	1.48
22	.81	.93	2.30	5.36	5.83	5.87	5.69	5.29	4.48	3.41	2.37	1.46
23	.83	.93	2.34	5.39	5.84	5.85	5.71	5.25	4.44	3.38	2.34	1.45
24	.85	.90	2.34	5.42	5.84	5.86	5.70	5.21	4.41	3.35	2.30	1.42
25	.84	.91	2.35	5.44	5.85	5.87	5.71	5.17	4.37	3.32	2.26	1.41
26	.84	.91	2.35	5.46	5.85	5.86	5.70	5.11	4.33	3.29	2.23	1.38
27	.84	.90	2.34	5.48	5.85	5.85	5.70	5.10	4.29	3.26	2.20	1.37
28	.90	.89	2.42	5.50	5.89	5.86	5.69	5.04	4.21	3.22	2.18	1.37
29	.90	.89	2.51	5.58	5.91	5.84	5.66	4.98	4.20	3.19	2.16	1.36
30	.90	.94	2.54	5.62	---	5.85	5.60	4.97	4.17	3.17	2.14	1.35
31	.89	---	2.56	5.63	---	5.84	---	4.95	---	3.13	2.11	---
MAX	1.06	.94	2.56	5.63	5.91	5.92	5.83	5.63	4.95	4.13	3.10	2.09
MIN	.80	.82	1.00	2.57	5.66	5.84	5.60	4.95	4.17	3.13	2.11	1.35

SACRAMENTO RIVER BASIN

11451000 CACHE CREEK NEAR LOWER LAKE, CA

LOCATION.--Lat 38°55'27", long 122°33'53", in sec.6, T.12 N., R.6 W., Lake County, Hydrologic Unit 18020116, on left bank 500 ft downstream from Clear Lake Dam, 1.9 mi downstream from Copsey Creek, and 2.5 mi northeast of Lower Lake.

DRAINAGE AREA.--528 mi².

PERIOD OF RECORD.--May 1944 to current year.

GAGE.--Water-stage recorder and rain gage. Datum of gage is 1,279.64 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 2, 1987, at datum 1.00 ft higher.

REMARKS.--Estimated daily discharges: Oct. 2. Records good. Flow completely regulated by Clear Lake (station 11450000) 500 ft upstream.

AVERAGE DISCHARGE (unadjusted).--44 years, 376 ft³/s, 272,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,000 ft³/s, Feb. 24, 1958, gage height, 10.40 ft, present datum; no flow Nov. 8-20, 1977, Apr. 5, 6, 1987.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 688 ft³/s, May 20, gage height, 5.53 ft; minimum daily, 0.43 ft³/s, Nov. 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	2.1	.51	1.3	3.1	2.7	1.3	1.4	249	248	185	234
2	9.1	2.1	.54	1.3	3.1	2.7	1.3	1.4	247	247	151	271
3	5.0	2.3	.54	1.7	3.1	2.6	1.3	1.5	246	246	150	232
4	4.0	2.2	.61	1.7	3.1	2.6	1.2	182	247	248	149	225
5	3.9	2.0	.63	1.5	3.1	2.5	24	241	247	248	149	220
6	3.7	1.9	.91	1.5	3.2	2.5	98	222	248	274	150	227
7	13	1.8	.83	1.5	3.2	2.4	152	140	248	331	151	231
8	3.7	1.7	.93	1.5	3.2	2.3	205	51	248	364	208	228
9	3.5	1.7	.94	1.4	3.2	2.2	229	34	248	364	278	229
10	3.6	1.6	.93	1.5	3.2	2.1	241	139	248	337	304	249
11	3.6	1.7	.95	1.5	3.1	2.1	251	239	248	324	323	264
12	3.6	1.7	.99	1.5	3.1	2.0	162	295	248	352	318	247
13	3.5	1.6	.93	1.5	3.1	2.1	131	345	248	390	282	219
14	3.5	1.5	.96	1.5	3.1	2.0	133	337	247	395	265	181
15	3.5	1.4	1.1	1.5	3.1	2.0	37	324	246	352	282	144
16	3.5	1.4	1.2	1.6	3.0	2.0	3.1	326	246	293	294	130
17	3.5	1.4	1.2	1.7	3.0	1.9	2.9	340	246	269	295	74
18	3.4	1.4	1.2	1.7	3.0	1.7	2.6	371	246	266	295	26
19	3.2	1.3	1.2	1.6	3.0	1.7	2.2	403	246	258	292	21
20	3.0	1.3	1.2	1.6	3.0	1.7	2.1	452	246	227	292	21
21	2.8	1.2	1.3	1.6	3.0	1.5	2.0	498	247	218	299	21
22	2.7	1.1	1.2	1.6	2.9	1.4	2.0	592	247	220	304	25
23	2.8	1.1	1.2	8.4	2.9	1.4	1.9	562	247	223	317	28
24	2.8	.73	1.2	3.2	2.9	1.4	1.9	533	246	218	348	29
25	2.9	.46	1.2	3.1	2.9	1.4	1.8	402	247	221	380	30
26	2.8	.44	1.2	3.1	2.9	1.3	1.8	291	248	225	244	30
27	2.9	.43	1.2	3.1	2.8	1.3	1.7	267	248	221	143	30
28	2.7	.46	1.3	3.1	2.8	1.4	1.6	246	249	218	145	30
29	2.2	.46	1.2	3.1	2.8	1.4	1.5	249	249	219	143	27
30	2.1	.50	1.3	3.1	---	1.4	1.5	251	248	220	144	13
31	2.0	---	1.3	3.1	---	1.4	---	250	---	222	147	---
TOTAL	122.5	40.98	31.90	67.1	87.9	59.1	1698.7	8586.3	7419	8458	7407	3936
MEAN	3.95	1.37	1.03	2.16	3.03	1.91	56.6	277	247	273	239	131
MAX	13	2.3	1.3	8.4	3.2	2.7	251	592	249	395	360	271
MIN	2.0	.43	.51	1.3	2.8	1.3	1.2	1.4	246	218	143	13
AC-FT	243	81	63	133	174	117	3370	17030	14720	16780	14690	7810
a	1.19	2.47	7.72	6.29	0.68	0.07	1.72	0.91	0.15	0.00	0.00	0.00

CAL YR 1987 TOTAL 20326.48 MEAN 55.7 MAX 270 MIN .00 AC-FT 40320
WTR YR 1988 TOTAL 37914.48 MEAN 104 MAX 592 MIN .43 AC-FT 75200

a Precipitation, in inches.

SACRAMENTO RIVER BASIN

11451100 NORTH FORK CACHE CREEK AT HOUGH SPRINGS, NEAR CLEARLAKE OAKS, CA

LOCATION.--Lat 39°09'56", long 122°37'08", in SE 1/4 NW 1/4 sec.10, T.15 N., R.7 W., Lake County, Hydrologic Unit 18020116, on right bank 0.5 mi upstream from Spanish Creek, 0.9 mi upstream from Hough Springs, and 10 mi northeast of Clearlake Oaks.

DRAINAGE AREA.--60.2 mi².

PERIOD OF RECORD.--October 1971 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,840 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Jan. 13, 1980, at datum 2.0 ft higher. Recording rain gage 4.7 mi northeast of gage. Elevation of rain gage is 2,050 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--17 years, 103 ft³/s, 74,620 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 ft³/s, Feb. 17, 1986, gage height, 12.84 ft, from rating curve extended above 2,700 ft³/s on basis of slope-area measurement at gage height 11.23 ft; no flow for many days in 1972, 1976-77, and 1987-88.

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)
Jan. 4	0845	*1,290	*6.14				

No flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.21	1.3	137	47	116	37	14	14	11	2.4	.00	.00
2	.21	1.3	299	47	108	35	14	14	10	2.2	.00	.00
3	.21	1.3	148	443	98	33	14	13	9.5	1.9	.00	.00
4	.21	1.3	178	917	90	30	14	13	8.8	1.6	.00	.00
5	.21	1.3	158	368	83	29	14	13	9.3	1.8	.00	.00
6	.22	1.3	405	240	77	29	14	14	9.3	1.6	.00	.00
7	.21	1.3	263	213	74	28	13	37	10	1.6	.00	.00
8	.21	1.4	324	249	69	27	13	45	9.7	1.3	.00	.00
9	.21	2.3	346	385	65	26	13	30	9.8	1.2	.00	.00
10	.25	1.9	363	350	60	25	13	24	9.5	1.0	.00	.00
11	.33	1.9	214	365	57	24	13	21	8.6	.78	.00	.00
12	.43	1.9	134	274	55	23	12	18	8.3	.74	.00	.00
13	.48	4.1	96	226	53	23	12	18	7.6	.82	.00	.00
14	.48	3.3	76	205	51	23	14	17	7.1	.77	.00	.00
15	.48	2.5	65	340	49	23	13	16	6.6	.68	.00	.00
16	.48	2.3	73	385	47	22	13	14	6.0	.63	.00	.00
17	.48	9.2	69	325	44	20	12	15	5.9	.54	.00	.00
18	.48	5.7	67	253	43	20	11	14	5.2	.42	.00	.00
19	.48	3.3	65	219	42	19	29	13	4.8	.34	.00	.00
20	.48	3.3	58	188	41	19	37	12	4.5	.17	.00	.00
21	.48	4.4	57	165	40	19	26	11	4.2	.07	.00	.00
22	.55	3.4	71	152	39	17	21	10	4.0	.07	.00	.00
23	.77	3.3	64	142	37	17	26	10	3.8	.05	.00	.00
24	.80	3.3	55	133	36	17	21	9.7	3.2	.03	.00	.00
25	.80	3.0	50	123	35	17	18	9.3	3.1	.11	.00	.00
26	.80	3.0	46	116	35	16	17	9.2	2.8	.31	.00	.13
27	.80	3.0	45	108	33	16	16	9.2	2.7	.23	.00	.28
28	3.0	3.0	54	106	42	15	15	9.2	2.3	.06	.00	.28
29	2.2	3.0	55	137	37	16	15	11	2.2	.00	.00	.20
30	1.6	15	52	141	---	15	15	11	2.3	.00	.00	.13
31	1.3	---	49	125	---	15	---	10	---	.00	.00	---
TOTAL	19.85	96.6	4136	7487	1656	695	492	484.6	192.1	23.42	0.00	1.02
MEAN	.64	3.22	133	242	57.1	22.4	16.4	15.6	6.40	.76	.00	.034
MAX	3.0	15	405	917	116	37	37	45	11	2.4	.00	.28
MIN	.21	1.3	45	47	33	15	11	9.2	2.2	.00	.00	.00
AC-FT	39	192	8200	14850	3280	1380	976	961	381	46	.0	2.0
a	1.25	4.71	14.65	10.41	.54	.26	2.36	1.13	.39	0	0	0

CAL YR 1987 TOTAL 12800.62 MEAN 35.1 MAX 637 MIN .00 AC-FT 25390
WTR YR 1988 TOTAL 15283.59 MEAN 41.8 MAX 917 MIN .00 AC-FT 30310

a Precipitation, in inches.

SACRAMENTO RIVER BASIN

11451300 NORTH FORK CACHE CREEK NEAR CLEARLAKE OAKS, CA

LOCATION.--Lat 39°04'50", long 122°32'07", in SE 1/4 SW 1/4 sec.4, T.14 N., R.6 W., Lake County, Hydrologic Unit 18020116, on right bank 2,500 ft downstream from Indian Valley Dam and 8 mi northeast of Clearlake Oaks.

DRAINAGE AREA.--121 mi².

PERIOD OF RECORD.--October 1983 to September 1985 (operated as a low-flow station only), October 1985 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,320 ft above National Geodetic Vertical Datum of 1929, from topographic map. Recording rain gage located on top of Indian Valley Dam.

REMARKS.--No estimated daily discharges. Records good. Flow completely regulated by Indian Valley Dam (capacity 300,000 acre-ft).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,390 ft³/s, Mar. 12, 1986, gage height 9.80 ft; minimum daily, 3.0 ft³/s, Feb. 5, 1986.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 26, 1983, reached a stage of 12.74 ft, present datum, discharge about 9,500 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 610 ft³/s, Apr. 18, gage height, 4.43 ft; minimum daily, 6.1 ft³/s, Jan. 25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.6	9.6	12	10	8.3	56	418	304	323	503	292	167
2	8.6	9.6	11	10	7.9	28	420	291	331	532	292	75
3	8.6	9.6	11	12	7.7	6.9	429	298	334	498	293	57
4	8.6	9.5	11	13	7.7	7.8	436	163	326	456	322	40
5	8.6	9.3	11	20	7.7	8.6	453	114	310	434	315	40
6	8.6	9.3	12	10	7.7	20	382	114	260	418	282	37
7	9.8	9.3	12	10	7.7	61	355	114	193	418	244	35
8	11	9.3	11	8.5	7.7	144	356	114	158	420	158	35
9	11	9.3	11	6.9	6.7	199	356	136	149	369	107	37
10	11	9.3	11	7.1	8.6	216	356	78	148	326	107	39
11	11	9.3	10	8.0	8.6	255	366	11	160	328	107	39
12	9.9	9.3	9.0	8.0	8.7	282	447	11	201	329	107	43
13	9.9	8.8	8.9	8.0	8.9	266	477	11	218	317	101	39
14	9.9	8.6	8.9	8.0	8.9	275	479	11	256	308	95	39
15	9.9	8.6	9.8	8.4	8.9	291	509	11	312	308	96	39
16	9.9	8.6	10	9.4	8.9	319	534	11	368	306	83	39
17	9.9	9.7	10	8.9	8.9	374	529	10	382	306	66	100
18	9.9	10	10	8.9	8.9	459	545	9.9	368	321	63	140
19	9.9	11	9.9	8.6	8.9	541	403	9.9	368	400	53	132
20	9.9	11	9.9	8.6	101	578	219	9.9	414	487	40	132
21	9.9	11	9.9	8.5	145	567	113	9.6	450	475	37	118
22	9.6	11	9.9	8.3	143	555	78	9.6	441	409	39	117
23	9.6	11	9.9	8.3	138	519	78	76	416	346	39	97
24	9.5	12	9.9	7.4	124	493	87	134	404	316	40	82
25	9.1	12	9.9	6.1	113	494	98	287	383	299	40	73
26	8.9	12	9.9	9.6	112	503	99	427	364	305	148	58
27	8.9	12	9.9	9.6	110	482	123	415	364	312	223	37
28	8.9	12	9.9	9.7	105	450	153	374	390	318	244	22
29	8.9	12	16	11	79	436	197	332	420	315	258	20
30	8.9	16	12	27	---	429	263	297	439	309	251	15
31	13	---	11	14	---	417	---	295	---	295	258	---
TOTAL	299.7	310.0	327.6	311.8	1327.3	9732.3	9758	4487.9	9650	11483	4800	1943
MEAN	9.67	10.3	10.6	10.1	45.8	314	325	145	322	370	155	64.8
MAX	13	16	16	27	145	578	545	427	450	532	322	167
MIN	8.6	8.6	8.9	6.1	6.7	6.9	78	9.6	148	295	37	15
AC-FT	594	615	650	618	2630	19300	19350	8900	19140	22780	9520	3850
a	.83	2.83	5.86	6.49	.36	.07	1.09	.65	.18	0	0	0

CAL YR 1987 TOTAL 80414.3 MEAN 220 MAX 866 MIN 3.8 AC-FT 159500
WTR YR 1988 TOTAL 54430.6 MEAN 149 MAX 578 MIN 6.1 AC-FT 108000

a Precipitation, in inches.

SACRAMENTO RIVER BASIN

11452500 CACHE CREEK AT YOLO, CA

LOCATION.--Lat 38°43'38", long 121°48'22", in Rio Jesus Maria Grant, Yolo County, Hydrologic Unit 18020129, on left bank 35 ft upstream from Interstate 5 highway bridge, 0.5 mi south of Yolo, and 7.3 mi downstream from Moore Dam.

DRAINAGE AREA.--1,139 mi².

PERIOD OF RECORD.--January 1903 to current year. Records for water year 1903 incomplete; yearly estimate published in WSP 1315-A.

WATER TEMPERATURE: Water years 1959-65, November 1966 to February 1967.

SEDIMENT DATA: Water years 1959-65, November 1966 to February 1967 (daily record), 1986 (periodic record).

REVISED RECORDS.--WSP 1315-A: 1914(M). WSP 1345: 1906. WSP 1445: 1955. WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. See WSP 2131 for history of changes prior to Apr. 25, 1969. Apr. 25, 1969, to July 1976, at site 765 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Oct. 1-29. Records good except those for periods of estimated daily discharge, which are poor. Some regulation by Clear Lake (station 11450000) beginning in 1915 and Indian Valley Reservoir beginning in 1974, capacity, 296,000 acre-ft. Diversions for irrigation of about 30,000 acres between Capay and Yolo, from data furnished by Clear Lake Water Co.

AVERAGE DISCHARGE.--86 years, 540 ft³/s, 391,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,400 ft³/s, Feb. 25, 1958, gage height, 85.35 ft present datum; maximum stage observed, 88.44 ft present datum, Mar. 10, 1904; no flow at times in each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,450 ft³/s, Jan. 4, gage height, 62.49 ft; minimum daily, no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	9.2	15	113	220	63	38	13	9.3	.00	.00	4.0
2	11	9.2	15	98	192	66	32	17	8.5	.00	.00	5.6
3	10	9.0	17	113	170	66	33	39	10	.00	1.7	5.0
4	9.0	8.9	35	3610	160	52	30	36	5.9	.00	7.3	1.5
5	9.5	9.2	39	3000	150	31	29	24	2.3	.00	2.4	.89
6	10	9.4	46	1040	143	24	27	19	1.3	.00	1.1	.25
7	9.5	9.4	305	604	136	22	28	31	9.4	.00	.42	.00
8	9.0	11	357	440	133	21	26	56	20	.00	.06	.00
9	9.5	14	480	371	127	19	32	47	17	.00	.00	.00
10	10	13	344	445	121	20	43	22	10	2.6	.00	.00
11	9.5	13	348	486	114	30	46	14	9.8	7.7	.00	.00
12	10	13	220	502	112	38	47	12	1.9	.52	.00	.00
13	11	18	147	379	108	57	40	11	.06	.00	4.7	.00
14	11	17	110	306	106	80	41	3.6	3.9	.00	7.0	.00
15	10	17	91	277	103	68	41	5.1	.50	.00	2.7	.00
16	11	17	117	980	100	47	32	5.7	.00	.00	3.0	.00
17	11	23	365	2620	101	28	24	4.9	.00	.00	1.9	.00
18	10	13	274	2030	95	43	13	1.1	.00	19	.30	.00
19	10	11	237	868	89	55	32	.30	.00	8.7	.00	1.1
20	9.5	12	157	601	63	62	82	.00	.00	14	.00	4.6
21	9.5	18	126	467	39	54	111	3.2	.00	14	.00	4.6
22	9.5	15	106	385	69	53	68	9.8	.00	15	2.6	7.0
23	10	15	94	331	97	45	30	13	.00	11	7.3	9.1
24	11	15	89	287	82	48	19	1.8	.00	5.9	6.7	12
25	13	13	81	259	100	43	22	2.1	.00	3.0	3.6	11
26	15	13	72	229	71	37	32	4.3	.00	4.0	.62	8.4
27	14	14	67	210	57	44	23	.46	.00	3.5	.16	7.3
28	13	14	79	197	54	52	18	.00	.00	3.3	.62	8.8
29	12	12	106	202	58	56	12	6.0	.00	2.3	2.0	5.2
30	10	14	177	278	---	62	11	26	.00	2.2	4.8	4.6
31	8.8	---	144	269	---	48	---	19	---	.41	5.5	---
TOTAL	326.3	398.3	4860	21997	3170	1434	1062	447.36	109.86	117.13	66.48	100.94
MEAN	10.5	13.3	157	710	109	46.3	35.4	14.4	3.66	3.78	2.14	3.36
MAX	15	23	480	3610	220	80	111	56	20	19	7.3	12
MIN	8.8	8.9	15	98	39	19	11	.00	.00	.00	.00	.00
AC-FT	647	792	9640	43630	6290	2840	2110	887	218	232	132	200

CAL YR 1987 TOTAL 19327.3 MEAN 53.0 MAX 1750 MIN 5.3 AC-FT 38340
WTR YR 1988 TOTAL 34090.37 MEAN 93.1 MAX 3610 MIN .00 AC-FT 67620

[illegible]

SACRAMENTO RIVER BASIN

11453900 LAKE BERRYESSA NEAR WINTERS, CA

LOCATION.--Lat 38°30'48", long 122°06'13", in SE 1/4 NW 1/4 sec.29, T.8 N., R.2 W., Napa County, Hydrologic Unit 18020117, near center of Monticello Dam on Putah Creek, 7.4 mi west of Winters.

DRAINAGE AREA.--566 mi².

PERIOD OF RECORD.--January 1957 to current year.

REVISED RECORDS.--WSP 1735: 1958-60. WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation).

REMARKS.--Reservoir is formed by concrete arch-gravity dam completed November 1956. Usable capacity, 1,592,000 acre-ft between elevations 253.25 ft, invert of outlet valves, and 440 ft, crest of glory-hole spillway. Dead storage, 10,340 acre-ft. Water is released down Putah Creek and is diverted into Putah South diversion canal for irrigation of about 46,000 acres in the lower Sacramento Valley. Total diverted during current year was 222,598 acre-ft, provided by U.S. Bureau of Reclamation. Releases for irrigation began in May 1959. Records, including extremes, show total contents at 2400 hours.

COOPERATION.--Records provided by U.S. Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,733,500 acre-ft, Mar. 2, 1983, elevation, 446.67 ft; minimum since irrigation pool first filled, 738,600 acre-ft, Nov. 20, 1977, elevation, 388.04 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,236,300 acre-ft, Feb. 16, 17, elevation, 420.02 ft; minimum, 986,070 acre-ft, Sept. 30, elevation, 404.86 ft.

Capacity table (elevation, in feet NGVD, and contents, in acre-feet)
(Provided by U.S. Bureau of Reclamation, from 1956 survey)

380	632,400	400	911,200	420	1,236,000	450	1,799,900
390	765,700	410	1,068,100	430	1,414,200		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1133800	1110600	1101700	1144900	1233000	1235600	1214200	1187100	1155600	1111100	1062500	1019100
2	1132800	1110100	1105600	1145200	1233400	1235600	1213000	1186400	1153900	1109400	1060700	1018000
3	1131800	1109900	1107600	1155600	1233700	1235600	1212000	1185700	1152200	1107800	1059100	1016900
4	1131000	1109400	1108900	1174300	1234100	1235600	1211000	1184500	1150500	1106100	1057600	1015700
5	1130200	1108800	1110100	1182100	1234400	1235400	1209800	1184000	1148900	1104600	1056000	1014500
6	1129200	1108300	1115500	1184500	1234700	1235300	1208600	1183100	1147200	1103200	1054400	1013100
7	1128000	1107300	1120200	1185900	1235100	1235100	1207000	1182800	1146000	1101500	1052700	1011900
8	1126800	1107300	1124300	1187400	1235300	1234900	1205500	1182100	1144700	1099900	1051600	1010800
9	1125700	1106800	1128200	1188600	1235300	1234600	1204300	1181300	1143300	1098200	1050300	1009700
10	1124500	1106500	1130700	1189800	1235300	1234200	1202900	1180400	1142000	1096600	1049000	1008300
11	1123300	1106000	1131800	1192200	1235400	1233700	1201500	1179700	1140800	1094900	1047300	1006700
12	1122200	1105600	1132800	1193000	1235600	1233200	1200200	1179100	1139500	1093600	1045800	1005400
13	1121200	1105500	1132500	1194200	1235800	1232500	1198800	1178400	1138300	1092100	1044500	1004200
14	1120200	1105300	1132500	1195700	1236000	1232000	1197800	1177700	1137000	1089400	1043200	1002800
15	1119200	1105100	1132500	1198500	1236100	1231500	1196400	1177000	1135700	1088900	1042100	1001500
16	1118500	1105000	1134600	1206700	1236300	1230800	1195100	1176400	1134100	1087200	1040800	1000200
17	1117700	1105000	1137800	1216500	1236300	1230100	1193900	1175500	1132800	1085600	1039500	999130
18	1116900	1105000	1138700	1218500	1236100	1229400	1193000	1174300	1131500	1084300	1038400	997710
19	1116000	1104800	1139500	1220900	1235800	1228900	1193700	1173300	1130000	1082600	1037100	996610
20	1115200	1104600	1139800	1222300	1235600	1228200	1193700	1172600	1128300	1081000	1035800	995510
21	1114400	1104600	1140000	1223700	1235600	1227500	1193200	1171600	1127000	1079400	1034200	994400
22	1114100	1104100	1140000	1224900	1235400	1228500	1193000	1170400	1125700	1077700	1032700	993460
23	1113700	1103800	1139800	1225800	1235300	1225900	1192800	1168900	1124200	1076300	1031400	992670
24	1113400	1103300	1139500	1226500	1235100	1224900	1192300	1167500	1122700	1074600	1029900	991570
25	1112700	1102800	1139300	1227300	1234900	1223900	1192000	1165900	1121000	1073300	1028700	990620
26	1112200	1102500	1139200	1227800	1234700	1222800	1191300	1164400	1119400	1072000	1027400	989680
27	1112100	1102200	1139200	1228200	1234700	1221800	1190600	1163000	1117700	1070400	1026100	988890
28	1111900	1101800	1141700	1228500	1234900	1220400	1189900	1161500	1116000	1068800	1024500	987950
29	1111700	1101500	1143200	1230600	1235400	1218700	1189300	1160000	1114400	1067200	1023200	987010
30	1111400	1101300	1144000	1231500	---	1217000	1188100	1158500	1112700	1065700	1021600	986070
31	1110900	---	1144400	1232500	---	1215600	---	1156900	---	1064100	1020400	---
MAX	1133800	1110600	1144400	1232500	1236300	1235600	1214200	1187100	1155600	1111100	1062500	1019100
MIN	1110900	1101300	1101700	1144900	1233000	1215600	1188100	1156900	1112700	1064100	1020400	986070
a	412.61	412.03	414.62	419.80	419.97	418.82	417.21	415.37	412.72	409.75	407.03	404.86
b	-24000	-9600	+43100	+88100	+2900	-19800	-27500	-31200	-44200	-48600	-43700	-34330
c	4388	2029	1224	1451	2614	5353	4850	7067	9012	11445	9313	7831

CAL YR 1987 b -182900

WTR YR 1988 b -148830

a Elevation, in feet NGVD, at end of month.

b Change in contents, in acre-feet.

c Evaporation, in acre-feet; not reviewed by U.S. Geological Survey.

SACRAMENTO RIVER BASIN

11454000 PUTAH CREEK NEAR WINTERS, CA

LOCATION.--Lat 38°30'55", long 122°04'51", in NE 1/4 NE 1/4 sec.28, T.8 N., R.2 W., Yolo County, Hydrologic Unit 18020109, on left bank 1 mi downstream from Cold Canyon, 1.3 mi downstream from Monticello Dam, and 6 mi west of Winters.

DRAINAGE AREA.--574 mi².

PERIOD OF RECORD.--July 1930 to current year.

CHEMICAL DATA: Water years 1951-66, 1973-81.

WATER TEMPERATURE: Water years 1966-81.

REVISED RECORDS.--WSP 901: 1937-38(M). WSP 1285: 1932(M), 1935-36(M), 1940(M), 1942-43(M), 1951, 1952(M).

WSP 1565: 1957. WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 160.75 ft above National Geodetic Vertical Datum of 1929 (river-profile survey). June 28, 1930, to Feb. 29, 1940, at datum about 1 ft higher.

REMARKS.--No estimated daily discharges. Records good. Flow completely regulated by Lake Berryessa (station 11453900) beginning January 1957.

AVERAGE DISCHARGE.--26 years (water years 1931-56) prior to storage, 477 ft³/s, 345,600 acre-ft/yr; 32 years (water years 1957-88), 596 ft³/s, 431,800 acre-ft/yr, adjusted for change in contents and evaporation from Lake Berryessa; unadjusted flow for same period was 450 ft³/s, 431,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 81,000 ft³/s, Feb. 27, 1940, gage height, 30.5 ft, present datum, from rating curve extended above 30,000 ft³/s; no flow Sept. 6-15, 1950, July 26 to Sept. 1, Sept. 6-9, 1955. Since completion of Monticello Dam in 1957, maximum discharge, 18,700 ft³/s, Mar. 2, 1983, gage height, 19.55 ft; minimum daily, 6.1 ft³/s, Dec. 19, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known since at least 1905, that of Feb. 27, 1940, on basis of records for station at Winters.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 764 ft³/s, June 3, gage height, 8.15 ft; minimum daily, 61 ft³/s, Jan. 31.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	416	143	179	86	125	85	557	334	657	680	606	477
2	431	143	192	94	194	85	559	326	688	696	621	477
3	432	171	144	95	193	119	582	350	724	673	647	494
4	406	161	104	133	143	155	593	408	751	673	624	459
5	374	139	104	96	92	155	616	429	741	633	606	433
6	390	151	105	145	91	155	616	409	684	618	576	460
7	427	147	108	180	91	185	604	343	651	649	552	460
8	462	152	112	98	91	212	640	296	623	663	526	460
9	489	152	101	97	91	184	659	308	601	650	512	471
10	479	138	146	96	91	163	625	329	600	625	565	478
11	455	178	189	96	88	163	611	338	576	602	536	457
12	422	207	155	96	84	191	631	338	542	573	526	416
13	391	125	110	96	84	246	661	316	562	561	482	417
14	377	125	110	81	84	267	652	319	593	603	420	434
15	353	106	153	65	84	307	590	358	633	650	418	444
16	353	128	160	71	87	340	557	378	637	629	460	444
17	353	191	108	135	90	350	557	378	595	622	473	427
18	353	154	75	85	90	350	556	378	594	649	473	399
19	337	124	73	121	90	349	436	378	627	676	519	392
20	310	124	139	177	90	335	288	393	634	695	564	407
21	310	123	195	132	128	307	231	458	649	695	576	384
22	305	155	195	83	203	342	243	577	649	658	509	355
23	287	189	134	63	203	430	277	599	662	627	517	355
24	237	147	100	62	186	477	237	624	687	571	559	374
25	207	106	111	81	155	493	255	635	660	574	541	353
26	206	106	111	95	193	553	351	625	633	629	542	363
27	251	106	112	95	192	530	355	640	641	643	536	374
28	236	106	113	95	102	546	334	640	662	609	515	383
29	154	106	103	96	69	601	334	640	674	626	511	375
30	169	131	82	79	---	608	334	631	657	629	511	344
31	154	---	86	61	---	580	---	631	---	584	488	---
TOTAL	10526	4234	3909	3085	3504	9863	14541	13806	19287	19665	16511	12566
MEAN	340	141	126	99.5	121	318	485	445	643	634	533	419
MAX	489	207	195	180	203	608	661	640	751	696	647	494
MIN	154	106	73	61	69	85	231	296	542	561	418	344
AC-FT	20880	8400	7750	6120	6950	19560	28840	27380	38260	39010	32750	24920

CAL YR 1987 TOTAL 139961 MEAN 383 MAX 779 MIN 62 AC-FT 277600 MEAN a 223 AC-FT a 161600
WTR YR 1988 TOTAL 131497 MEAN 359 MAX 751 MIN 61 AC-FT 260800 MEAN a 247 AC-FT a 179600

a Adjusted for change in contents and evaporation from Lake Berryessa. Evaporation data provided by U.S. Bureau of Reclamation; not reviewed by U.S. Geological Survey.

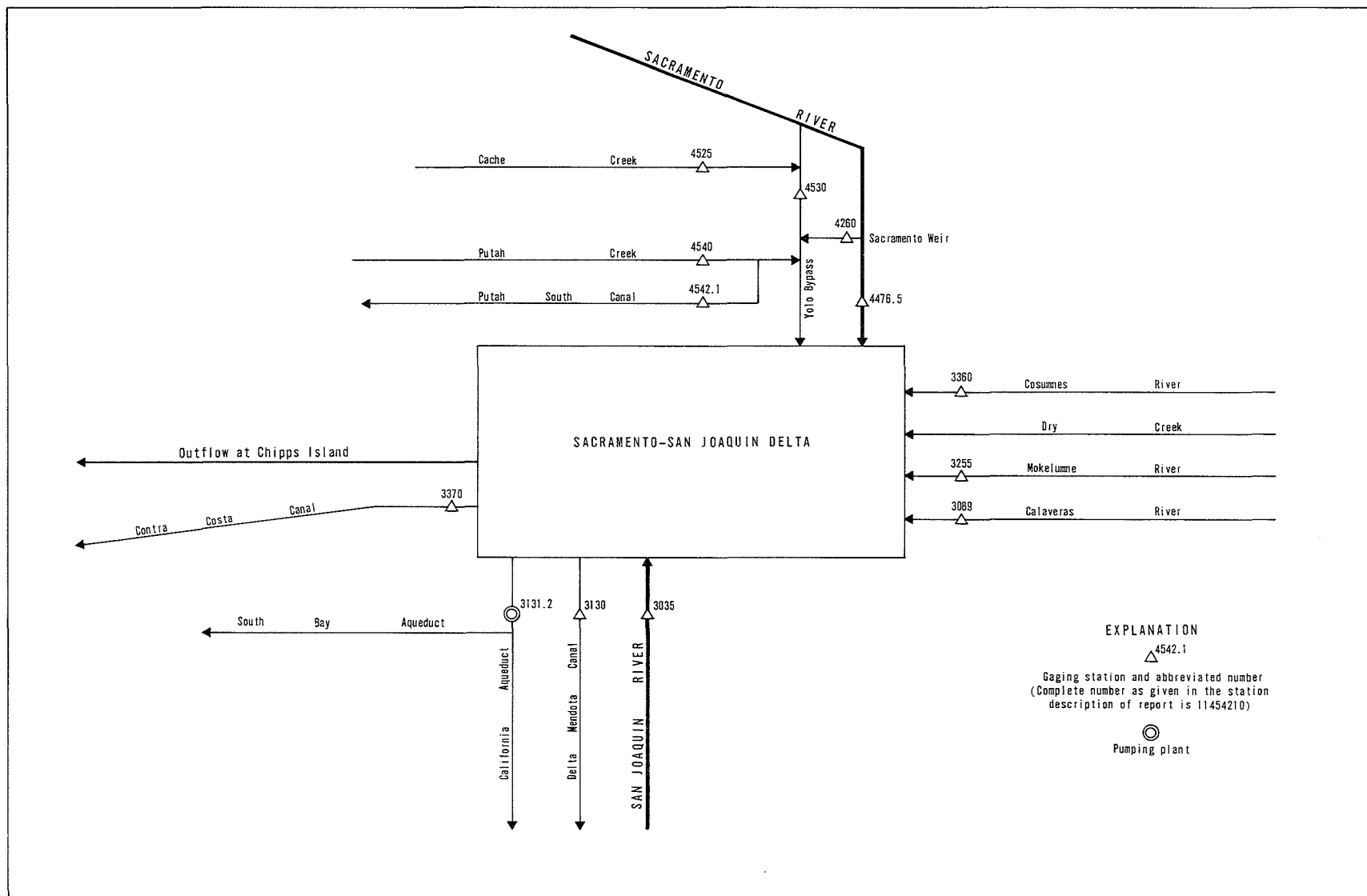


FIGURE 35.--Schematic diagram showing principal inflows and diversions, Sacramento-San Joaquin Delta.

SACRAMENTO-SAN JOAQUIN DELTA, INFLOWS AND DIVERSIONS

LOCATION.--See schematic diagram of inflows and diversions, Sacramento-San Joaquin Delta.

PERIOD OF RECORD.--October 1971 to current year. Data for periods prior to October 1971 can be obtained from published records for stations tabulated below.

COOPERATION.--Records for Delta-Mendota, Contra Costa, and Putah South Canals provided by U.S. Bureau of Reclamation; California Aqueduct and Sacramento Weir spill provided by California Department of Water Resources; these records were not reviewed by U.S. Geological Survey.

SUMMARY OF PRINCIPAL INFLOWS AND DIVERSIONS IN THE
SACRAMENTO-SAN JOAQUIN DELTA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

Inflows, in thousands of acre-feet												
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Month Apr.	May	June	July	Aug.	Sept.	Water year
11303500 SAN JOAQUIN RIVER NEAR VERNALIS												
84.22	92.11	78.59	91.16	79.90	137.8	127.7	109.5	101.8	83.43	95.76	86.40	1168
11308900 CALAVERAS RIVER BELOW NEW HOGAN DAM												
2.47	2.01	2.05	2.03	1.21	3.10	4.73	3.76	8.61	10.36	9.40	3.66	53.39
11325500 MOKELUMNE RIVER AT WOODBRIDGE												
3.97	2.83	3.09	3.08	2.23	1.77	1.29	.91	.99	1.14	.68	1.05	23.03
11335000 COSUMNES RIVER AT MICHIGAN BAR												
.60	1.77	4.01	13.23	6.28	9.16	8.73	6.45	2.07	.30	0	0	52.60
11426000 SACRAMENTO WEIR SPILL												
0	0	0	0	0	0	0	0	0	0	0	0	0
11447650 SACRAMENTO RIVER AT FREEPORT												
584.7	483.7	968.1	1562	701.1	697.8	1005	674.8	629.5	900.3	817	686.5	9710
11453000 YOLO BYPASS NEAR WOODLAND ¹												
0	0	0	92.75	0	0	0	0	0	0	0	0	92.75
11454000 PUTAH CREEK NEAR WINTERS												
20.88	8.40	7.75	6.12	6.95	19.56	28.84	27.38	38.26	39.01	32.75	24.92	260.8
TOTAL												
696.8	590.8	1064	1770	797.7	869.2	1176	822.8	781.2	1035	955.6	802.5	11360
Diversions, in thousands of acre-feet												
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Month Apr.	May	June	July	Aug.	Sept.	Water year
11313000 DELTA-MENDOTA CANAL												
245.8	233.9	248	249.9	235.7	251.1	243	182.7	178.1	275.4	278.6	273.2	2895
11313120 CALIFORNIA AQUEDUCT (DELTA PUMPING PLANT)												
104.1	81.56	298.2	383.1	332.7	258.9	255.2	184.4	166.9	199.9	244.6	196.8	2706
11337000 CONTRA COSTA CANAL												
11.16	9.06	7.70	7.90	7.35	11.35	12.27	11.94	12.45	15.21	15.68	13.25	135.3
11454210 PUTAH SOUTH CANAL												
17.23	5.75	5.32	4.01	5.94	16.82	25.55	23.96	32.83	33.72	28.87	22.59	222.6
TOTAL												
378.3	330.3	559.3	644.9	581.7	538.2	536	403	390.3	524.2	567.8	505.8	5960

¹Flow not computed below 1,000 ft³/s.

NOTE.--Minor inflow streams and diversions are not included.

DISCHARGE AT PARTIAL-RECORD STATIONS

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low- or flood-flow analyses, depending on the type of data collected.

Low-flow partial-record stations

Measurements of streamflow in the area covered by this report made at low-flow partial-record stations are given in the following table. The column headed "Period of record" shows the water years in which measurements were made at the same or practically the same site.

Discharge measurements made at low-flow partial-record stations during water year 1988

Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Measurements	
					Date	Discharge (ft ³ /s)
Sacramento River basin						
11341900	Dog Creek at Delta	Lat 40°56'17", long 122°25'13", in SE 1/4 NE 1/4 sec.34, T.36 N., R.5 W., Shasta County, Hydrologic Unit 18020005, 0.1 mi upstream from mouth, 0.5 mi southwest of Delta, and 25 mi north of Redding.	17.3	b1975, 1976-84, 1986-88	10-02-87	a2.00
					12-02-87	128
					12-10-87	329
					5-02-88	a31.1
					7-05-88	a12.8
					8-02-88	a6.22
					8-31-88	a3.56

a Base flow.

b Published as a miscellaneous measurement.

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

HONEY LAKE BASIN

10353900 HONEY LAKE WEST NEAR LAKE SCHOOL NEAR BUNTINGVILLE, CA

LOCATION.--Lat 40°16'24", long 120°27'24", in SE 1/4 SE 1/4 sec.24, T.28 N., R.13 E., Lassen County, Hydrologic Unit 18080003, 2.2 mi southeast of Buntingville and 7.2 mi southwest of Standish.

DRAINAGE AREA.--2.60 mi².

PERIOD OF RECORD.--

CHEMICAL ANALYSIS: October 1987 to September 1988.

SEDIMENT CONCENTRATION: October 1987 to September 1988.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (FTU)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN, DIS- SOLVED (MG/L AS CO3)	HARD- NESS TOTAL (MG/L AS CO3)	HARD- NESS NONCARB TOT FLD MG/L AS CACO3	CALCIUM DIS- SOLVED (MG/L AS CA)
SEP 07...	1235	5140	9.30	20.5	100	660	7.7	101	58	0	16
DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM RATIO PERCENT	SODIUM AD- SORP- TION RATIO (MG/L AS K)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER WH IT MG/L AS HCO3	CAR- BONATE WATER WH IT MG/L AS CO3	ALKA- LINITY WAT WH TOT IT MG/L AS CACO3	ALKA- LINITY WAT WH TOT FET MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
SEP 07...	4.4	1200	96	71	40	1150	233	1330	1330	520	650
DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	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 AC-FT)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)
SEP 07...	2.3	82	3450	3330	4.69	<0.010	<0.100	0.070	0.010	1.8	4.40
DATE	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)	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)
SEP 07...	4.40	4.90	30	350	18	<0.5	<1	3	<3	9	18
DATE	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	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)
SEP 07...	7	15	2	0.1	160	6	<1	<1.0	220	230	5

< Actual value is known to be less than the value shown.

SUSPENDED SEDIMENT CONCENTRATION, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	TEMPER- ATURE WATER (DEG C)	SEDI- MENT, SUS- PENDED (MG/L)
SEP 07...	1230	20.5	204

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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

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