

Quality of Surface Waters of the United States 1958

Parts 9-14. Colorado River Basin to Pacific
Slope Basins in Oregon and Lower Columbia
River Basin

Prepared under the direction of S. K. LOVE, Chief, Quality of Water Branch

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1574

*Prepared in cooperation with the States of
California, New Mexico, and Utah,
U.S. Bureau of Reclamation, and with
other agencies*



UNITED STATES DEPARTMENT OF THE INTERIOR

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PREFACE

This report was prepared by the Geological Survey in cooperation with the States of California, New Mexico, and Utah, U. S. Bureau of Reclamation, and with other agencies by personnel of the Water Resources Division under the direction of L. B. Leopold, chief hydraulic engineer, and S. K. Love, chief, Quality of Water Branch.

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QUALITY OF SURFACE WATERS OF THE UNITED STATES, 1958

PARTS 9-14

INTRODUCTION

The quality-of-water investigations of the United States Geological Survey are concerned with chemical and physical characteristics of the surface and ground water supplies of the Nation. Most of the investigations carried on in cooperation with State and other Federal agencies deal with the amounts of matter in solution and in suspension in streams.

The records of chemical analysis, suspended sediment, and temperature for surface waters given in this volume serve as a basis for determining the suitability of the waters examined for industrial, agricultural, and domestic uses insofar as such use is affected by the dissolved or suspended mineral matter in the waters. The discharge of a stream and, to a lesser extent, the chemical quality are related to variations in rainfall and other forms of precipitation. In general, lower concentrations of dissolved solids may be expected during the periods of high flow than during periods of low flow. The concentration in some streams may change materially with relatively small variations in flow, whereas for other streams the quality may remain relatively uniform throughout large ranges in discharge. The quantities of suspended sediment carried by streams are also related to discharge, and during flood periods the sediment concentrations in many streams vary over wide ranges.

Publication of annual records of chemical analyses, suspended sediment, and water temperature was begun by the Geological Survey in 1941. The records prior to 1948 were published each year in a single volume for the entire country. Beginning in 1948, the records were published in two volumes, and beginning in 1950, in four volumes, covering the drainage basins shown in Figure 1. The series for which data are given in this volume were collected from October 1, 1957, to September 30, 1958. The records are arranged by drainage basins according to Geological Survey practice in reporting records of streamflow: Stations on tributary streams are listed between stations on the main stem in the order

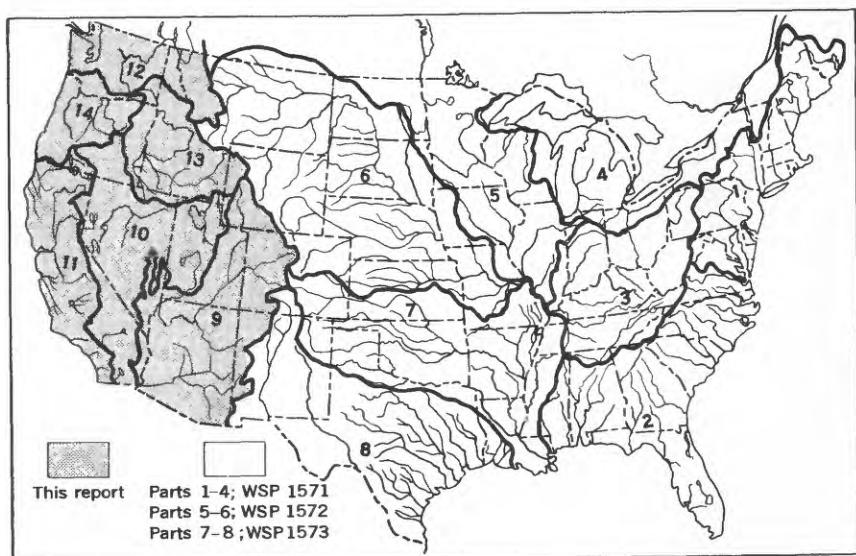


Figure 1. --Map of the United States showing basins covered by the four water-supply papers on quality of surface waters in 1958. The shaded portion represents the section of the country covered by this volume; the unshaded portion represents the section of the country covered by other water-supply papers.

in which those tributaries enter the main stem.

A station number has been assigned as an added means of identification for each stream location where regular measurements of water quantity or quality have been made. The numbers have been assigned to conform with the standard downstream order of listing gaging stations. The numbering system consists of two digits followed by a hyphen and a six digit number. The notation to the left of the hyphen identifies the Part or hydrologic region used by the Geological Survey for reporting hydrologic data. The number to the right of the hyphen represents the position of the location in the standard downstream order listing measuring stations within each of the 14 parts. The assigned numbers are in numerical order but are not consecutive. They are so selected from the complete 6 digit number scale that intervening numbers will be available for future assignments to new locations. The identification number for each station in this report is printed to the left of the station name and contains only the essential digits. For example, the number is printed as 4-100 for a station whose complete identification number is 04-0100.00.

Descriptive statements are given for each sampling station for which regular series of chemical analyses, temperature, measurements, or sediment determinations have been made. These statements include the location of the station, drainage area, periods of records available, extremes of dissolved solids, hardness, specific conductance, temperature, sediment loads, and other pertinent data. Records of discharge of the streams at or near the sampling station are included in most tables of analyses.

During the water year ending September 30, 1958, the Geological Survey maintained 234 stations on 149 streams for the study of chemical and physical characteristics of surface water. Samples were collected daily or monthly at 157 of these locations for chemical-quality studies. Samples were also collected less frequently at many other points. Water temperatures were measured daily at 138 stations. Not all analyses of samples of surface water collected during the year have been included. Single analyses of an incomplete nature generally have been omitted. Also, analyses made of the daily samples before compositing have not been reported. The specific conductance of almost all daily samples was determined, and as noted in the table headings this information is available for reference at the district offices listed under Division of Work, on page 20.

Quantities of suspended sediment are reported for 40 stations during the year ending September 30, 1958. Sediment samples were collected one or more times daily during periods of significant flow at most of the continuous-record stations. Particle-size distributions of sediments were determined for 37 of the stations.

COLLECTION AND EXAMINATION OF SAMPLES

Samples for analyses are usually collected at or near points on streams where gaging stations are maintained by Surface Water Branch of U. S. Geological Survey for measurement of water discharge. The concentration of solutes and sediments at different locations in the stream-cross section may vary widely with different rates of water discharge depending on the source of the material and the turbulence and mixing of the stream. In general, the distribution of sediment in a stream section is much more variable than the distribution of solutes. It is necessary to sample some streams at several verticals across the channel and especially for sediment, to uniformly traverse the depth of flow. These measurements require special sampling equipment to adequately integrate the vertical and lateral variability of the concentration in the section. These procedures yield a velocity-weighted mean con-

centration for the section in contrast to the average spatial concentration that existed without regard to the variable velocities of the individual fluid elements.

The nearly uniform dispersed ions of the solute move with the velocity of the transporting media. The mean section concentration of solutes determined from samples is a precise measure of the solute. The mean section concentration obtained from suspended-sediment samples is a less precise measure of the total sediment load, because sediment samplers did not traverse the bottom 0.4 foot of the sampling vertical where the concentration of suspended sediment is greatest and because a significant part of the coarser particles in many streams move in essentially continuous contact with the bed and are not represented in the suspended sediment sample. Hence, the suspended sediment loads presented in this report are usually less than the total sediment loads. For most streams the difference between the suspended and total sediment loads will be small, in the order of a few percent.

CHEMICAL QUALITY

The methods of collecting and compositing water samples for chemical analysis are described in a manual by Rainwater and Thatcher (1960, 301 p.). No single method of compositing samples is applicable to all problems related to the study of water quality. Although generally holding to the principle of 10 day periods or equivalent to three composite samples per month modifications are usually made on the basis of dissolved-solids content as indicated by measurements of conductivity of daily samples, supplemented by other information such as chloride content, river stage, weather conditions and other background information of the stream.

TEMPERATURE

Daily water temperatures were measured at most of the stations at the time samples were collected for chemical quality or sediment content. So far as practicable, the water temperatures were taken at about the same time each day for an individual station in order that the data would be relatively unaffected by diurnal variations in temperature. Most large, swiftly flowing streams probably have a small diurnal variation in water temperature, whereas sluggish or shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. The thermometers used for determining water temperature were accurate to plus or minus 0.5°F.

At stations where thermographs are located, the records consist of maximum and minimum temperatures for each day, and the monthly averages of maximum daily and minimum daily temperatures.

SEDIMENT

In general, suspended-sediment samples were collected daily with U. S. depth-integrating cable-suspended samplers (U. S. Interagency, 1948, p. 70-76 and U. S. Interagency, 1952, p. 86-90) from a fixed sampling point at one vertical in the cross section. The US DH-48 hand sampler was used at many stations during periods of low flow. Depth-integrated samples were collected periodically at three or more verticals in the cross section to determine the cross-sectional distribution of the concentration of suspended sediment with respect to that at the daily sampling vertical. In streams where transverse distribution of sediment concentration ranges widely, samples were taken at two or more verticals to define more accurately the average concentration of the cross section. During periods of high or rapidly changing flow, samples were taken two or more times throughout the day at most sampling stations.

Sediment concentrations were determined by filtration-evaporation method. At many stations the daily mean concentration for some days was obtained by plotting the velocity-weighted instantaneous concentrations on the gage-height chart. The plotted concentrations, adjusted, if necessary for cross-sectional distribution were connected or averaged by continuous curves to obtain a concentration graph. This graph represented the estimated velocity-weighted concentration at any time, and for most periods daily mean concentrations were determined from the graph. The days were divided into shorter intervals when the concentration and water discharge were changing rapidly. During some periods of minor variation in concentration, the average concentration of the samples was used as the daily mean concentration. During extended periods of relatively uniform concentration and flow, samples for a number of days were composited to obtain average concentrations and average daily loads for each period.

For some periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately preceding and following the periods, and suspended-sediment loads for other periods of similar discharge. the estimates were further guided by weather conditions and sediment discharge for other stations.

In many instances where there were no observations for several days, the suspended-sediment loads for individual days are

not estimated, because numerous factors influencing the quantities of transported sediment made it very difficult to make accurate estimates for individual days. However, estimated loads of suspended sediment for missing days in otherwise continuous period of sampling have been included in monthly and annual totals in order to provide a complete record. For some streams, samples were collected about weekly, monthly, or less frequently, and only rates of sediment discharge at the time of sampling are shown.

In addition to the records of quantities of suspended sediment transported, records of the particle sizes of sediment are included. The particle sizes of the suspended sediments for many of the stations, and the particle sizes of the bed material for some of the stations were determined periodically.

The size of particles in stream sediments commonly range from colloidal clay (finer than 0.001 mm) to coarse sand or gravel (coarser than 1.0 mm). The common methods of particle-size analyses cannot accomodate such a wide range in particle size. Hence, it was necessary to separate most samples into two parts, one coarser than 0.062 mm and one finer than 0.062 mm. The separations were made by sieve or by a tube containing a settling medium of water. The coarse fractions were classified by sieve separation or by the visual accumulation tube (U.S. Interagency, 1957). The fine fractions were classified by the pipet method (Kilmer and Alexander, 1949) or the bottom withdrawal tube method (U.S. Interagency, 1943, p. 82-90).

EXPRESSION OF RESULTS

Quantities of water for analysis are most conveniently obtained in the laboratory by use of volumetric glassware. The analytical results thus obtained are expressed in weights of solute in a given volume of water. To express the results in parts of solute per million (ppm) of water the data must be converted. For most waters this conversion is made by assuming that the liter of water sample weighs 1 kilogram; and thus milligrams per liter are equivalent to parts per million.

Chemical equivalence in equivalents per million (epm) can be obtained by (a) dividing the concentration in parts per million by the combining weight of that ion, or (b) multiplying the concentration (in ppm) by the reciprocal of the combining weights. The following table lists the reciprocals of the combining weights of cations and anions generally reported in water analyses.

The terms "equivalents per million" is a contraction which has been generally adopted for convenience. In more exact language, these units are "milligram equivalents per kilogram" if derived from part-per million data, or "milligram equivalents per

liter" if derived from data expressed in milligrams per liter. Equivalent weights may be computed for use with any of the systems of expression of data (Hem, 1959, p. 30-34).

In an analysis expressed in equivalents per million, unit concentrations of all ions are chemically equivalent.

Conversion factors: Parts per million to equivalents per million

Ion	Multiply by	Ion	Multiply by
Aluminum (Al^{+3})	0.11119	Iron (Fe^{+3})	0.05372
Barium (Ba^{+2}) . . . . .	.01456	Lead (Pb^{+2}) . . . . .	.00965
Bicarbonate (HCO_3^{-1}) . . . . .	.01639	Lithium (Li^{+1}) . . . . .	.14409
Bromide (Br^{-1}) . . . . .	.01251	Magnesium (Mg^{+2}) . . . . .	.08224
Calcium (Ca^{+2}) . . . . .	.04990	Manganese (Mn^{+2}) . . . . .	.03640
Carbonate (CO_3^{-2}) . . . . .	.03333	Nitrate (NO_3^{-1}) . . . . .	.01613
Chloride (Cl^{-1}) . . . . .	.02820	Phosphate (PO_4^{-3}) . . . . .	.03159
Chromium (Cr^{+6}) . . . . .	.11536	Potassium (K^{+1}) . . . . .	.02558
Copper (Cu^{+2}) . . . . .	.03148	Sodium (Na^{+1}) . . . . .	.04350
Fluoride (F^{-1}) . . . . .	.05263	Strontium (Sr^{+2}) . . . . .	.02282
Hydrogen (H^{+1}) . . . . .	.99206	Sulfate (SO_4^{-2}) . . . . .	.02082
Hydroxide (OH^{-1}) . . . . .	.05880	Zinc (Zn^{+2}) . . . . .	.03059
Iodide (I^{-1}) . . . . .	.00788		

Results given in parts per million can be converted to grains per United States gallon by dividing by 17.12.

The hardness of water is conventionally expressed in all water analyses in terms of an equivalent quantity of calcium carbonate. Such a procedure is required because hardness is caused by several different cations, present in variable proportions. It should be remembered that hardness is an expression in conventional terms of a property of water. The actual presence of calcium carbonate in the concentration given is not to be assumed. The hardness caused by calcium and magnesium (and other cations if significant) equivalent to the carbonate and bicarbonate is called carbonate hardness; the hardness in excess of this quantity is called noncarbonate hardness. Hardness or alkalinity values expressed in parts per million as calcium carbonate may be converted to equivalents per million by dividing by 50.

The value usually reported as dissolved solids is the residue on evaporation after drying at 180°C for 1 hour. For some waters, particularly those containing moderately large quantities of soluble salts, the value reported is calculated from the quantities of the various determined constituents using the carbonate equivalent of the reported bicarbonate. The calculated sum of the constituents may be given instead of or in addition to the residue. In the

analyses of most waters used for irrigation, the quantity of dissolved solids is given in tons per acre-foot as well as in parts per million.

Specific conductance is given for most analyses and was determined by means of a conductance bridge and using a standard potassium chloride solution as reference. Specific conductance values are expressed in micromhos per centimeter at 25°C. Specific conductance in micromhos is 1 million times the reciprocal of specific resistance at 25°C. Specific resistance is the resistance in ohms of a column of water 1 centimeter long and 1 square centimeter in cross section.

The discharge of the streams is reported in cubic feet per second (see Streamflow, p. 23) and the temperature in degrees Fahrenheit. Color is expressed in units of the platinum-cobalt scale proposed by Hazen (1892, p. 427-428). A unit of color is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Hydrogen-ion concentration is expressed in terms of pH units. By definition the pH value of a solution is the negative logarithm of the concentration of gram ions of hydrogen. However, the pH meter that is generally used in Survey laboratories determines the activity of the hydrogen ions as distinguished from concentration.

An average of analyses for the water year is given for most daily sampling stations. Most of these averages are arithmetical or time-weighted; when analyses during a year are all on 10-day composites of daily samples with no missing days, the arithmetical and time-weighted averages are equivalent. 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 river each day for the water year. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all of the water passing a given station during the year after thorough mixing in the reservoir. A discharge-weighted average is computed by multiplying the discharge for the sampling period by the concentrations of the individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. Discharge-weighted averages are usually lower than arithmetical averages for most streams because at times of high discharge the rivers generally have lower concentrations of dissolved solids.

The concentration of sediment in parts per million is computed as 1,000,000 times the ratio of the weight of sediment to the weight of water-sediment mixture. Daily sediment loads are expressed in tons per day and except for subdivided days are usually obtained by multiplying daily mean sediment concentration in parts per million by the daily mean discharge, and the appropriate conversion factor, normally 0.0027.

Particle-size analyses are expressed in percentages of material finer than indicated sizes in millimeters. The size classification used in this report is that recommended by the American Geophysical Union subcommittee on Terminology (Lane and others, 1947, p. 937). Other data included as pertinent to the size analyses for many streams are the date of collection, the stream discharge and sediment concentration when sample was collected, the concentration of the suspension during analysis, and the method of analysis.

COMPOSITION OF SURFACE WATERS

All natural waters contain dissolved mineral matter. Water in contact with soils or rock, even for only a few hours, will dissolve some mineral matter. The quantity of dissolved mineral matter in a natural water depends primarily on the type of rocks or soils with which the water has been in contact and the length of time of contact. Some streams are fed by both surface runoff and ground water from spring or seeps. Such streams reflect the chemical character of their concentrated underground sources during dry periods and are more dilute during periods of heavy rainfall. Ground water is generally more highly mineralized than surface runoff because it remains in contact with the rocks and soils for much longer periods. The dissolved-solids content in a river is frequently increased by drainage from mines or oil fields, by the addition of industrial or municipal wastes, or--in irrigated regions--by drainage from irrigated lands.

The mineral constituents and physical properties of natural waters reported in the tables of analyses include those that have a practical bearing on the value of the waters for most purposes. The analyses generally include results for silica, iron, calcium, magnesium, sodium, potassium (or sodium and potassium together calculated as sodium), alkalinity as carbonate and bicarbonate, sulfate, chloride, fluoride, nitrate, boron, pH, dissolved solids and specific conductance. Aluminum, manganese, color, acidity, oxygen consumed, and other dissolved constituents and physical properties are reported for certain streams. Phenolic material and minor elements including strontium, chromium, nickel, copper, lead, zinc, cobalt, arsenic, cadmium, and others are occasionally determined for a few streams in connection with specific problems in local areas and the results are reported when appropriate. The source and significance of the different constituents and properties of natural waters are discussed in the following paragraphs. The constituents are arranged in the order that they appear on standard analytical statement cards which are used to process the chemical quality data in this report.

MINERAL CONSTITUENTS IN SOLUTION

Silica (SiO_2)

Silica is dissolved from practically all rocks. Some natural surface waters contain less than 5 parts per million of silica and few contain more than 50 parts, but the more common range is from 10 to 30 parts per million. Silica affects the usefulness of a water because it contributes to the formation of boiler scale; it usually is removed from feed water for high-pressure boilers. Silica also forms troublesome deposits on the blades of steam turbines.

Aluminum (Al)

Aluminum is usually present only in negligible quantities in natural waters except in areas where the waters have been in contact with the more soluble rocks of high aluminum content such as bauxite and certain shales. Acid waters often contain large amounts of aluminum. It may be troublesome in feed waters where it tends to be deposited as a scale on boiler tubes.

Iron (Fe)

Iron is dissolved from many rocks and soils. On exposure to the air, normal basic waters that contain more than 1 part per million of iron soon become turbid with the insoluble reddish ferric oxide produced by oxidation. Surface waters, therefore, seldom contain as much as 1 part per million of dissolved iron, although some acid waters carry large quantities of iron in solution. Iron causes reddish-brown stains on white porcelain or enameled ware and fixtures and on fabrics washed in the water.

Manganese (Mn)

Manganese is dissolved in appreciable quantities from rocks in some sections of the country. It resembles iron in its chemical behavior and in its occurrence in natural waters. However, manganese in rocks is less abundant than iron. As a result the concentration of manganese is much less than that of iron and is not regularly determined in many areas. Waters impounded in large reservoirs may contain manganese that has been dissolved from the mud on the bottom of the reservoir by action of carbon dioxide produced by anaerobic fermentation of organic matter. It is especially objectionable in water used in laundry work and in textile

processing. Concentrations as low as 0.2 part per million may cause a dark-brown or black stain on fabrics and porcelain fixtures. Appreciable quantities of manganese are often found in waters containing objectionable quantities of iron.

Calcium (Ca)

Calcium is dissolved from almost all rocks and soils, but the highest concentrations are usually found in waters that have been in contact with limestone, dolomite, and gypsum. Calcium and magnesium make water hard and are largely responsible for the formation of boiler scale. Most waters associated with granite or silicious sands contain less than 10 parts per million of calcium; waters in areas where rocks are composed of dolomite and limestone contain from 30 to 100 parts per million; and waters that have come in contact with deposits of gypsum may contain several hundred parts per million.

Magnesium (Mg)

Magnesium is dissolved from many rocks, particularly from dolomitic rocks. Its effect in water is similar to that of calcium. The magnesium in soft waters may amount to only 1 or 2 parts per million, but water in areas that contain large quantities of dolomite or other magnesium-bearing rocks may contain from 20 to 100 parts per million or more of magnesium.

Strontium (Sr)

Strontium is a typical alkaline-earth element and is similar chemically to calcium. Strontium may be present in natural water in amounts up to a few parts per million much more frequently than the available data indicate. In most surface water the amount of strontium is small in proportion to calcium. However, in sea water the ratio of strontium to calcium is 1:30.

Sodium and potassium (Na and K)

Sodium and potassium are dissolved from practically all rocks. sodium is the predominant cation in some of the more highly mineralized waters found in the western United States. Natural waters that contain only 3 or 4 parts per million of the two together are likely to carry almost as much potassium as sodium. As the

total quantity of these constituents increases, the proportion of sodium becomes much greater. Moderate quantities of sodium and potassium have little effect on the usefulness of the water for most purposes, but waters that carry more than 50 or 100 parts per million of the two may require careful operation of steam boilers to prevent foaming. More highly mineralized waters that contain a large proportion of sodium salts may be unsatisfactory for irrigation.

In this report, the potassium values not shown are usually calculated in with the sodium and reported as sodium.

Lithium (Li)

Data concerning the quantity of lithium in water are scarce. It is usually found in small amounts in thermal springs and saline waters. Lithium also occurs in streams where some industries dump their waste water. The scarcity of lithium in rocks is responsible more than other factors for relatively small amounts present in water.

Bicarbonate, carbonate and hydroxide (HCO_3 , CO_3 , OH)

Bicarbonate, carbonate, or hydroxide is sometimes reported as alkalinity. The alkalinity of a water is defined as its capacity to consume a strong acid to pH 4.5. Since the major causes of alkalinity in most natural waters are carbonate and bicarbonate ions dissolved from carbonate rocks, the results are usually reported in terms of these constituents. Although alkalinity may suggest the presence of definite amounts of carbonate, bicarbonate or hydroxide, it may not be true due to other ions that contribute to alkalinity such as silicates, phosphates, borates, possibly fluoride, and certain organic anions which may occur in colored waters. The significance of alkalinity to the domestic, agriculture, and industrial user is usually dependent upon the nature of the cations (Ca, Mg, Na, K) associated with it. However, moderate amounts of alkalinity does not adversely affect most users.

Hydroxide may occur in water that has been softened by the lime process. Its presence in streams usually can be taken as an indication of contamination and does not represent the natural chemical character of the water.

Sulfate (SO_4)

Sulfate is dissolved from many rocks and soils--in especially large quantities from gypsum and from beds of shale. It is formed also by the oxidation of sulfides of iron and is therefore present

in considerable quantities in waters from mines. Sulfate in waters that contain much calcium and magnesium causes the formation of hard scale in steam boilers and may increase the cost of softening the water.

Chloride (Cl)

Chloride is dissolved from rock materials in all parts of the country. Surface waters in the humid regions are usually low in chloride, whereas streams in arid or semiarid regions may contain several hundred parts per million of chloride leached from soils and rocks, especially where the streams receive return drainage from irrigated lands or are affected by ground-water-in-flow carrying appreciable quantities of chloride. Large quantities of chloride may affect the industrial use of water by increasing the corrosiveness of waters that contain large quantities of calcium and magnesium.

Fluoride (F)

Fluoride has been reported as being present in some rocks to about the same extent as chloride. However, the quantity of fluoride in natural surface waters is ordinarily very small compared to that of chloride. Recent investigations indicate that the incidence of dental caries is less when there are small amounts of fluoride present in the water supply than when there is none. However, fluoride in excessive concentrations is undesirable in waters used for drinking. It is stated in a comprehensive report by the California State Water Pollution Control Board (1952, p. 257) on water-quality standards "... that water containing less than 0.9 to 1.0 ppm of fluoride will seldom cause mottled enamel in children, and for adults concentrations less than 3 or 4 ppm are not likely to cause endemic cumulative fluorosis and skeletal effects."

Nitrate (NO_3)

Nitrate in water is considered a final oxidation product of nitrogenous material and may indicate contamination by sewage or other organic matter. The quantities of nitrate present in surface waters are generally less than 5 parts per million (as NO_3) and have no effect on the value of the water for ordinary uses.

It has been reported that as much as 2 parts per million of nitrate in boiler water tends to decrease intercrystalline cracking of boiler steel. Studies made in Illinois indicate that nitrates in excess of 70 parts per million (as NO_3) may contribute to methe-

moglobinemia ("blue babies") Faucett and Miller, 1946, p. 593), and more recent investigations conducted in Ohio show that drinking water containing nitrates in the range of 44 to 88 ppm or more (as NO_3) may cause methemoglobinemia (Waring, 1949). In a report published by the National Research Council, Maxcy (1950, p. 271) concludes that a nitrate content in excess of 44 parts per million (as NO_3) should be regarded as unsafe for infant feeding.

Phosphate (PO_4)

Phosphorus is an essential element in the growth of plants and animals, and some sources that contribute nitrate, such as organic wastes and leaching of soils, may be important as sources for phosphate in water and its occurrence may add to the apparent alkalinity. The addition of phosphates in water treatment constitutes a possible source, although the dosage is usually small. In some areas, phosphate fertilizers may yield some phosphate to water. A more important source is the increasing use of phosphates in detergents. Domestic and industrial sewage effluents may therefore contain considerable amounts of phosphate.

Boron (B)

Boron in small quantities has been found essential for plant growth, but irrigation water containing more than 1 part per million boron is detrimental to citrus and other boron-sensitive crops. Boron is reported in Survey analyses of surface waters in arid and semiarid regions of the Southwest and West where irrigation is practiced or contemplated, but few of the surface waters analyzed have harmful concentrations of boron.

Dissolved solids

The reported quantity of dissolved solids--the residue on evaporation--consists mainly of the dissolved mineral constituents in the water. It may also contain some organic matter and water of crystallization. Waters with less than 500 parts per million of dissolved solids are usually satisfactory for domestic and some industrial uses. Water containing several thousand parts per million of dissolved solids are sometimes successfully used for irrigation where practices permit the removal of soluble salts through the application of large volumes of water on well-drained lands, but generally water containing more than about 2,000 ppm is considered to be unsuitable for long-term irrigation under average conditions.

Chromium (Cr)

Few if any waters contain chromium from natural sources. Natural waters can probably contain only traces of chromium as a cation unless the pH is very low. When chromium is present in water, it is usually the result of pollution by industrial wastes. Fairly high concentrations of chromate anions are possible in waters having normal pH levels. Concentrations of more than 0.05 ppm of Cr in the hexavalent form constitutes ground for rejection of a water for domestic use on the basis of the standards of the U. S. Public Health Service (1946).

Nickel and cobalt (Ni, Co)

Nickel and cobalt are very similar in chemical behavior and also closely related to iron. Both are present in igneous rocks in small amounts and are more prevalent in silicic rocks. Any nickel in water is likely to be in small amounts and could be in a colloidal state. Cobalt may be taken into solution more readily than nickel. It may be taken into solution in small amounts through bacteriological activity similar to that causing solution of manganese. However, few data on the occurrence of either nickel or cobalt in natural water are available.

Copper (Cu)

Copper is a fairly common trace constituent of natural water. Small amounts may be introduced into water by solution of copper and brass water pipes and other copper-bearing equipment in contact with the water, or from copper salts added to control algae in open reservoirs. Copper salts such as the sulfate and chloride are highly soluble in waters with a low pH but in water of normal alkalinity these salts hydrolyze and the copper may be precipitated. In the normal pH range of natural water containing carbon dioxide, the copper might be precipitated as carbonate. The oxidized portions of sulfide-copper ore bodies contain other copper compounds. The presence of copper in mine water is common.

Copper imparts a disagreeable metallic taste to water. As little as 1.5 ppm can usually be detected, and 5 ppm can render the water unpalatable. Copper is not considered to be a cumulative systemic poison like lead and mercury; most copper ingested is excreted by the body and very little is retained. The pathological effects of copper are controversial, but it is generally believed very unlikely that humans could unknowingly ingest toxic quantities from palatable drinking water. The U. S. Public Health Service (1946) recommends that copper should not exceed 3.0 ppm

in drinking and culinary water on carriers subject to Federal quarantine regulations.

Lead (Pb)

Lead is only a minor element in most natural waters, but industrial or mine and smelter effluents may contain relatively large amounts of lead. Many of the commonly used lead salts are water soluble.

Traces of lead in water usually are the result of solution of lead pipe through which the water has passed. Amounts of lead of the order of 0.1 ppm are significant, as this concentration is the upper limit for drinking water in the standards adopted by the U. S. Public Health Service (1946). Higher concentrations may be added to water through industrial and mine-waste disposal. Lead in the form of sulfate is reported to be soluble in water to the extent of 31 ppm (Seidell, 1940, p. 1409) at 25°C. In natural water this concentration would not be approached, however, since a pH of less than 4.5 would probably be required to prevent formation of lead hydroxide and carbonate. It is reported (Pleissner, 1907) that at 18°C water free of carbon dioxide will dissolve the equivalent of 1.4 ppm of lead and the solubility is increased nearly four fold by the presence of 2.8 ppm of carbon dioxide in the solution. Presence of other ions may increase the solubility of lead.

Zinc (Zn)

Zinc is abundant in rocks and ores but is only a minor constituent in natural water because the free metal and its oxides are only sparingly soluble. In most alkaline surface waters it is present only in trace quantities, but more may be present in acid water. Chlorides and sulfates of zinc are highly soluble. Zinc is used in many commercial products, and industrial wastes may contain large amounts.

Zinc in moderate concentrations is not known to have adverse physiological effects on man or stock, but zinc salts give water an unpleasant astringent taste and form a greasy film on boiling water (Howard, 1923, p. 411). The U. S. Public Health Service (1946, p. 13) recommends that the zinc content not exceed 15 ppm in drinking and culinary water on carriers subject to Federal quarantine regulations.

Barium (Ba)

Barium may replace potassium in some of the igneous rock

minerals, especially feldspar and barium sulfate (barite) is a common barium mineral of secondary origin. Only traces of barium are present in surface water and sea water. Because natural water contains sulfate, barium will dissolve only in trace amounts. Barium sometimes occurs in brines from oil-well wastes.

The U. S. Public Health Service (1946) states that salts of barium, which have a deleterious physiological effect, must not be added to drinking and culinary water on carriers subject to Federal quarantine regulations.

Bromide (Br)

Bromine is a very minor element in the earth's crust and is normally present in surface waters in only minute quantities. Measurable amounts may be found in some streams that receive industrial wastes, and some natural brines may contain rather high concentrations. Probably trace amounts of bromide are of frequent occurrence in surface water since compounds containing bromine are generally readily soluble. It resembles chloride in that it tends to be concentrated in sea water.

Iodide (I)

Iodine, like bromine, is a minor element and is normally present in natural waters in only minute quantities. Measurable amounts may be found in some streams that receive industrial wastes, and some natural brines may contain rather high concentrations. It occurs in sea water to the extent of less than 1 ppm. Rankama and Sahama (1950, p. 767) report iodide present in rainwater to the extent of 0.001 to 0.003 ppm and in river water in about the same amount. Few waters will be found to contain over 2.0 ppm.

PROPERTIES AND CHARACTERISTICS OF WATER

Hardness

Hardness is the characteristic of water that receives the most attention in industrial and domestic use. It is commonly recognized by the increased quantity of soap required to produce lather. The use of hard water is also objectionable because it contributes to the formation of scale in boilers, water heaters, radiators, and pipes, with the resultant decrease in rate of heat transfer,

possibility of boiler failure, and loss of flow

Hardness is caused almost entirely by compounds of calcium and magnesium. Other constituents--such as iron, manganese, aluminum, barium, strontium, and free acid--also cause hardness, although they usually are not present in quantities large enough to have any appreciable effect. Water that has less than 60 parts per million of hardness is usually rated as soft and suitable for many purposes without further softening. Waters with hardness ranging from 61 to 120 parts per million may be considered moderately hard, but this degree of hardness does not seriously interfere with the use of water for many purposes except for use in high-pressure steam boilers and in some industrial processes. Waters with hardness ranging from 121 to 200 parts per million are considered hard, and laundries and industries may profitably soften such supplies. Water with hardness above 200 parts per million generally required some softening before being used for most purposes.

Acidity (H^{+1})

The use of the terms acidity and alkalinity is widespread in the literature of water analysis and is a cause of confusion to those who are more accustomed to seeing a pH of 7.0 used as a neutral point. Acidity of a natural water represents the content of free carbon dioxide and other uncombined gases, organic acids and salts of strong acids and weak bases that hydrolyze to give hydrogen ions. Sulfates of iron and aluminum in mine and industrial wastes are common sources of acidity. The presence of acidity is reported in those waters which have a pH below 4.5.

Sodium-adsorption-ratio (SAR)

The term "sodium-adsorption-ratio (SAR)" was introduced by the U. S. Salinity Laboratory Staff (1954). It is a ratio expressing the relative activity of sodium ions in exchange reaction with soil and is an index of the sodium or alkali hazard to the soil. Sodium-adsorption-ratio is expressed by the equation:

$$SAR = \sqrt{\frac{Na^{+}}{\frac{Ca^{++} + Mg^{++}}{2}}}$$

where the concentrations of the ions are expressed in milliequiv-

alents per liter (or equivalents per million for most irrigation waters).

Waters are divided into four classes with respect to sodium or alkali hazard: low, medium, high, and very high, depending upon the SAR and the specific conductance. At a conductance of 100 micromhos per centimeter the dividing points are at SAR values of 19, 18, and 26, but at 5,000 micromhos the corresponding dividing points are SAR values of approximately 2.5, 6.5 and 11. 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.

Specific conductance (micromhos per centimeter at 25°C)

The specific conductance of a water is a measure of its capacity to conduct a current of electricity (see p. 8). The conductance varies with the concentration and degree of ionization of the different minerals in solution and with the temperature of the water. When considered in conjunction with results of determinations for other constituents, specific conductance is a useful determination and plays an important part in indicating changes in concentration of the total quantity of dissolved minerals in surface waters.

Specific conductance of most waters in the Eastern United States is less than 1,000 micromhos, but in the arid western parts of the country, a specific conductance of more than 1,000 micromhos is common.

Hydrogen-ion concentration (pH)

Hydrogen-ion concentration is expressed in terms of pH units (see p. 8). The values of pH often are used as a measure of the solvent power of water or as an indicator of the chemical behavior certain solutions may have toward rock minerals.

The degree of acidity or alkalinity of water, as indicated by the hydrogen-ion concentration, expressed as pH, is related to the corrosive properties of water and is useful in determining the proper treatment for coagulation that may be necessary at water-treatment plants. A pH of 7.0 indicates that the water is neither acid nor alkaline. pH readings progressively lower than 7.0 denote increasing acidity and those progressively higher than 7.0 denote increasing alkalinity. The pH of most natural surface waters ranges between 6 and 8. Some alkaline surface waters have pH values greater than 8.0, and waters containing free mineral acid or organic matter usually have pH values less than 4.5.

The investigator who utilizes pH data in his interpretations of water analyses should be careful to place pH values in their proper perspective.

Color

In water analysis the term "color" refers to the appearance of water that is free from suspended solids. Many turbid waters that appear yellow, red, or brown when viewed in the stream show very little color after the suspended matter has been removed. The yellow-to-brown color of some waters is usually caused by organic matter extracted from leaves, roots, and other organic substances in the ground. In some areas objectionable color in water results from industrial wastes and sewage. Clear deep water may appear blue as the result of a scattering of sunlight by the water molecules. Water for domestic use and some industrial uses should be free from any perceptible color. A color less than 10 units generally passes unnoticed. Some swamp waters have natural color of 200 to 300 units or more.

The extent to which a water is colored by material in solution is commonly reported as a part of a water analysis because a significant color in water may indicate the presence of organic material that may have some bearing on the dissolved solids content. Color in water is expressed in terms of units between 0 and 500 or more based on the Hazen's arbitrary standard (see p. 8).

Oxygen consumed

Oxygen consumed is a measure of the amount of oxygen required to oxidize unstable materials in water and may be correlated with natural-water color or with some carbonaceous organic pollution from sewage or industrial wastes.

Tolerances for oxygen consumed in feed water for low- and high-pressure boilers are 15 and 3 ppm, respectively (Northeast Water Works Association, 1940). Wash water containing more than 8 ppm has been reported to impart a bad odor to textiles; concentrations for water used in beverages and brewing range from 0.5 to 5.0 ppm (California State Water Pollution Control Board, 1952, 1954).

Organics

Phenols. --Phenolic material in water resources is invariably the result of pollution. Phenols are widely used as disinfectants and in the synthesis of many organic compounds. Waste products from oil refineries, coke areas, and chemical plants may contain high concentrations. Fortunately, phenols decompose in the pres-

ence of oxygen and organic material, and their persistence downstream from point of entry is relatively short lived. The rate of decomposition is dependent on the environment.

Very low concentrations impart such a disagreeable taste to water that it is highly improbable that harmful amounts could be consumed unknowingly. Reported thresholds of detection of taste and odor range from 0.01 to 0.1 ppm.

Detergents (ABS). --The major type of detergents is the alkylbenzene-sulfonate group, which are highly resistant to biological degradation so that the effect of ABS in water persists over a long period of time. Waste water may carry these detergents to surface water supplies with resulting deterioration of water quality which includes unpleasant taste, odor, and foaming. Very little is known concerning the nature and the extent of occurrence and movement of detergents in waters or of the chemical and physical change that they may undergo after being added to surface waters (U. S. Geological Survey-Federal Housing, 1959).

Temperature

Temperature is an important factor in property determining the quality of water. This is very evident for such a direct use as an industrial coolant. Temperature is also important, but perhaps not so evident, for its indirect influence upon aquatic biota, concentrations of dissolved gases, and distribution of chemical solutes in lakes and reservoirs as a consequence of thermal stratification and variation.

Surface water temperatures tend to change seasonally and daily with air temperatures, except for the outflow of large springs. Superimposed upon the annual temperature cycle is a daily fluctuation of temperature which is greater in warm seasons than in cold and greater in sunny periods than with a cloud cover. Natural warming is due mainly to absorption of a solar radiation by the water and secondarily to transfer of heat from the air or from the bottom. Condensation of water vapor at the water surface is reported to furnish measurable quantities of heat. Heat loss takes place largely through radiation, with further losses through evaporation and conduction to the air and bottom. Thus the temperature of a small stream generally reaches a maximum in mid-to late afternoon due to solar heating and reaches a minimum from early to mid-morning after nocturnal radiation.

Temperature variations which commonly occur during summer in lakes and reservoirs of temperate regions results in a separation of the water volume into a circulating upper portion and a non-circulating lower portion. Separating the two is a stratum of water of variable vertical thickness in which the temperature

decreases rapidly with increasing depth. This physical division of the water mass into a circulating and a stagnant portion is the result of density differences in the water column associated with the temperature distribution. Knowledge of the stratification in a body of water may result in increased utility by locating strata of more suitable characteristics. For example, the elevation of an intake pipe may be changed to obtain water of lower temperature, higher pH, less dissolved iron, or other desirable properties.

Temperature is a major factor in determining the effect of pollution on aquatic organisms. The resistance of fish to certain toxin substances has been shown to vary widely with temperature. The quantity of dissolved oxygen which the water can contain is also temperature dependent. Oxygen is more soluble in cold water than in warm water, hence the reduction of oxygen concentrations by pollution is especially serious during periods of high temperature when oxygen levels are already low. Increased temperatures also accelerate biological activity including that of the oxygen-utilizing bacteria which decompose organic wastes. These pollutional effects may be especially serious when low flow conditions coincide with high temperatures. Summary temperature data of water are essential for planning multiple uses of water resources.

Turbidity

Turbidity is the optical property of a suspension with reference to the extent to which the penetration of light is inhibited by the presence of insoluble material. Turbidity is a function on both the concentration and particle size of the suspended material. Although it is reported in terms of parts per million of silica, it is only partly synonymous with the weight of sediment per unit volume of water.

Turbid water is abrasive in pipes, pumps, and turbine blades. In process water, turbidities much more than 1 ppm are not tolerated by several industries, but others permit up to 50 ppm higher (Rainwater, Thatcher, 1960, p. 289).

SEDIMENT

Fluvial sediment is generally regarded as that sediment which is transported by, suspended in, or deposited by water. Suspended sediment is that part of it which remains in suspension in water owing to the upward components of turbulent currents or by colloidal suspension. Much fluvial sediment results from the natural process of erosion, which in turn is part of the geologic cycle of

rock transformation. This natural process may be accelerated by agricultural practices. Sediment is also contributed by a number of industrial and construction activities. In certain sections, waste materials from mining, logging, oil-field, and other industrial operations introduce large quantities of suspended as well as dissolved material.

The quantity of sediment, transported or available for transportation, is affected by climatic conditions, form or nature of precipitation, character of the soil mantle, plant cover, topography, and land use. The mode and rate of sediment erosion, transport, and deposition is determined largely by the size distribution of the particles or more precisely by the fall velocities of the particles in water. Sediment particles in the 'sandsize (larger than 0.062 mm) range do not appear to be affected by flocculation or dispersion resulting from the mineral constituents in solution. In contrast, the sedimentation diameter of clay and silt particles in suspension may vary considerably from point to point in a stream or reservoir, depending on the mineral matter in solution and in suspension and the degree of turbulence present. The size of sediment particles in transport at any point depends on the type of erodible and soluble material in the drainage area, the degree of flocculation present, time in transport, and characteristics of the transporting flow. The flow characteristics include velocity of water, turbulence, and the depth, width, and roughness of the channel. As a result of these variable characteristics, the size of particles transported, as well as the total sediment load, is in constant adjustment with the characteristics and physical features of the stream and drainage area.

STREAMFLOW

Most of the records of stream discharge, used in conjunction with the chemical analyses and in the computation of sediment loads in this volume, are published in Geological Survey reports on the surface-water supply of the United States. The discharge reported for a composite sample is usually the average of daily mean discharges for the composite period. The discharges reported in the tables of single analyses are either daily mean discharges or discharges for the time at which samples were collected, computed from a stage-discharge relation or from a discharge measurement.

PUBLICATIONS

Reports giving records of chemical quality and temperatures of surface waters and suspended-sediment loads of streams in the area covered by this volume for the water years 1941-58, are listed below:

Numbers of water-supply papers containing records for
Parts 9-14, 1941-58

Year	WSP	Year	WSP	Year	WSP	Year	WSP
1941	942	1946	1050	1951	1200	1956	1453
1942	950	1947	1102	1952	1253	1957	1523
1943	970	1948	1133	1953	1293	1958	1574
1944	1022	1949	1163	1954	1353		
1945	1030	1950	1189	1955	1403		

Geological Survey reports containing chemical quality, temperature, and sediment data obtained before 1941 are listed below. Publications dealing largely with the quality of ground-water supplies and only incidentally covering the chemical composition of surface waters are not included. Publications that are out of print are preceded by an asterisk.

PROFESSIONAL PAPER

- *135. Composition of river and lake waters of the United States, 1924.

BULLETINS

- *479. The geochemical interpretation of water analyses, 1911.
770. The data of geochemistry, 1924.

WATER-SUPPLY PAPERS

- *108. Quality of water in the Susquehanna River drainage basin, with an introductory chapter on physiographic features, 1904.
*161. Quality of water in the upper Ohio River basin and at Erie, Pa., 1906.
*193. The quality of surface waters in Minnesota, 1907.
*236. The quality of surface waters in the United States, Part 1, Analyses of waters east of the one hundredth meridian, 1909.

- *237. The quality of the surface waters of California, 1910.
- *239. The quality of the surface waters of Illinois, 1910.
- *273. Quality of the water supplies of Kansas, with a preliminary report on stream pollution by mine waters in southeastern Kansas, 1911.
- *274. Some stream waters of the western United States, with chapters on sediment carried by the Rio Grande and the industrial application of water analyses, 1911.
- *339. Quality of the surface waters of Washington, 1914.
- *363. Quality of the surface waters of Oregon, 1914.
- *418. Mineral springs of Alaska, with a chapter on the chemical character of some surface waters of Alaska, 1917.
- *596-B. Quality of water of Colorado River in 1925-26, 1928.
- *596-D. Quality of water of Pecos River in Texas, 1928.
- *596-E. Quality of the surface waters of New Jersey, 1928.
- *636-A. Quality of water of the Colorado River in 1926-28, 1930.
- *636-B. Suspended matter in the Colorado River in 1925-28, 1930.
- *638-D. Quality of water of the Colorado River in 1928-30, 1932.
- *839. Quality of water of the Rio Grande basin above Fort Quitman, Tex., 1938.
- *889-E. Chemical character of surface water of Georgia, 1944.
- *998. Suspended sediment in the Colorado River, 1925-41, 1947.
- 1048. Discharge and sediment loads in the Boise River drainage basin, Idaho, 1939-40, 1948.
- 1110-C. Quality of water of Conchas Reservoir, New Mexico, 1939-49, 1952.

Many of the reports listed are available for consultation in the larger public and institutional libraries. Copies of Geological Survey publications still in print may be purchased at a nominal cost from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., who will, upon request, furnish lists giving prices.

COOPERATION

Assistance in collecting records for chemical-quality and sediment investigations was given by many municipal, State, and Federal agencies. The Bureau of Reclamation of the United States Department of the Interior furnished financial assistance for the operation of some stations in Arizona and Utah. Chemical-quality investigations in the Great Basin and Pacific slope basins in California and upper Virgin River basin in Utah and Arizona were continued in cooperation with the States of California and Utah. Investigations of sediment characteristics of the Green River near Palmer, Wash., were continued in cooperation with the city of

Tacoma. Sediment investigations of the San Juan River at Bloomfield, N. Mex., and chemical-quality investigations of the San Juan River at Shiprock, N. Mex., were continued in cooperation with the State of New Mexico. The Soil Conservation Service of the United States Department of Agriculture assisted on special sediment studies in the Gila River basin in Arizona.

In addition to the cooperative program, many of the stations were operated from funds appropriated directly to the Geological Survey for quality-of-water investigations. Investigations of the chemical quality and suspended-sediment loads in the Colorado River basin in Arizona, Colorado, Nevada, New Mexico, and Utah have been carried on as a continuing Federal project since 1925.

DIVISION OF WORK

The quality-of-water program was conducted by the Water Resources Division of the Geological Survey, L. B. Leopold, chief hydraulic engineer and S. K. Love, chief, Quality of Water Branch. The records were collected and prepared for publication under the supervision of district chemists as follows: In California, Eugene Brown; in Colorado and Wyoming (Colorado River basin), Nevada, and Utah - J. G. Connor; in Arizona and New Mexico - J. M. Stow; in Washington, Oregon, and Idaho - H. A. Swenson, succeeded by L. B. Laird. Any additional information on file may be obtained by writing or visiting the responsible Quality of Water district office as listed in the following table.

<u>District office</u>	<u>Drainage basin</u>
Geology Building University of New Mexico P. O. Box 4217 Albuquerque, N. Mex.	Colorado River basin (Arizona, New Mexico)
Room 305, Empire Building 231 East 4th South Salt Lake City 11, Utah	Colorado River basin (Colorado, Utah, Wyoming, and Nevada) The Great Basin (Utah, Nevada)
Room 8042, Federal Building U. S. Courthouse 650 Capitol Ave. Sacramento 14, Calif.	The Great Basin (California) Pacific slope basins in California

District officeDrainage basin

P. O. Box 3202
 Room 416, Old Post Office
 Building
 511 NW Broadway
 Portland 8, Oreg.

Pacific slope basins in
 Washington and upper
 Columbia River basin
 Snake River basin
 Pacific slope basins in
 Oregon and lower Columbia
 River basin

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CHEMICAL ANALYSES, WATER TEMPERATURES, AND SEDIMENT

PART 9. COLORADO RIVER BASIN

COLORADO RIVER MAIN STEM

9-345. COLORADO RIVER AT HOT SULPHUR SPRINGS, COLO.

LOCATION.--At bridge at Hot Sulphur Springs, Grand County, 1 mile downstream from gaging station which is 3 miles upstream from Beaver Creek. DRAINAGE AREA.--782 square miles upstream from gaging station.

RECORDS AVAILABLE.--Chemical analyses: April 1947 to September 1958.

Water temperatures: April 1949 to September 1958.

EXTREMES, 1957-58.--Dissolved solids: Maximum, 108 ppm Apr. 1-30, July 1-31; minimum, 55 ppm June 1-15.

Hardness: Maximum, 70 ppm July 1-31; minimum, 26 ppm June 1-15.

Specific conductance: Maximum daily, 210 micromhos Apr. 13; minimum daily, 59 micromhos May 30.

Water temperatures: Maximum, 73°F Aug. 8, 9, 11-12; minimum, freezing point on many days during November to April.

EXTREMES, 1947-50.--Dissolved solids (1947-50, 1952-58): Maximum, 123 ppm July 16-31, 1955; minimum, 38 ppm June 21-30, 1947.

Hardness (1947-50, 1952-58): Maximum, 80 ppm Aug. 1-10, 1955; minimum, 20 ppm June 21-30, 1947.

Specific conductance: Maximum daily, 210 micromhos Apr. 13, 1958; minimum daily, 47.6 micromhos June 27, 1947.

Water temperatures: Maximum, 75°F Aug. 8, 1957; minimum, freezing point on many days during winter months.

REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October-

ber 1957 to September 1958 given in WSP 1563.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonyl (CO ₂)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 1-31, 1957...	150	14	0.08	17	2.6	6.1	1.3	73	0	6.0	1.2	0.3	0.4	0.03	86	0.12	34.8	53	0	0.4	135	7.6
Nov. 1-30.....	128	14	0.12	17	2.6	8.2	1.5	75	0	7.4	2.0	0.2	0.5	0.04	91	0.12	31.4	53	0	0.5	146	7.5
Dec. 1-31.....	112	13	0.05	17	2.3	11	1.2	77	0	7.0	2.9	0.3	0.8	0.03	94	0.13	28.4	51	0	0.7	150	7.6
Jan. 1-31, 1958...	105	13	0.00	16	2.4	9.7	1.2	75	0	7.0	2.2	0.4	0.4	0.04	98	0.13	27.8	50	0	0.6	147	7.3
Feb. 1-28.....	96.4	12	0.01	16	2.3	9.5	1.2	73	0	7.0	2.2	0.3	0.4	0.02	96	0.13	25.0	50	0	0.6	146	7.3
Mar. 1-31.....	97.4	13	0.01	16	2.7	9.6	1.4	76	0	10	2.2	0.3	2.0	0.03	92	0.13	24.2	51	0	0.6	148	7.4
Apr. 1-30.....	198	13	0.16	18	3.6	9.5	1.9	84	0	9.0	2.8	1.1	1.3	0.08	108	0.15	57.7	61	0	0.5	167	7.9
May 1-4.....	533	14	0.16	17	2.7	6.2	3.4	73	0	5.8	1.2	--	1.4	0.08	98	0.13	141	53	0	0.4	140	7.7
May 5-15.....	964	13	0.11	13	2.1	4.9	2.7	53	0	7.8	1.2	1.1	1.2	0.09	77	0.10	200	40	0	0.3	104	7.4
May 16-31.....	2,024	11	0.10	9.0	1.3	3.5	2.0	38	0	6.4	1.0	1.1	1.5	0.04	62	0.08	339	28	0	0.3	72	7.2
June 1-15.....	1,463	12	0.06	8.6	1.2	3.3	1.1	36	0	4.2	1.0	0.3	1.3	0.06	55	0.07	217	26	0	0.3	72	7.3
June 16-30.....	446	13	0.05	14	2.4	4.9	1.5	62	0	4.2	1.0	0.3	1.0	0.04	79	0.11	95.1	46	0	0.3	115	7.4
July 1-31.....	166	13	0.01	22	3.8	7.6	1.4	95	0	6.0	0.9	0.3	0.8	0.02	108	0.15	48.4	70	0	0.4	165	7.7
Aug. 1-31.....	123	12	0.06	20	3.5	7.1	1.7	86	0	5.7	1.4	0.3	1.0	0.04	97	0.13	32.2	64	0	0.4	150	7.7
Sept. 1-30.....	56.7	11	0.05	19	2.9	8.2	2.1	85	0	4.7	1.2	0.4	0.9	0.09	98	0.13	15.0	60	0	0.5	153	7.5
Weighted average	305	12	0.08	13	2.0	5.4	1.7	56	0	6.2	1.3	0.2	1.2	0.05	76	0.10	62.6	41	0	0.4	106	--

COLORADO RIVER MAIN STEM--Continued
9-345. COLORADO RIVER AT HOT SULPHUR SPRINGS, COLO.--Continued

Temperature (°F) of water, water year October 1957 to September 1958
/Once-daily measurement between 5 p.m. and 6 p.m./

Month	Day																															Aver- age	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October....	60	59	56	57	56	55	55	54	54	53	53	51	49	49	49	48	48	49	48	48	47	43	42	42	38	--	41	41	41	43	42	49	
November....	43	42	41	40	38	35	38	36	35	36	36	37	37	34	34	33	33	33	33	32	32	--	32	32	32	32	32	32	32	32	--	35	
December...	32	32	32	32	32	32	33	33	33	32	32	32	32	32	33	33	33	32	32	32	32	32	32	32	32	32	33	32	32	32	32	32	
January....	32	32	32	32	32	32	--	32	32	32	32	32	32	32	32	33	33	33	33	32	32	32	32	32	32	32	32	33	32	32	32	32	
February....	32	32	32	32	32	32	33	33	33	33	33	33	33	33	33	33	33	33	32	32	34	34	34	34	34	34	34	32	--	--	--	33	
March....	33	33	32	32	32	32	33	32	32	32	32	32	32	32	33	32	32	32	33	33	33	33	33	33	32	32	33	32	33	33	33	32	
April....	34	--	33	32	32	33	33	33	33	33	32	33	33	33	34	34	36	34	46	44	47	41	39	42	47	47	42	45	48	52	--	38	
May....	48	49	49	50	51	50	55	45	43	52	49	52	46	41	49	49	49	51	50	49	48	49	51	49	50	51	52	54	54	52	53	50	
June....	53	53	54	51	55	57	56	57	56	56	57	55	59	61	60	62	60	58	60	58	60	62	58	65	62	60	60	62	65	66	65	--	59
July....	66	65	65	58	62	65	65	65	62	64	65	67	68	67	67	67	65	67	67	64	66	67	66	67	67	67	62	64	70	68	67	66	
August....	70	71	70	70	71	71	71	73	73	73	73	69	70	71	69	70	66	69	63	70	63	62	63	68	63	68	63	63	63	63	67	68	
September..	65	62	63	66	66	63	66	66	67	66	70	62	65	58	52	52	56	60	52	61	63	57	52	55	55	60	51	58	56	51	--	60	

EAGLE RIVER BASIN

9-690. EAGLE RIVER AT GYPSUM, COLO.

LOCATION.--At bridge at Gypsum, Eagle County, about 400 feet upstream from Gypsum Creek and bridge on U.S. Highways 6 and 24, and about 475 feet upstream from gaging station, below Gypsum.
DRAINAGE AREA.--844 square miles upstream from sampling station and 957 square miles upstream from gaging station.
RECORDS AVAILABLE.--Chemical analyses: April 1947 to September 1958.
Water temperatures: April 1949 to September 1958.

EXTREMES, 1957-58.--Dissolved solids: Maximum, 790 ppm Sept. 1-30; minimum, 110 ppm May 19-31.

Hardness: Maximum, 448 ppm Sept. 1-30; minimum, 77 ppm May 19-31.

Specific conductance: Maximum daily, 1,300 micromhos Jan. 2; minimum daily, 155 micromhos May 23.

Water temperatures: Maximum, 69°F Aug. 17; minimum, freezing point on many days during November to February.

EXTREMES, 1947-58.--Dissolved solids: Maximum, 1,370 ppm Aug. 11-12, 1952; minimum, 106 ppm June 11-20, 1953.

Hardness (1947-58): Maximum, 558 ppm Oct. 11-20, 1957; minimum, 70 ppm June 23, 1957.

Specific conductance: Maximum daily, 1,850 micromhos Aug. 6, 1949; minimum daily, 155 micromhos May 23, 1958.

Water temperatures (1949-58): Maximum, 76°F Aug. 24, 1949; minimum, freezing point on many days during winter months.

REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for gaging station below Gypsum for water year October 1957 to September 1958 given in WSP 1958.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbocation (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 1-31, 1957...	268	8.5		115	22	67	2.5	182	0	243	92		0.8	673	0.92	487	380	231	1.5	1,040	7.3
Nov. 1-30.....	292	9.4		119	24	73	2.6	182	0	254	108		1.2	703	.98	554	394	245	1.6	1,080	7.4
Dec. 1-31.....	247	9.7		119	24	76	2.5	181	0	255	110		2.2	723	.98	482	395	247	1.7	1,100	7.8
Jan. 1-31, 1958....	209	9.8		119	24	80	2.6	184	0	260	115		1.2	721	.98	407	397	246	1.8	1,110	7.8
Feb. 1-28.....	209	9.1		111	24	71	2.5	170	0	239	104		1.8	662	.90	374	374	235	1.6	1,040	7.7
Mar. 1-31.....	194	8.4		111	25	69	2.5	172	0	244	97		1.8	689	.91	350	382	241	1.5	1,040	7.9
Apr. 1-30.....	253	9.5		91	23	50	2.1	153	0	200	67		1.8	535	.73	365	320	195	1.2	814	7.7
May 1-5.....	468	10		61	13	25	1.7	130	0	106	32		2.2	331	.45	418	207	100	.8	520	7.8
May 6-18.....	1,416	7.7		35	5.7	7.6	.9	92	0	39	8.5		2.2	164	.22	637	112	37	.3	264	7.7
May 19-31.....	3,668	5.8		25	3.3	3.4	.8	69	0	23	3.2		1.6	110	.15	1,090	77	20	.2	173	7.8
June 1-21.....	2,982	5.1		28	2.2	5.8	.7	71	0	32	6.6		.9	136	.17	1,010	78	20	.3	207	7.2
June 22-29.....	1,306	5.3		39	5.1	13	1.0	84	0	58	18		.8	193	.26	681	118	49	.5	320	7.4
June 30, July 1-16.....	600	6.3		65	9.5	29	1.7	124	0	110	39		.9	338	.46	548	200	98	.9	543	7.7
July 17-31.....	285	7.3		95	17	54	2.5	167	0	179	76		1.1	337	.73	413	304	187	1.3	838	7.6
Aug. 1-31.....	184	10		131	26	66	3.3	211	0	275	90		1.8	731	.99	363	436	263	1.4	1,090	7.8
Sept. 1-30.....	169	11		135	27	79	3.7	205	0	295	110		1.8	790	1.07	360	448	280	1.6	1,180	7.8
Weighted average	594	6.9		57	9.8	26	1.4	109	0	101	36		1.4	504	0.42	492	182	93	0.8	480	--

EAGLE RIVER BASIN--Continued

9-690. EAGLE RIVER AT GYPSUM, COLO.--Continued

Temperature (°F) of water, water year October 1957 to September 1958

Month		Day																												Average		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28				29	30	31
October.....	52	52	50	56	57	53	50	53	50	48	52	51	58	50	48	50	48	50	48	43	50	47	48	45	48	39	38	47	50	42	48	49
November....	46	41	42	42	45	38	39	35	32	40	40	46	40	37	32	35	35	35	33	32	32	32	34	32	35	36	33	32	32	32	32	37
December....	32	32	34	--	33	33	32	34	32	32	32	33	33	32	34	34	33	32	35	35	35	32	36	35	35	32	32	34	33	32	33	33
January.....	32	32	32	34	34	33	32	32	--	32	--	32	32	32	32	32	32	32	32	32	33	32	32	32	33	33	33	33	35	36	35	33
February....	35	33	35	34	34	35	35	37	34	35	33	34	36	34	37	35	35	37	--	40	40	41	41	42	38	34	32	32	--	--	--	36
March.....	34	35	37	37	40	45	42	45	39	41	38	40	38	41	40	37	42	--	45	45	45	42	47	48	46	45	43	38	47	47	43	42
April.....	41	48	45	40	47	40	45	--	41	41	44	43	48	55	55	55	51	47	46	47	54	50	44	44	48	50	51	46	48	46	--	47
May.....	49	52	58	58	57	60	47	50	49	48	48	50	46	50	56	56	47	56	56	51	48	46	46	50	46	46	50	51	47	54	51	51
June.....	53	54	59	48	50	51	63	55	55	49	54	54	50	54	55	53	58	54	55	54	54	57	56	60	55	63	55	57	59	60	--	55
July.....	55	60	55	57	57	54	57	58	59	57	57	62	58	56	58	57	60	65	68	65	67	66	57	56	56	58	55	58	62	63	56	59
August.....	58	57	62	60	57	64	55	56	63	64	62	62	65	57	62	62	69	61	60	59	59	58	57	60	56	56	59	61	60	66	60	66
September...	65	66	64	59	59	--	57	61	67	61	62	60	67	57	55	53	52	55	51	50	55	52	60	56	51	60	48	53	53	57	--	57

COLORADO RIVER MAIN STEM

9-725. COLORADO RIVER NEAR GLENWOOD SPRINGS, COLO.

LOCATION --At Shoshone powerplant, 6 miles upstream from gaging station at Glenwood Springs, Garfield County, which is 0.5 mile upstream from Roaring Fork. DRAINAGE AREA. 4,500 square miles upstream from gaging station.

RECORDS AVAILABLE --Chemical analyses: October 1941 to September 1958.

EXTREMES 1957-58 --Dissolved solids: Maximum, 587 ppm Dec. 14; minimum, 146 ppm June 1-21.

Hardness: Maximum, 260 ppm Dec. 14; minimum, 86 ppm June 1-21.

Specific conductance: Maximum daily, 1,000 micromhos Dec. 14; minimum daily, 187 micromhos May 31, June 1.

Water temperatures: Maximum, 68°F on several days in August; minimum, freezing point on many days during November to February.

EXTREMES 1941-58 --Dissolved solids: Maximum, 2,030 ppm Aug. 10, 1947; minimum, 105 ppm June 1-10, 1942.

Hardness: Maximum, 1,480 ppm Aug. 10, 1947; minimum, 72 ppm June 1-10, 11-20, 1942.

Specific conductance: Maximum daily, 2,260 micromhos Aug. 10, 1947; minimum daily, 153 micromhos May 24, 1948.

Water temperatures (1949-58): Maximum, 71°F July 31, 1954, Aug. 19, 1955; minimum, freezing point on many days during winter months.

REMARKS --Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for gaging station at Glenwood Springs for water year October 1957 to September 1958 given in WSP 1563. No appreciable inflow between Shoshone powerplant and gaging station except during periods of heavy local rains.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonyl (CO ₂)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Sodium carbonate ratio (micro-mhos at 25°C)	Specific conductance (micro-mhos at 25°C)
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate		
Oct. 1-31, 1957...	1,224	14	0.03	67	13	66	2.3	140	0	117	93	0.1	0.9	444	0.60	1,470	220	105	1.9	750	8.0
Nov. 1-30.....	1,205	13	0.03	64	13	64	2.3	130	5	113	91	0	0	429	.58	1,400	212	97	1.9	738	8.4
Dec. 1-13, 15-31..	1,033	14	0.02	59	13	67	2.3	136	0	101	96	0	1	420	.57	1,170	202	90	2.1	725	7.8
Dec. 14.....	1,820	15	--	77	17	103	3.2	160	0	147	145	--	.8	437	.80	1,300	260	129	2.8	1,000	8.2
Jan. 1-3-31, 1958	1,015	12	0.00	53	11	67	2.2	125	0	87	90	2	1.4	396	.54	1,090	178	76	2.2	684	7.8
Jan. 2.....	1,868	13	0.01	67	15	96	2.4	148	0	123	135	3	1.6	426	.72	1,230	228	107	2.8	901	7.9
Feb. 1-28.....	1,179	11	0.01	51	10	64	2.2	118	0	88	90	3	1.1	373	.51	1,050	174	73	2.1	661	7.6
Mar. 1-31.....	1,179	11	0.00	52	11	64	2.2	118	0	88	90	3	1.1	393	.53	1,250	174	77	2.1	666	7.7
Apr. 1-30.....	1,717	12	0.02	48	11	46	1.8	120	0	85	58	3	1.4	330	.45	1,530	165	67	1.6	546	7.6
May 1-7.....	3,524	15	0.04	44	8	24	2.2	123	0	54	28	3	2.3	242	.33	2,300	142	42	1.9	387	7.9
May 8-31.....	10,440	12	0.06	31	4	12	1.5	95	0	28	9.8	3	1.8	156	.21	4,400	98	20	.4	243	7.8
June 1-21.....	8,787	10	0.05	27	4	12	1.4	74	0	28	15	3	1.2	146	.20	3,470	86	26	.6	236	7.8
June 22-30.....	4,081	9	0.03	35	7	22	1.8	89	0	50	30	3	1.2	209	.28	2,300	117	44	.9	347	7.7
July 1-6.....	2,522	11	0.01	44	8	33	2.0	102	0	74	44	3	1.7	283	.38	1,980	145	61	1.2	473	7.6
July 7-31.....	1,496	9	0.01	52	12	58	2.4	130	0	100	79	1	.6	412	.56	1,660	190	83	1.8	669	7.8
Aug. 1-31.....	1,087	9.9	0.01	62	14	64	2.8	134	0	111	90	2	1.0	432	.59	1,270	213	103	1.9	720	7.7
Sept. 1-30.....	1,048	8.8	0.01	60	13	66	2.2	127	0	108	92	4	1.0	416	.57	1,180	201	97	2.0	708	7.8
Weighted average	2,380	11	0.04	42	8.0	33	1.8	105	0	60	44	0.3	1.3	262	0.36	1,680	138	52	1.2	434	--

*a Calculated from determined constituents.

COLORADO RIVER MAIN STEM--Continued

9-725. COLORADO RIVER NEAR GLENWOOD SPRINGS, COLO.--Continued

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																															Aver- age	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October.....	56	56	54	52	52	52	52	52	48	48	48	48	48	48	46	48	48	48	48	47	46	46	44	43	42	42	40	42	41	40	42	47	
November....	42	42	42	42	40	38	38	36	35	35	36	37	37	36	34	34	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	35	
December....	32	32	32	32	--	32	32	32	32	32	32	32	32	32	32	32	33	33	32	32	32	32	33	33	32	33	32	32	32	32	32	32	
January.....	32	32	32	32	32	32	32	32	33	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	
February....	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	34	36	38	39	37	36	36	40	38	--	--	34	32	
March.....	35	35	34	33	33	33	33	35	33	36	34	35	37	36	38	37	35	35	38	38	39	41	43	42	41	42	40	40	38	42	40	37	
April.....	41	42	42	40	39	38	42	38	37	39	40	42	43	44	45	47	50	48	47	46	48	46	43	42	42	46	46	43	44	44	--	43	
May.....	46	48	48	50	50	49	47	46	48	48	48	48	48	48	48	48	50	48	50	51	50	50	50	50	52	48	49	50	50	50	49	50	
June.....	50	51	50	51	50	52	52	53	52	52	52	53	53	55	56	56	56	56	56	57	58	58	58	58	60	58	58	60	60	60	60	--	55
July.....	60	59	58	60	60	59	58	60	60	62	62	62	63	61	60	61	62	62	62	61	60	61	60	62	62	62	62	62	63	63	63	61	61
August.....	63	--	67	66	66	66	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	62	62	65
September..	60	60	59	59	59	60	60	61	61	60	60	60	60	58	57	52	52	52	54	54	54	54	55	53	50	50	52	53	54	54	--	56	

COLORADO RIVER MAIN STEM--Continued

9-955. COLORADO RIVER NEAR CAMERO, COLO.

LOCATION--At Grand Valley project diversion dam, 3.7 miles upstream from Camero, Mesa County, 0.4 mile upstream from Plateau Creek, and 5.9 (revised) miles downstream from gaging station.

DRAINAGE AREA--Approximately 8,050 square miles upstream from gaging station.

RECORDS AVAILABLE--Chemical analyses: October 1933 to September 1958.

Water temperatures: April 1949 to September 1958.

EXTREMES, 1957-58--Dissolved solids: Maximum, 760 ppm Sept. 1-30; minimum, 174 ppm May 23, 25-26, 28-31.

Hardness: Maximum, 302 ppm Sept. 1-30; minimum, 102 ppm May 23, 25-26, 28-31, June 1-16.

Specific conductance: Maximum daily, 1,470 micromhos Dec. 4; minimum daily, 252 micromhos May 29.

Water temperatures: Maximum, 74°F Aug. 11-17; minimum, 33°F Jan. 26.

EXTREMES, 1953-58--Dissolved solids (1953-43, 1950-58): Maximum, 1,050 ppm Dec. 21-31, 1939; minimum, 143 ppm June 11-20, 1935.

Hardness (1953-55, 1957-58): Maximum, 399 ppm July 21-31, 1934; minimum, 98 ppm June 21-30, 1935.

Specific conductance (1941-58): Maximum, 399 ppm July 21-31, 1934; minimum, 98 ppm June 21-30, 1935.

Water temperatures (1949-58): Maximum, 75°F July 27, 1953, July 12, 29, 31, 1954, July 28, 1956; minimum, freezing point on many days during winter months.

REMARKS--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1957 to September 1958 given in WSP 1563.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Sodium adsorption ratio (micro-mhos at 25°C)	Specific conductance (micro-mhos at 25°C)	
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 1-31, 1957...	2,205	12		77	19	117	3.5	191	0	172	140		3.1	0.07	657	0.89	3,910	272	115	3.1	1,070	7.7
Nov. 1-30, 1957...	2,089	10		78	20	121	3.5	187	0	170	150		2.9	0.07	672		3,750	278	125	3.1	1,100	7.3
Dec. 1-31, 1957...	1,687	10		79	20	135	4.1	184	0	165	178		5.7	0.06	707	.86	2,780	282	131	3.5	1,220	7.9
Jan. 1-31, 1958...	1,492	9.6		75	19	137	4.1	176	0	152	188		4.1	0.06	693	.84	2,790	288	124	3.6	1,180	7.6
Feb. 1-28, 1958...	1,709	12		74	19	131	4.2	184	0	156	168		3.3	0.07	683	.93	3,150	265	114	3.5	1,140	7.7
Mar. 1-31, 1958...	1,996	12		73	19	125	3.8	180	0	155	160		2.8	0.14	659	.90	3,550	261	113	3.4	1,100	7.7
Apr. 1-30, 1958...	2,884	12		67	18	97	3.1	178	0	138	120		2.0	0.07	556	.76	4,330	240	94	2.7	923	7.8
May 1-6, 1958...	5,158	12		56	13	60	3.0	176	0	80	72		2.4	--	406	.55	5,650	194	50	1.9	669	8.0
May 7-22, 24, 27...	13,200	11		42	8.8	25	1.7	138	0	46	28		2.1	.04	240	.33	8,550	142	29	.9	397	7.7
May 23, 25-26, 28-31...	22,660	8.0		33	4.9	17	1.3	106	0	28	16		1.2	--	174	.24	10,650	102	15	.7	276	7.7
June 1-16, 1958...	18,070	7.8		33	4.9	17	1.6	99	0	32	22		1.9	.00	178	.24	8,680	102	21	.7	296	7.6
June 17-30, 1958...	8,447	8.9		39	6.1	37	2.1	104	0	57	45		1.5	.02	255	.35	5,820	122	37	1.5	433	7.6
July 1-9, 1958...	4,481	9.1		61	9.5	61	2.5	131	0	90	78		1.3	.03	382	.52	4,620	171	64	2.0	647	7.6
July 10-31, 1958...	2,585	9.1		53	14	106	3.7	163	0	127	142		1.3	.04	567	.77	3,960	229	95	3.0	963	7.4
Aug. 1-31, 1958...	1,771	10		79	19	145	4.6	183	0	165	190		1.0	.07	714	.97	3,410	276	126	3.8	1,190	7.6
Sept. 1-30, 1958...	1,735	11		83	23	148	3.4	200	0	179	200		1.0	.07	760	1.03	3,560	302	138	3.7	1,270	7.4
Weighted average	4,010	9.8		53	12	65	2.5	143	0	89	82		2.2	0.04	398	0.54	4,310	182	664	2.1	663	--

COLORADO RIVER MAIN STEM--Continued
9-955. COLORADO RIVER NEAR CAMBO, COLO.--Continued

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October.....	56	--	--	--	--	--	--	--	--	--	--	--	--	48	49	52	54	55	54	53	53	52	51	50	48	48	50	--	48	48	--	
November....	48	48	48	48	46	45	44	44	42	42	44	43	43	42	42	39	39	38	37	36	37	36	35	34	36	37	37	37	36	35	41	--
December....	--	--	36	35	36	36	36	37	37	37	35	35	35	35	35	35	36	37	36	36	35	36	35	35	35	34	34	34	34	34	35	--
January.....	35	35	35	35	36	35	35	36	35	35	35	35	35	34	34	34	35	35	35	35	34	34	34	34	34	33	34	34	34	34	35	35
February....	35	35	35	35	35	37	38	38	37	38	39	38	38	38	38	39	40	41	42	42	43	43	43	--	43	40	39	36	--	39	35	--
March.....	38	37	38	38	40	40	42	45	42	43	42	42	43	44	43	43	43	45	46	45	46	47	50	50	49	48	48	48	47	47	44	--
April.....	45	47	47	46	46	45	46	46	47	48	49	49	49	52	52	55	55	55	55	53	52	53	51	50	49	48	49	49	--	50	--	50
May.....	52	55	55	55	56	56	54	51	52	52	53	53	53	55	55	55	55	55	55	55	56	56	55	55	55	57	55	--	55	54	--	55
June.....	57	57	57	57	56	56	56	56	58	57	57	58	58	56	--	60	57	60	59	62	62	62	63	65	65	64	63	65	66	66	--	60
July.....	65	65	65	66	66	64	66	66	68	68	--	69	69	70	68	68	68	69	69	68	68	69	67	67	68	66	68	69	69	70	66	--
August.....	70	70	71	71	72	73	73	--	73	73	74	74	74	74	74	74	74	73	72	72	72	69	68	67	68	66	68	68	69	68	71	--
September...	68	67	67	67	--	67	67	69	68	68	68	68	69	67	64	--	59	59	60	60	60	60	62	60	55	55	57	57	59	60	--	63

GUNNISON RIVER BASIN

9-1525. GUNNISON RIVER NEAR GRAND JUNCTION, COLO.

LOCATION.--At road bridge about a half mile downstream from gaging station, 1 mile downstream from point of diversion of Redlands power canal, and 1.5 miles upstream from mouth and Grand Junction, Mesa County.

DRAINAGE AREA.--8 020 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: October 1931 to September 1958.

Water temperatures: April 1949 to September 1958.

EXTREMES, 1957-58.--Dissolved solids: Maximum, 1,700 ppm Sept. 1-30; minimum, 220 ppm May 11-31.

Hardness: Maximum, 840 ppm Sept. 1-30; minimum, 138 ppm May 11-31.

Specific conductance: Maximum daily, 2,210 microhos Sept. 15; minimum daily, 285 microhos May 26.

Water temperatures: Maximum, 86°F Aug. 13; minimum, freezing point Dec. 2.

EXTREMES, 1931-58.--Dissolved solids: Maximum, 2,820 ppm Sept. 11-20, 1934; minimum, 203 ppm May 11-20, 1944.

Hardness (1931-35, 1943-58): Maximum, 1,370 ppm Sept. 1-10, 11-20, 1934; minimum, 138 ppm May 11-31, 1958.

Specific conductance (1941-58): Maximum daily, 2,730 microhos Sept. 10, 1956; minimum daily, 280 microhos May 23, 1948.

Water temperatures (1949-58): Maximum, 86°F Aug. 13, 1958; minimum, freezing point on many days during winter months.

REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1957 to September 1958 given in WSP 1563.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Sodium-sorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 1-31, 1957...	1,727	21	172	69	136	6.1	205	0	780	20	9.3	0.22	1.410	1,975	1.33	6,570	512	542	2.2	1,700	8.0	
Nov. 1-30, 1957...	1,868	18	119	52	96	4.6	209	0	514	15	7.0	.19	1.133	1,929	1.26	4,920	512	341	1.9	1,270	7.4	
Dec. 1-31, 1957...	1,495	17	113	48	89	4.9	196	0	468	16	7.7	.16	1.020	1,399	2,930	520	319	1.8	1,230	8.0		
Jan. 1-31, 1958...	1,065	19	120	54	105	5.2	214	0	542	14	8.1	.12	1,020	1,399	2,930	520	345	2.0	1,320	7.9		
Feb. 1-28, 1958...	1,262	17	121	55	117	5.8	211	0	570	15	8.1	.13	1,100	1,350	3,750	530	357	2.2	1,390	7.9		
Mar. 1-31, 1958...	1,336	17	107	46	95	4.1	192	0	472	15	7.2	.14	1,911	1.24	3,290	456	299	1.9	1,200	8.1		
Apr. 1-15, 1958...	1,658	19	98	40	76	4.5	198	0	386	14	5.7	.13	777	1.06	3,480	410	248	1.6	1,050	7.8		
Apr. 16-19, 1958...	5,413	18	79	18	38	3.2	214	3	156	8.5	4.0	--	a 433	.59	6,330	272	92	1.0	638	8.3		
Apr. 20-30, 1958...	7,429	16	50	14	22	2.5	143	0	104	5.5	3.2	.09	300	.41	6,020	181	64	1.7	446	8.0		
May 1-10, 1958...	10,140	17	54	9.5	19	2.9	152	0	83	3.8	3.3	.12	283	.38	7,750	174	49	.6	418	8.0		
May 11-31, 1958...	16,130	16	42	7.8	14	2.3	115	0	68	2.9	2.6	.08	220	.30	9,580	138	44	.5	334	7.8		
June 1-26, 1958...	10,480	15	53	13	22	2.9	123	0	117	5.0	1.8	.06	301	.41	8,520	184	83	.7	448	6.8		
June 27-30, 1958...	3,186	15	80	27	45	3.3	142	0	264	10	1.8	.09	540	.73	4,650	310	194	1.1	752	7.2		
July 1-3, 1958...	1,392	14	128	46	84	4.4	183	0	498	14	3.5	.18	929	1.26	3,490	508	358	1.6	1,200	7.2		
July 4-12, 1958...	703	15	185	68	155	7.3	213	0	849	25	4.4	.31	1,510	2.05	2,870	740	565	2.5	1,820	7.0		
July 13-31, Aug. 1-6	718	14	177	39	86	5.2	174	0	435	15	5.9	.20	823	1.12	1,600	430	287	1.8	1,110	6.8		
Aug. 7-14, 1958...	659	13	179	65	152	6.7	204	0	830	24	3.4	.23	1,470	2.00	2,620	712	545	2.5	1,770	6.9		
Aug. 15-31, 1958...	559	15	210	77	161	5.4	221	0	934	22	6.5	.32	1,700	2.31	3,940	840	639	2.4	1,980	7.5		
Sept. 1-30, 1958...	3,292	16	76	25	47	3.4	151	0	248	8.2	3.9	0.11	530	0.72	4,710	292	169	1.2	713	--		
Weighted average																						

a Calculated from determined constituents.

GUNNISON RIVER BASIN--Continued
9-1525. GUNNISON RIVER NEAR GRAND JUNCTION, COLO.--Continued

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																															Aver- age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October.....	65	64	62	60	62	61	60	61	65	60	58	57	56	53	55	54	--	55	--	--	52	51	50	50	50	49	49	48	48	49	50	56
November....	50	49	49	48	47	46	45	46	44	43	43	42	42	42	41	40	38	38	37	37	37	34	33	34	36	--	--	34	33	33	--	41
December...	34	32	33	33	33	33	34	34	34	35	34	33	33	33	33	34	35	35	34	35	34	34	33	35	35	37	34	34	35	34	34	34
January.....	35	33	34	33	33	34	35	34	34	34	34	35	34	33	33	34	35	34	34	34	--	34	33	33	34	33	34	34	34	35	34	34
February....	35	34	35	37	39	39	39	39	40	41	41	39	39	40	43	45	47	47	47	48	49	50	48	48	44	43	40	39	--	--	42	
March.....	39	39	41	42	45	44	46	42	41	41	41	42	43	46	--	--	47	48	50	49	49	50	50	48	49	50	49	50	48	49	49	46
April.....	48	42	44	47	45	44	48	51	52	52	51	55	56	57	59	58	51	53	52	52	51	50	48	49	52	--	51	52	51	--	50	
May.....	--	51	52	51	56	56	55	53	56	55	54	54	53	53	54	58	56	59	60	59	60	61	60	61	61	62	61	62	61	58	60	57
June.....	61	62	62	62	60	62	64	62	62	62	62	64	64	65	69	69	68	69	70	70	71	--	71	73	71	71	73	74	71	71	--	67
July.....	72	74	73	--	73	73	74	76	77	78	79	80	80	79	80	76	78	77	80	79	82	80	78	78	78	79	78	80	78	80	81	78
August.....	82	83	--	82	81	79	79	77	82	72	85	86	83	83	82	81	81	84	84	78	78	79	80	82	81	80	79	80	80	78	81	70
September..	73	72	76	74	77	80	76	73	76	76	80	72	71	--	67	67	66	65	67	68	68	68	68	61	66	66	64	66	66	66	--	70

	1,064	7.9	113	39	130	8.3	165	0	392	135	10	0.08	916	1.25	2,930	444	309	2.7	1,460	7.7
Feb. 21-28, 1958..	449	9.9	116	46	366	17	161	0	374	525	19	.09	1,570	2.14	1,900	480	323	7.3	2,630	7.8
Mar. 1-23.....	930	8.7	86	33	146	8.2	184	0	278	180	15	.08	836	1.14	2,100	350	216	3.4	1,380	7.2
Mar. 24-31.....	848	10	127	37	185	9.0	171	0	248	250	12	.06	917	1.25	2,100	348	208	4.3	1,540	8.2
Apr. 1-11.....	2,213	11	59	17	70	5.8	140	0	129	88	7.8	.03	457	.62	2,730	216	101	2.1	779	8.2
Apr. 12-14.....	12,570	9.3	52	9.7	20	3.6	137	0	77	18	3.0	.04	260	.35	8,820	170	58	.7	427	8.0
Apr. 18-26, 28....	5,981	7.6	41	7.4	15	2.0	114	0	51	17	3.1	.04	200	.27	3,230	132	39	.6	338	7.6
May 1-31.....	4,169	7.2	51	4.4	14	1.5	140	0	45	14	3.7	--	210	.29	2,380	148	31	.5	365	7.5
June 1-14.....	1,877	6.7	32	8.3	62	3.3	103	0	93	86	5.5	--	368	.50	1,670	163	79	2.1	654	7.7
June 15-27.....	847	6.2	62	13	135	6.4	97	0	135	195	10	.17	611	.83	1,400	209	129	4.1	1,100	7.3
June 28-30.....	611	7.2	69	16	191	8.6	91	0	162	285	14	.01	798	1.09	1,320	236	161	5.4	1,440	7.4
July 1-4.....	375	5.2	78	21	305	14	96	0	198	475	14	.04	1,160	1.58	1,170	280	201	7.9	2,070	7.3
July 5-16.....	203	3.2	109	36	57	24	76	0	349	805	29	.04	1,450	2.31	1,350	422	360	11	3,370	7.0
July 17-31.....	128	6.3	141	57	644	29	66	0	507	990	30	.13	2,450	3.33	1,720	768	317	12	4,080	7.0
Aug. 1-14, 19, 21-31	186	4.6	170	81	917	40	58	0	718	1,430	34	.14	3,420	4.33	1,720	768	317	12	4,080	7.0
Aug. 15-18.....	152	12	119	29	263	15	202	0	283	390	4.1	--	1,210	1.68	457	416	250	5.6	2,050	7.5
Aug. 20.....	74.6	5.5	164	78	681	29	125	0	621	1,040	31	.16	2,710	3.69	546	730	628	11	4,420	7.4
Sept. 1-10.....	246	3.5	206	91	921	35	108	0	830	1,400	38	.21	3,580	4.87	2,380	890	801	13	5,680	7.1
Sept. 11-14.....	214	8.7	111	41	176	10	132	0	387	220	23	.11	1,040	1.41	601	446	338	3.6	1,640	7.4
Sept. 15-20.....	136	7.2	172	71	445	21	100	0	718	592	37	.14	2,110	2.87	775	720	638	7.2	3,250	7.2
Sept. 21-28, 30....	147	7.6	208	90	890	33	136	0	853	1,310	40	--	3,500	4.76	1,390	890	778	13	5,520	7.6
Sept. 29.....																				
Weighted average	1,383	8.1	61	16	93	5.5	126	0	132	130	8.9	0.05	516	0.70	1,930	218	114	2.7	865	--

a Represents 92 percent of runoff for water year.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																				Aver- age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
October....	64	--	--	--	--	61	--	59	--	58	--	57	--	--	--	--	--	55	--	--	--
November....	51	33	--	49	--	33	--	44	--	33	--	43	--	33	--	36	--	38	--	34	--
December....	--	--	--	--	--	33	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
January....	--	32	--	--	--	32	--	--	--	32	--	--	--	--	--	--	--	--	--	--	--
February....	--	--	38	--	--	--	--	36	--	37	--	--	--	38	--	--	41	--	--	--	--
March....	--	--	--	--	--	--	--	--	--	39	--	--	--	--	--	42	--	43	--	--	--
April....	--	--	--	44	--	--	--	--	--	--	--	--	--	--	--	--	--	49	--	--	--
May....	--	53	--	--	--	--	--	50	--	53	53	53	53	52	53	55	56	60	60	60	--
June....	57	--	--	--	--	--	--	--	--	54	53	53	53	52	66	66	64	67	66	67	--
July....	68	68	67	68	68	68	68	70	72	71	74	75	76	--	--	--	72	72	72	71	71
August....	72	72	78	74	75	74	73	74	--	--	--	75	77	85	--	--	82	78	74	71	75
September....	71	70	67	67	70	78	70	69	71	71	70	69	69	--	--	--	63	60	62	61	65

QUALITY OF SURFACE WATERS, 1958

DOLORES RIVER BASIN--Continued

9-1800. DOLORES RIVER NEAR CISCO, UTAH--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment concentration (ppm)	Tons per day
1...	193	0	a0	328	100	89	300	330	a270
2...	172	0	0	364	300	a290			
3...	198	4	a2	661	1,900	a3,400			
4...	167	4	2	620	1,400	2,340			
5...	147	7	a3	930	7,200	sa20,000	310	230	a190
6...	139	7	3	946	8,500	a22,000			
7...	143	4	a2	702	3,800	a7,200			
8...	152	1	(t)	620	2,400	4,020			
9...	152	6	a2	529	1,600	a2,300	312	140	a120
10...	147	12	5	444	1,000	a1,200	295	104	83
							271	100	a73
11...	172	13	a6	404	750	a820	263	100	a71
12...	230	16	10	384	560	581	271	100	a73
13...	1,670	19,000	sa110,000	364	470	a460	279	100	75
14...	1,370	16,000	a59,000	404	380	a410	256	93	a64
15...	675	6,700	a12,000	414	263	294	312	86	a72
16...	492	2,800	a3,700	414	190	a210	354	200	191
17...	766	6,700	sa15,000	404	130	a140	434	740	a870
18...	517	3,600	5,020	414	90	101	492	1,500	a2,000
19...	565	3,800	a5,800	394	87	a93	480	640	a830
20...	1,050	12,000	sa41,000	374	86	a87	444	630	755
21...	1,710	19,000	a88,000	384	90	a93	354	480	a160
22...	1,260	13,300	45,200	320	90	78	344	430	a400
23...	776	8,900	a19,000	325	90	a79	328	310	275
24...	541	6,800	a9,900	325	90	a79	344	200	a190
25...	424	5,600	6,410	328	90	80	328	140	a120
26...	404	4,200	a4,600	364	96	a94	287	130	a100
27...	354	1,600	a1,500	384	100	a100	271	105	77
28...	320	680	588	364	100	a98	270	--	--
29...	312	320	a270	320	140	121	270	--	--
30...	312	230	a190	300	310	a250	270	178	b150
31...	320	190	a160	--	--	--	270	--	--
Total	15,850	--	427,373	13,528	--	67,107	9,929	--	9,149
January			February			March			
1...	250	--	b110	218	--	517	--	b2,000	
2...	230	--	b80	204	--	456	--	b1,200	
3...	--	125	--	204	71	434	893	b450	
4...	--	--	--	237	--	404	--	b230	
5...	--	--	--	295	--	394	--	b220	
6...	--	103	--	414	--	394	--	b220	
7...	--	--	--	374	523	394	218	--	
8...	--	--	--	344	--	414	--	--	
9...	--	--	--	312	--	424	--	--	
10...	--	48	--	454	434	404	450	--	
11...	--	--	--	456	--	364	--	--	
12...	200	--	b45	384	--	328	--	--	
13...	--	--	--	312	--	312	--	--	
14...	--	--	--	279	388	304	241	--	
15...	--	--	--	295	--	320	--	--	
16...	--	--	--	250	--	384	--	--	
17...	--	--	--	512	300	468	404	--	
18...	--	--	--	647	--	468	--	--	
19...	--	--	--	746	--	492	--	--	
20...	--	110	--	746	--	492	--	--	
21...	--	--	--	898	5,470	517	570	--	
22...	--	--	b23	962	--	702	--	--	
23...	170	--	--	1,080	--	946	--	--	
24...	--	62	--	1,210	--	1,010	--	--	
25...	200	--	b45	1,320	--	1,030	--	--	
26...	--	--	--	1,350	--	1,030	--	--	
27...	--	102	--	1,030	--	930	--	--	
28...	250	--	b110	661	2,570	914	1,850	--	
29...	--	--	--	--	--	914	--	--	
30...	--	--	--	--	--	850	--	--	
31...	250	154	--	--	--	761	818	--	
Total	6,460	--	1,797	16,194	--	275,230	17,771	--	35,430

s Computed by subdividing day.

a Computed from estimated-concentration graph.

t Less than 0.50 ton.

b Computed from water-sediment discharge curves.

COLORADO RIVER BASIN

43

DOLORES RIVER BASIN--Continued

9-1800. DOLORES RIVER NEAR CISCO, UTAH--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	776	---		4,890	---		5,030	1,590	21,600
2...	850	---		5,030	2,940	b38,000	4,610	1,370	17,100
3...	850	---		5,240	---		4,430	1,430	18,000
4...	806	788	b1,800	5,750	---		4,330	1,390	16,600
5...	776	---		6,560	4,430	b60,000	4,330	1,220	14,300
6...	717	---		6,970	---		4,650	1,310	16,400
7...	661	---	b1,000	7,520	4,070	b85,000	5,120	---	
8...	717	446		7,890	3,470	73,900	5,010	---	b20,000
9...	882	---	b2,300	7,210	3,490	67,900	4,510	---	
10...	994	---		6,670	3,050	54,900	4,090	---	
11...	1,300	1,750	b7,500	6,460	2,950	51,500	3,560	---	b6,300
12...	1,870	---	b21,000	6,560	3,150	55,800	3,180	---	
13...	2,250	---	b33,000	6,420	2,850	49,400	2,780	---	
14...	2,520	7,180	b42,000	5,860	2,610	41,300	2,400	---	b3,200
15...	3,600	---	b85,000	5,450	2,140	31,500	2,120	---	
16...	5,520	---	b160,000	5,330	1,980	26,500	1,980	---	b1,900
17...	7,790	---	b250,000	5,390	1,980	28,800	1,950	475	2,500
18...	10,700	9,880	b340,000	5,410	1,840	26,900	1,890	429	2,190
19...	13,800	---	b420,000	5,580	1,880	28,300	1,690	380	1,730
20...	15,500	---	b450,000	5,660	1,980	30,300	1,670	414	1,870
21...	16,100	10,700	b480,000	5,660	2,460	37,600	1,780	328	1,580
22...	15,100	---	b390,000	5,730	1,920	29,700	1,710	265	1,220
23...	14,300	---	b330,000	5,620	2,300	34,900	1,640	---	e1,070
24...	11,900	---	b230,000	5,710	2,080	32,100	1,510	219	893
25...	9,110	---	b130,000	5,800	1,900	29,800	1,460	218	859
26...	7,620	---		5,810	2,370	37,200	1,320	181	645
27...	6,760	---		5,810	2,000	31,400	1,080	167	487
28...	6,650	3,480	b69,000	5,820	1,890	29,700	914	123	304
29...	6,130	---		5,950	2,060	33,100	866	119	278
30...	5,220	---	b40,000	5,910	2,130	34,000	761	88	181
31...	---	---	---	5,730	2,020	31,300	---	---	---
Total	171,769	---	3,703,200	185,400	---	1,308,800	82,711	---	210,207
	July			August			September		
1...	717	103	199	143	37	14	92	156	39
2...	620	97	162	139	46	17	82	190	42
3...	565	107	163	139	32	12	79	220	47
4...	541	77	112	119	41	13	74	176	35
5...	504	60	82	115	34	11	69	156	29
6...	480	55	71	111	38	11	69	162	30
7...	480	30	39	115	30	9	64	177	31
8...	456	60	74	119	29	9	67	179	32
9...	364	27	27	111	121	38	79	191	41
10...	344	21	20	107	---	e23	71	218	42
11...	354	26	25	101	---	e14	88	178	42
12...	344	24	22	101	21	6	98	225	60
13...	328	27	34	98	11	3	297	1,620	s3,610
14...	304	---	e20	92	7	2	501	3,520	s5,350
15...	287	20	15	88	0	0	364	3,500	a3,440
16...	256	24	17	88	23	5	230	3,050	1,890
17...	250	18	12	329	47	42	178	1,500	721
18...	237	9	6	237	---	b50	188	730	371
19...	230	19	12	183	---	b140	172	540	251
20...	237	---	e13	152	---	b290	152	367	151
21...	244	---	e14	147	---	b400	143	295	114
22...	230	23	14	143	640	247	131	280	99
23...	211	186	106	152	720	295	115	217	67
24...	183	28	15	230	1,030	640	123	312	104
25...	188	---	e15	183	370	183	139	382	143
26...	188	32	16	139	212	80	139	323	121
27...	183	28	14	123	217	72	152	265	109
28...	172	31	14	115	170	53	139	190	71
29...	167	39	18	104	180	51	147	210	83
30...	157	28	12	98	220	58	139	253	95
31...	152	55	23	92	199	49	---	---	---
Total	9,983	---	1,376	4,217	---	2,837	4,381	---	17,260
Total discharge for year (cfs-days).....									538,193
Total load for year (tons).....									6,059,766

e Estimated.

a Computed from estimated-concentration graph.

s Computed by subdividing day.

b Computed from water-sediment discharge curves.

DOLORES RIVER BASIN--Continued

9-1800. DOLORES RIVER NEAR CISCO, UTAH--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Sampling point	Water temp- erature (°F)	Discharge (cfs)	Sediment concentra- tion (ppm)	Suspended sediment											Method of analysis
						Percent finer than size indicated, in millimeters											
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Apr. 18, 1958..... Apr. 18..... Apr. 25..... Apr. 25..... May 8.....	1330		49	11,800	10,200			23	--	35	--	60	75	93	99	100	SPWC
	1330		49	11,800	10,200			14	--	33	--	58	72	92	99	100	SPN
	1100		78	9,260	7,640			12	--	19	27	44	62	82	98	100	SPWC
	1100		78	9,260	7,640			--	--	17	27	44	63	83	99	100	SPN
	0945		53	8,160	3,470			08	--	19	29	50	74	93	100	--	VPWC
	0850		57	5,280	1,840		09	12	16	20	27	41	65	93	100	--	VBWC
	0905		62	5,820	1,890		10	16	23	29	38	50	69	93	99	100	VBWC
	0800		62	4,630	1,310		09	12	18	23	31	49	72	94	100	--	VBWC
	1130		77	1,130	12,900			178	--	90	96	97	99	100	--	--	SPWC
	1130		77	178	13,200			03	--	98	98	100	--	--	--	--	SPN
Aug. 19..... Aug. 20..... Sept. 13..... Sept. 14..... 1005 Sept. 16..... Sept. 17.....																	
	0930		76	152	9,170					92	--	98	100	--	--	--	PWC
	1233		69	123	434		61	80	95	97	99	100	--	--	--	SPWC	
	1005		67	468	2,800			64	--	94	98	100	--	--	--	PWC	
	1000		63	244	3,120			88	--	98	99	100	--	--	--	PWC	
	0900		60	183	1,570				84	--	96	96	97	97	100	--	VPWC

COLORADO RIVER MAIN STEM
9-1605, COLORADO RIVER NEAR CISCO, UTAH

LOCATION.--At gaging station, 1 mile downstream from Dolores River, 11 miles south of Cisco, Grand County, 97 miles upstream from Green River, and 235 miles upstream from San Juan River.

DRAINAGE AREA.--24,100 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: August 1928 to September 1958.

Water temperatures: May 1949 to September 1956.

Sediment records: May 1930 to September 1958.

EXTREMES, 1927-58.--Dissolved solids: Maximum, 2,320 ppm Sept. 14; minimum, 221 ppm May 5-31.

Sediments: Maximum, 510 ppm Aug. 18; minimum, 150 ppm May 5-31.

Specific conductance: Maximum, 4,520 micromhos May 31; minimum, 291 micromhos May 31.

Water temperatures: Maximum, 80°F Aug. 13, 15; minimum, freezing point on several days during November to January.

Sediment concentrations: Maximum daily, 11,500 ppm Aug. 22; minimum daily, 16 ppm Dec. 13.

Sediment loads: Maximum daily, 383,000 tons May 9; minimum daily, 188 tons Aug. 12.

EXTREMES, 1928-52.--Dissolved solids: Maximum, 2,670 ppm Aug. 11-20, 1940; minimum, 202 ppm June 11-20, 1933, July 1-10, 1957.

Hardness (1928-35, 1943-52, 1953-58): Maximum, 1,090 ppm Sept. 1-10, 1934; minimum, 131 ppm June 11-20, 1952.

Specific conductance (1941-52, 1953-58): Maximum, 4,820 micromhos Dec. 13, 1957; minimum daily, 291 micromhos May 31, 1958.

Water temperatures (1949-52, 1953-58): Maximum, 61°F Aug. 5, 1949; minimum, freezing point on many days during winter months.

Sediment concentrations (1930-58): Maximum daily, 66,300 ppm Oct. 27, 1952; minimum daily, 13 ppm Jan. 6, 1956.

Sediment loads (1930-58): Maximum daily, 2,790,000 tons Oct. 14, 1941; minimum daily, 72 tons Jan. 6, 1956.

REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1957 to September 1958 given in WSP 1563.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		So-dium ad-sorp-tion ratio	Specific con-ductance (micro-mhos at 25°C)	
														Parts per million	Tons per acre-foot	Tons per day	Cal-cium, Mag-nesium	Non-car-bonate			
Oct. 1-31, 1957...	4,750	14	157	157	59	178	5.4	186	0	638	152	14	0.17	1,310	1.78	16,800	634	481	3.1	1,890	7.1
Nov. 1-30, 1957...	5,034	13	120	44	162	162	5.2	187	0	450	160	14	0.10	1,060	1.44	14,410	482	329	3.2	1,630	7.1
Dec. 1-10, 1957...	3,972	13	112	46	165	286	10	130	0	410	178	14	0.09	1,040	1.41	14,410	478	323	3.3	1,820	6.6
Dec. 11-31, 1957...	3,840	13	113	47	169	130	10	130	0	427	370	24	0.09	1,360	1.85	16,840	474	351	5.7	2,220	8.0
Jan. 1-31, 1958...	3,255	13	111	45	204	204	7.4	186	0	407	225	18	0.09	1,120	1.52	8,840	464	311	4.1	1,760	8.0
Feb. 1-28, 1958...	4,052	12	103	42	169	169	6.9	185	0	392	168	12	0.08	986	1.34	10,790	430	276	3.5	1,550	8.0
Mar. 1-31, 1958...	4,134	13	96	38	164	164	6.5	183	0	356	175	9.4	0.06	948	1.29	10,580	396	246	3.6	1,520	6.1
Apr. 1-15, 1958...	5,136	14	83	33	120	120	5.1	187	0	277	121	6.7	0.06	752	1.02	10,430	344	191	2.8	1,190	8.0
Apr. 16-30, May 1-4	18,960	11	52	12	29	3	3.0	135	0	95	25	3.4	0.04	296	.40	15,150	180	69	.9	464	6.0
May 5-31, 1958...	35,860	12	40	8	8	19	2.0	113	0	66	14	2.8	0.04	221	.30	21,400	136	43	.7	356	6.0
June 1-19, 1958...	33,270	9.9	47	9.5	27	1.8	113	0	94	21	2.7	0.02	269	.37	24,160	157	64	.9	441	7.6	
June 20-30, 1958...	14,040	9.8	55	55	15	44	2.2	115	0	142	41	3.4	.03	369	.50	13,990	105	105	1.4	604	7.9

COLORADO RIVER MAIN STEM--Continued

9-1805. COLORADO RIVER NEAR CISCO, UTAH--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	3,020	50	408	4,930	135	1,800	3,930	--	
2...	2,880	52	404	5,230	240	a3,400	3,640	87	
3...	2,760	55	410	7,440	9,500	sa210,000	3,680	--	
4...	2,670	42	303	6,850	3,800	70,300	3,990	--	
5...	2,640	53	378	6,420	2,500	a43,000	3,950	--	
6...	2,640	50	356	6,440	2,200	a38,000	4,090	148	b1,100
7...	2,610	42	296	5,940	1,400	a22,000	4,170	--	
8...	2,670	50	360	5,380	800	11,600	4,170	--	
9...	2,710	52	380	5,290	670	a9,600	4,110	42	
10...	2,690	48	349	5,010	410	a5,500	3,990	--	
11...	2,620	45	318	4,760	200	a2,600	3,800	--	
12...	2,720	300	2,200	4,720	170	2,170	3,570	--	
13...	5,700	10,200	s158,000	4,740	220	a2,800	3,400	16	b300
14...	9,020	6,400	156,000	4,990	600	8,080	3,200	--	
15...	6,630	3,000	a54,000	5,290	2,070	29,600	3,510	--	
16...	5,890	1,600	a25,000	5,230	1,300	a18,000	3,680	37	b2,500
17...	5,890	1,600	a25,000	5,120	800	a11,000	4,130	--	
18...	5,600	1,350	20,400	4,890	425	5,610	4,450	--	
19...	6,010	2,100	a34,000	4,820	350	a4,600	4,570	--	
20...	7,540	7,500	sa170,000	4,850	300	a3,900	4,350	206	
21...	8,540	11,000	sa250,000	4,740	180	a2,300	4,110	--	b600
22...	8,280	10,800	s262,000	4,470	75	905	3,990	--	
23...	6,000	2,300	a37,000	4,010	62	a670	3,990	88	
24...	5,400	1,600	a23,000	3,850	63	a650	3,930	--	
25...	5,140	1,030	14,300	4,070	63	692	3,910	--	
26...	4,950	620	a8,300	4,290	72	a830	3,850	--	
27...	4,700	400	a5,100	4,530	75	a920	3,740	50	
28...	4,930	310	4,130	4,490	73	a880	3,590	--	
29...	4,800	140	a1,800	4,350	73	857	3,470	--	
30...	4,760	100	a1,300	3,870	71	a740	3,590	44	
31...	4,850	120	a1,600	--	--	--	3,800	--	
Total	147,260	--	1,257,092	151,010	--	513,004	120,350	--	29,400
Day	January			February			March		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	3,420	--	--	3,320	--	--	4,090	--	
2...	2,930	--	--	3,270	--	--	3,830	--	
3...	2,620	93	--	3,120	247	b2,500	3,740	389	b4,000
4...	2,640	--	--	3,030	--	--	3,590	--	
5...	2,830	--	--	3,340	--	--	3,610	--	
6...	2,950	84	b700	3,620	--	--	3,570	--	
7...	3,180	--		3,850	411	--	3,850	154	b1,600
8...	3,420	--		3,610	--	--	3,640	--	
9...	3,250	--		3,360	--	--	3,930	--	
10...	3,470	48	--	3,620	1,270	--	3,870	168	
11...	3,340	--	--	3,850	--	--	3,830	--	
12...	3,440	--	--	3,530	--	b4,300	3,700	--	
13...	3,360	--	--	3,400	--	--	3,550	--	
14...	3,320	--	--	3,380	491	--	3,550	249	
15...	3,320	--	--	3,380	--	--	3,530	--	
16...	3,290	--	--	3,340	--	--	3,740	--	b2,600
17...	3,180	--	b1,200	3,660	208	--	3,820	260	
18...	3,200	--		4,170	--	--	3,990	--	
19...	3,200	--		4,130	--	b30,000	3,990	--	
20...	3,340	69	--	4,230	--	--	3,850	--	
21...	3,400	--	--	4,410	3,040	--	3,680	467	b6,000
22...	3,120	--	--	4,720	--	--	4,050	--	
23...	2,950	--	--	5,160	--	--	4,590	--	
24...	2,780	95	b600	5,560	2,710	--	5,290	--	
25...	3,070	--		6,260	--	b36,000	5,400	--	
26...	3,450	--	--	6,210	--	--	5,470	2,090	b26,000
27...	3,760	117	--	5,490	--	--	5,180	--	
28...	3,740	--	b1,800	4,450	1,740	--	4,890	1,600	
29...	3,740	--		--	--	--	5,140	--	
30...	3,680	--		--	--	--	4,760	--	b12,000
31...	3,530	222		--	--	--	4,430	612	
Total	100,920	--	34,600	113,470	--	142,100	128,150	--	272,900

s Computed by subdividing day.

a Computed from estimated-concentration graph.

b Computed from water-sediment discharge curves.

QUALITY OF SURFACE WATER, 1958

COLORADO RIVER MAIN STEM--Continued

9-1805. COLORADO RIVER NEAR CISCO, UTAH--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharges (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	4,390	--		12,300	--	b70,000	43,800	1,010	119,000
2...	4,620	--		13,000	2,400	b80,000	40,500	916	100,000
3...	4,680	--		14,400	--	b100,000	41,400	949	106,000
4...	4,720	561		16,600	--	b140,000	39,900	901	97,100
5...	4,640	--		20,300	4,020	220,000	38,700	914	95,500
6...	4,640	--	b7,000	24,500	5,730	379,000	39,100	885	93,400
7...	4,450	--		28,700	4,850	376,000	46,200	1,220	152,000
8...	4,370	579		31,800	4,290	368,000	48,100	1,020	132,000
9...	4,660	--		33,900	4,180	383,000	45,100	1,000	e120,000
10...	4,990	--		32,100	2,810	244,000	40,500	1,010	110,000
11...	5,380	744	b14,000	31,000	2,160	181,000	34,300	1,060	98,200
12...	5,820	--		31,800	2,100	180,000	29,400	1,400	111,000
13...	6,050	--		34,300	2,950	273,000	26,300	1,200	85,200
14...	6,310	1,960	b37,000	32,700	2,110	186,000	22,900	1,270	78,500
15...	7,320	--		30,300	1,710	140,000	20,900	1,080	60,900
16...	10,500	--	b100,000	27,000	1,780	130,000	19,800	419	22,400
17...	14,200	--	b220,000	26,900	1,460	106,000	19,300	891	46,400
18...	17,100	7,410	b330,000	27,600	1,210	90,200	18,500	763	38,100
19...	22,200	--	b360,000	30,100	1,390	113,000	17,500	682	32,200
20...	26,800	--	b370,000	33,500	1,980	179,000	17,100	681	31,400
21...	29,200	4,700	b380,000	36,400	2,030	200,000	17,000	700	32,100
22...	29,900	--	b380,000	38,900	1,920	202,000	16,900	755	34,500
23...	29,900	--	b380,000	41,400	1,810	202,000	16,200	639	27,900
24...	26,900	--	b330,000	44,100	2,150	256,000	15,500	610	25,500
25...	20,500	4,270	b210,000	45,600	1,840	227,000	14,700	694	27,500
26...	17,500	--	b150,000	45,800	1,320	163,000	14,000	597	22,600
27...	15,200	--	b110,000	46,600	1,190	150,000	12,400	807	27,000
28...	16,000	2,600	b130,000	47,300	1,230	157,000	11,100	480	14,400
29...	15,200	--	b110,000	48,100	1,100	143,000	10,200	435	12,000
30...	12,800	--	b80,000	48,800	1,000	132,000	9,360	367	3,270
31...	--	--	--	48,800	1,020	134,000	--	--	--
Total	380,940	--	3,856,000	1,024,600	--	5,904,200	786,660	--	1,962,070
Day	July			August			September		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharges (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	8,840	327	7,800	2,090	64	361	1,930	170	886
2...	8,140	348	7,650	1,980	68	364	1,840	170	845
3...	7,300	246	4,850	1,930	64	334	1,800	170	826
4...	6,780	412	7,540	1,860	71	357	1,830	135	667
5...	6,140	277	4,590	1,730	73	341	1,810	130	635
6...	5,690	322	4,950	1,620	59	258	1,830	125	618
7...	5,470	179	2,640	2,210	98	585	1,880	130	660
8...	4,990	141	1,900	2,440	96	632	1,930	220	1,150
9...	4,390	132	1,560	1,810	207	1,010	2,010	430	2,330
10...	3,970	115	1,230	1,520	59	242	2,010	660	3,580
11...	3,780	83	847	1,480	55	220	2,120	260	1,490
12...	3,610	71	692	1,390	50	188	2,150	260	1,630
13...	3,360	56	508	1,360	68	250	2,690	11,000	79,900
14...	3,050	82	675	1,360	66	242	3,440	1,900	17,600
15...	2,840	64	491	1,280	94	325	3,360	2,100	19,100
16...	2,670	74	533	1,200	75	243	3,210	1,210	10,500
17...	2,560	62	429	1,390	185	694	3,140	920	7,800
18...	2,440	68	448	1,530	273	1,130	3,140	540	4,580
19...	2,450	61	404	1,550	130	544	3,070	430	3,560
20...	2,610	89	627	1,690	1,100	5,020	2,950	340	2,710
21...	2,780	72	540	1,710	900	4,160	2,930	290	2,290
22...	2,780	61	458	1,850	11,500	57,400	2,790	250	1,880
23...	2,660	76	546	2,350	4,400	27,900	2,660	270	1,940
24...	2,540	89	610	2,000	2,600	14,000	2,830	780	5,960
25...	2,470	75	500	1,900	370	1,900	3,090	1,520	12,700
26...	2,390	52	336	2,100	260	1,470	3,020	2,050	16,700
27...	2,310	74	462	2,130	290	1,670	2,910	775	6,090
28...	2,280	84	517	1,980	235	1,260	2,930	750	5,930
29...	2,260	60	366	1,900	200	1,030	2,950	425	3,390
30...	2,230	76	458	1,880	160	812	2,930	300	2,370
31...	2,180	86	506	1,920	185	959	--	--	--
Total	117,960	--	55,663	55,140	--	125,901	77,180	--	220,317

Total discharge for year (cfs-days)..... 3,203,640

Total load for year (tons)..... 14,672,347

e Estimated

a Computed from estimated-concentration graph.

s Computed by subdividing day.

b Computed from water-sediment discharge curves.

DOLORES RIVER BASIN--Continued

9-1805. COLORADO RIVER NEAR CISCO, UTAH--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Sampling point	Water temp- ature (°F)	Discharge (cfs)	Sediment concentra- tion (ppm)	Suspended sediment											Method of analysis
						Percent finer than size indicated, in millimeters											
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Oct. 12, 1957.....	0740		55	2,720	918		--	65	--	91	98	99	99	100	--	--	SPWC
Oct. 13.....	0740		53	6,030	16,100		--	42	--	65	81	98	99	100	--	--	SPWC
Oct. 13.....	0740		53	6,030	16,100		--	04	--	63	81	98	99	100	--	--	SPN
Oct. 14.....	0710		54	9,890	6,380		--	26	--	36	52	77	94	99	100	--	SPWC
Apr. 18, 1958.....	1530		--	17,700	6,620		--	31	--	47	61	78	90	98	100	--	SPWC
Apr. 18.....	1530		--	17,700	6,640		--	08	--	47	60	76	88	97	99	100	SPN
Apr. 25.....	1230		50	20,400	4,020		--	24	--	32	47	75	95	99	100	--	VPWC
May 7.....	1850		56	29,600	4,400		--	22	--	36	48	65	88	95	99	100	SPN
May 7.....	1850		56	29,600	4,400		--	17	--	34	48	70	90	96	99	100	SPN
May 18.....	0720		56	27,200	1,210		--	13	23	29	37	51	76	98	100	--	VBWC
May 30.....	0815		58	48,400	1,000		17	26	32	40	50	66	81	97	100	--	VBWC
June 8.....	0840		62	48,200	1,020		18	27	36	45	55	73	87	99	100	--	VBWC
June 18.....	0700		66	18,700	763		12	14	18	22	29	45	72	99	100	--	VBWC
Aug. 18.....	0805		76	1,510	260		60	80	91	96	99	100	--	--	--	--	BWC
Aug. 20.....	0840		77	1,700	1,060		--	86	--	95	97	100	--	--	--	--	SPWC
Aug. 20.....	0840		77	1,700	936		--	0	--	95	99	100	--	--	--	--	SPN
Aug. 22.....	0800		71	1,850	13,400		--	65	--	85	98	100	--	--	--	--	PWC
Aug. 23.....	0830		71	2,350	4,970		--	62	--	91	98	100	--	--	--	--	PWC
Aug. 24.....	0730		69	2,000	2,910		--	49	--	92	99	100	--	--	--	--	PWC
Sept. 10.....	0830		70	1,980	652		52	72	90	97	99	100	--	--	--	--	BWC
Sept. 11.....	0825		70	2,100	178		47	65	76	89	96	99	--	--	--	--	BWC
Sept. 12.....	0820		70	2,130	201		49	63	75	83	94	98	--	--	--	--	BWC
Sept. 13.....	0835		69	2,540	11,700		--	64	--	83	99	100	--	--	--	--	PWC
Sept. 14.....	0800		65	3,570	1,770		--	59	--	85	92	98	--	--	--	--	PWC
Sept. 15.....	0705		62	3,380	2,410		--	71	--	94	97	99	--	--	--	--	PWC
Sept. 16.....	0745		61	3,210	1,190		--	66	--	91	96	99	--	--	--	--	PWC
Sept. 24.....	0825		62	2,860	595		48	67	75	86	95	99	--	--	--	--	BWC
Sept. 25.....	0820		58	3,160	1,770		--	72	--	94	98	99	--	--	--	--	PWC
Sept. 26.....	0830		57	3,050	2,590		--	70	--	95	99	100	--	--	--	--	PWC

GREEN RIVER BASIN

9-2170. GREEN RIVER NEAR GREEN RIVER, WYO.

LOCATION.--At bridge on Green River-Linwood Highway, about 1 mile upstream from gaging station near Green River, Sweetwater County, which is 0.2 mile downstream from Bitter Creek, 1 mile southeast of town of Green River, and 4 miles upstream from high-water line of proposed Flaming Gorge Reservoir. DRAINAGE AREA.--10,000 square miles, approximately, of which 300 square miles is probably noncontributing.

RECORDS AVAILABLE.--Chemical analyses: May 1951 to September 1958.

Water temperatures: May 1951 to September 1958.

Sediment records: May 1951 to September 1958.

EXTREMES, 1957-58.--Dissolved solids: Maximum, 478 ppm Feb. 23-28, Sept. 1-30,* minimum, 156 ppm May 23-31.

Hardness: Maximum, 261 ppm Feb. 23-28; minimum, 106 ppm May 23-31.

Specific conductance: Maximum daily, 785 micromhos Sept. 12; minimum daily, 236 micromhos May 30.

Water temperatures: Maximum, 74°F June 29, Aug. 7-8, 16; minimum, freezing point Nov. 19, Mar. 9.

Sediment concentrations: Maximum daily, 813 ppm June 24; minimum daily, 3 ppm Oct. 21.

Sediment loads: Maximum daily, 8,540 tons May 24; minimum daily, 6 tons Sept. 27.

EXTREMES, 1951-58.--Dissolved solids: Maximum, 855 ppm Nov. 15-20, 1955; minimum, 156 ppm May 23-31, 1958.

Hardness: Maximum, 420 ppm Nov. 15-20, 1955; minimum, 106 ppm May 23-31, 1958.

Specific conductance: Maximum daily, 1,240 micromhos Dec. 13, 1955, Nov. 19, 1955; minimum daily, 219 micromhos May 22, 1954.

Water temperatures: Maximum, 78°F July 19, Aug. 2, 13, 1955; minimum, freezing point on many days during winter months.

Sediment concentrations: Maximum daily, 3,840 ppm May 26, 1956; minimum daily, ppm Oct. 21, 1957.

Sediment loads: Maximum, 46,000 tons May 29, 1956; minimum, 6 tons June 10, 1955.

REMARKS--Records of specific conductance for daily samples available for district office at Salt Lake City, Utah. Records of discharge for water year October 1957 to September 1958 given in WSP 1563. Flow affected by ice Nov. 4, 5, Nov. 14 to Mar. 14, Mar. 26, 27, 29, 30.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carb- on-ate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Ni- trate (NO ₃) (B)	Bo- ron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		So- dium ad- sorp- tion ratio	Specific con- duct- ance (micro- mhos at 25°C)	
															Parts per million	Tons per acre- foot	Tons per day	Cal- cium, Mag- ne- sium	Non- car- bon- ate			
Oct. 1-31, 1957...	1,077	9.7		55	21	46	1.6	174	0	169	8.5		0.4	0.05	404	0.55	1,170	225	82	1.3	617	8.2
Nov. 1-19, 1957...	1,019	10.1		52	21	47	1.3	159	5	163	8.2		0.6	0.06	400	0.54	1,100	218	79	1.4	608	8.4
Feb. 23-28, 1958...	1,082	7.2		65	24	--	--	192	0	--	11		--	--	478	0.54	1,040	261	104	1.5	706	8.0
Mar. 1-31, 1958...	829	7.5		66	23	55	1.9	192	0	203	9.8		0.6	0.06	464	0.63	1,400	258	101	1.5	718	8.0
Apr. 1-30, 1958...	1,672	9.4		56	21	46	2.1	195	0	154	9.2		0.9	0.06	402	0.55	1,810	225	65	1.3	613	8.0
May 1-22, 1958...	3,163	10.1		53	17	30	1.8	186	0	99	5.9		1.3	1.0	310	0.42	2,650	200	47	1.9	492	8.2
May 23-31, 1958...	8,544	8.0		30	7.8	11	1.2	108	0	37	2.6		1.2	0.09	156	0.21	3,600	106	17	0.5	257	8.0
June 1-16, 1958...	5,884	7.8		35	10	14	1.2	136	0	44	3.1		1.1	0.10	216	0.28	3,270	130	18	0.5	309	8.0
June 17-30, 1958...	2,869	9.0		45	15	26	1.4	180	0	75	5.5		1.6	0.09	273	0.37	2,110	176	28	0.9	438	8.2
July 1-31, 1958...	1,243	6.5		48	16	39	1.8	179	0	117	6.5		0.8	0.14	330	0.45	1,110	186	39	1.2	523	8.1
Aug. 1-31, 1958...	824	6.6		49	20	49	1.6	165	0	166	8.2		0.9	0.07	387	0.53	861	206	71	1.5	600	8.2
Sept. 1-30, 1958...	604	6.6		56	24	63	1.8	172	0	224	5.5		0.9	0.07	478	0.65	780	240	99	1.8	718	8.2
Weighted average	1,845	8.4		46	16	31	1.6	162	0	105	5.8		0.9	0.09	304	0.41	1,510	181	48	1.0	472	--

a Represents 89 percent of runoff for water year.

GREEN RIVER BASIN--Continued
 9-2170. GREEN RIVER NEAR GREEN RIVER, WYO.--Continued
 Temperature (°F) of water, water year October 1957 to September 1958

Month		Day																														Average		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		31	
October....	--	57	--	--	51	--	51	--	52	--	50	--	52	--	52	--	42	51	--	--	49	--	49	--	47	--	46	--	--	42	--	44	--	
November....	42	--	33	--	--	36	--	--	--	34	--	33	--	33	--	33	--	32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
December....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
January....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
February....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
March....	--	33	--	33	--	33	--	32	--	33	--	33	--	33	--	33	--	33	--	34	--	33	--	33	--	33	--	33	--	33	--	33	--	--
April....	--	34	--	33	--	36	35	--	33	--	--	--	37	--	46	--	48	--	42	48	--	--	--	49	46	42	45	47	46	50	51	51	--	
May....	56	50	53	55	60	54	58	55	56	54	52	56	56	53	52	54	59	52	56	63	61	60	61	58	60	61	64	63	64	60	57	--	--	
June....	57	58	57	58	62	62	62	65	60	59	60	58	59	57	64	62	67	70	70	70	70	70	69	72	65	62	63	63	69	74	67	--	64	
July....	69	68	67	63	62	66	63	64	64	70	66	64	67	63	64	70	65	66	66	70	71	72	67	67	65	66	68	64	66	62	62	66	66	
August....	65	67	68	73	72	73	74	73	68	68	68	69	70	68	74	69	67	67	67	70	64	67	67	64	63	67	61	62	63	60	64	68	59	
September..	61	60	52	64	58	60	65	67	70	62	62	64	61	57	56	60	60	60	60	55	54	59	58	51	52	55	55	55	56	55	--	59	--	

GREEN RIVER BASIN--Continued

9-2170. GREEN RIVER NEAR GREEN RIVER, WYO.--Continued

Suspended sediment, water year October 1957 to September 1948

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	950	--	a18	1,090	3	9	420		
2...	941	7	18	1,120	--	a25	420	--	a11
3...	932	--	a16	1,150	--	a50	450		
4...	980	--	a22	1,140	17	52	500		
5...	1,000	9	24	1,120	--	a50	600	--	a18
6...	1,060	--	a33	1,170	19	60	660		
7...	1,110	14	42	1,180	--	a50	760		
8...	1,100	--	a30	1,220	8	26	820		
9...	1,100	7	21	1,160	--	a26	810	--	a24
10...	1,100	--	a20	1,010	--	a27	790		
11...	1,090	6	18	1,020	10	a28	760		
12...	1,070	--	a22	950	--	a25	720		
13...	1,070	9	26	980	8	21	710		
14...	1,060	--	a24	1,000	--	a30	710		
15...	1,090	7	21	1,010	12	33	740	--	a23
16...	1,070	--	a18	980	--	a32	780		
17...	1,070	6	17	900	--	a28	820		
18...	1,070	--	a15	640	--	a19	780		
19...	1,100	--	a13	520		15	730		
20...	1,110	--	a11	470	11		700		
21...	1,130	3	9	430			660		
22...	1,160	--	a24	390			670		
23...	1,150	13	40	370			660		
24...	1,150	--	28	390			650		
25...	1,130	5	15	420	--	a12	660	--	a20
26...	1,120	--	a14	460			680		
27...	1,100	--	a13	500			680		
28...	1,100	4	12	500			670		
29...	1,090	--	a16	460			660		
30...	1,090	7	21	430			600		
31...	1,090	--	a15	5--	--	--	550	--	a16
Total	33,383	--	636	24,180	--	738	20,820	--	631
Day	January			February			March		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	480			700			940	--	
2...	450			710			910	8	
3...	440			720			900	--	
4...	440			740			920	13	
5...	460	--	a12	740			860	--	a26
6...	480			740			840	17	
7...	500			740			810	--	
8...	530			740			780	--	
9...	550			750			760	10	
10...	580			750	--	a25	740	--	
11...	560			760			730	15	a20
12...	530			760			720	--	
13...	510			770			710	--	
14...	520	--	a16	780			700	--	
15...	560			780			690	6	
16...	580			800			680	--	
17...	580			810			680	8	a19
18...	560			830			720	--	
19...	600			860			750	7	
20...	440			900			800	--	
21...	450			930	--	a35	850	6	
22...	480	--	a13	970			857	--	a25
23...	510			1,050	16	45	828	--	
24...	520			1,120	--	a47	836	105	237
25...	540			1,160	--	a49	860	225	522
26...	560			1,100	--	a40	900	126	304
27...	600			1,060	10	29	960	95	246
28...	620			1,000	--	a25	980	--	a250
29...	650			--	--	--	990	--	a250
30...	660	--	a21	--	--	--	1,000	94	254
31...	680			--	--	--	1,010	--	a260
Total	16,520	--	473	23,770	--	835	25,711	--	2,834

a Computed from water-sediment discharge curve.

GREEN RIVER BASIN--Continued

9-2170. GREEN RIVER NEAR GREEN RIVER, WYO.--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	1,160	--	a340	1,210	31	101	8,900	102	2,450
2...	1,070	137	396	1,200	23	75	8,290	200	4,480
3...	1,200	--	a400	1,210	29	95	7,540	98	2,000
4...	1,100	89	264	1,270	34	117	6,820	82	1,510
5...	1,170	--	a360	1,470	38	151	6,090	97	1,590
6...	1,120	66	200	1,690	81	370	5,530	123	1,840
7...	1,120	119	360	2,030	97	532	5,230	32	452
8...	1,110	--	a200	2,470	120	800	5,370	113	1,640
9...	1,260	75	255	2,890	164	1,280	5,700	151	2,320
10...	1,410	--	a470	3,280	268	2,370	5,810	71	1,110
11...	1,650	--	a1,200	3,370	290	2,640	5,760	146	2,270
12...	1,590	--	a900	3,460	215	2,010	5,510	34	506
13...	1,640	239	1,060	3,720	192	1,930	4,990	25	337
14...	1,730	--	a1,300	4,210	278	3,160	4,550	82	1,010
15...	1,800	309	1,500	4,440	374	4,480	4,210	14	159
16...	2,060	--	a2,700	4,490	253	3,070	3,840	80	829
17...	2,140	537	3,100	4,290	174	2,020	3,420	62	572
18...	2,300	--	a2,900	3,960	198	2,120	3,049	48	394
19...	2,630	377	2,680	4,010	71	769	2,750	37	275
20...	2,750	326	2,420	4,390	109	1,290	2,610	41	289
21...	2,450	--	a1,200	4,910	150	1,990	2,710	33	241
22...	2,340	135	853	5,620	477	7,240	2,630	44	312
23...	2,300	120	745	6,500	418	7,340	2,610	28	197
24...	2,140	90	520	7,510	421	8,540	2,630	803	5,770
25...	1,850	76	380	8,190	331	7,320	2,870	72	558
26...	1,640	36	159	8,650	130	3,040	3,040	458	3,760
27...	1,480	97	388	9,080	188	4,610	3,170	189	1,620
28...	1,370	38	141	9,330	189	4,760	3,170	82	702
29...	1,330	47	169	9,260	139	3,480	2,950	51	406
30...	1,250	38	128	9,230	38	947	2,570	34	236
31...	--	--	--	9,150	106	2,620	--	--	--
Total	50,160	--	27,688	146,490	--	81,267	134,310	--	39,835
Day	July			August			September		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	2,340	26	164	1,120	33	100	680	13	24
2...	2,170	24	141	1,050	28	79	656	12	21
3...	2,010	21	114	1,010	16	44	644	10	17
4...	1,840	19	94	1,010	23	63	626	11	19
5...	1,690	20	91	970	20	52	614	12	20
6...	1,590	14	60	960	11	29	596	8	13
7...	1,580	13	55	923	15	37	590	9	14
8...	1,520	18	74	896	20	48	570	10	15
9...	1,430	13	50	878	17	40	565	8	12
10...	1,330	14	50	857	19	44	570	6	9
11...	1,240	18	60	844	11	25	560	6	9
12...	1,150	23	71	820	8	18	565	8	12
13...	1,090	20	59	804	6	13	590	10	16
14...	1,000	22	59	766	10	21	608	37	61
15...	980	12	32	766	9	19	644	10	17
16...	970	18	47	766	7	14	632	30	51
17...	970	14	37	759	6	12	650	19	33
18...	980	16	42	766	11	23	692	27	50
19...	950	16	41	759	13	27	680	14	26
20...	923	13	32	766	12	25	650	15	26
21...	941	10	25	766	7	14	614	17	28
22...	950	18	46	759	10	20	596	9	14
23...	980	21	56	759	4	8	580	14	22
24...	990	28	75	759	14	29	575	14	22
25...	980	26	69	752	28	57	570	18	28
26...	990	16	43	745	10	20	555	12	18
27...	990	162	433	717	10	19	560	4	6
28...	990	58	155	710	8	15	560	6	9
29...	990	45	120	710	9	17	560	13	20
30...	990	37	99	692	49	92	555	9	13
31...	1,000	33	89	686	15	28	--	--	--
Total	38,544	--	2,583	25,545	--	1,052	18,107	--	645

Total discharge for year (cfs-days)..... 557,540

Total load for year (tons)..... 159,217

a Computed from water-sediment discharge curve.

GREEN RIVER BASIN--Continued

9-2170. GREEN RIVER NEAR GREEN RIVER, WYO.--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Samp- ling ature point	Water temp- er- ature (° F)	Discharge (cfs)	Sediment concentra- tion (ppm)	Suspended sediment											Method of analysis
						Percent finer than size indicated, in millimeters											
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Apr. 13, 1958.....	1300		37	1,300	197			74		93	95	99	100	---	---		SPWC
Apr. 18.....	1700		45	2,280	444			71		83	95	98	100	---	---		SPWC
Apr. 18.....	1700		45	2,280	444			01		86	97	98	100	---	---		SPWC
Apr. 20.....	1800		48	2,670	313			64		85	92	97	99	100	100		SPWC
Apr. 22.....	0900		45	2,320	140		55	62	68	75	79	83	89	95	99	100	SPWC
May 12.....	1700		56	3,390	202			53		78	91	98	100	---	---		SPWC
May 23.....	1600		61	6,670	370			38		61	79	96	100	---	---		VPWC
June 15.....	1700		64	4,140	012			---		---	---	97	100	---	---		S
July 5.....	1100		62	1,700	016			---		---	---	95	98	99	100		S
July 21.....	1800		71	950	007			---		---	---	99	100	---	---		S
Aug. 3.....	1000		68	1,020	013			---		---	---	98	99	100	---		S
Aug. 23.....	1400		70	752	005			---		---	---	92	96	100	---		S

GREEN RIVER BASIN--Continued
9-2250. BLACKS FORK NEAR MARSTON, WYO.

LOCATION --At Bonomo ranch, approximately 5 miles south of U.S. Highway 30, approximately 12 miles west of the town of Green River, Sweetwater County, and 12 miles upstream from gaging station near town of Green River, approximately 3 miles upstream from gaging station.
DRAINAGE AREA --3,670 square miles approximately upstream from gaging station.
RECORDS AVAILABLE --Chemical analyses: March 1951 to September 1958.

Water temperatures: March 1951 to September 1958

EXTREMES, 1957-58 --Dissolved solids: Maximum, 2,600 ppm Aug. 24-28; minimum, 329 ppm May 8-31.

Hardness: Maximum, 1,040 ppm Jan. 20; minimum, 144 ppm Aug. 29-30.

Specific conductance: Maximum daily, 3,350 micromhos Aug. 26; minimum daily, 432 micromhos May 29.

Water temperatures: Maximum, 78°F Aug. 2; minimum, 33°F Dec. 23, Jan. 1.

EXTREMES, 1951-58 --Dissolved solids: Maximum, 4,480 ppm Oct. 1-3, 1953; minimum, 278 ppm Feb. 12-13, 1954.

Hardness: Maximum, 1,980 ppm Feb. 1-14, 1955; minimum, 48 ppm Jan. 21-22, 26, 1953.

Specific conductance: Maximum daily, 6,010 micromhos Oct. 1, 1953; minimum point on many days during winter months.

Water temperatures: Maximum, 84°F July 15, 16, 1955; minimum, freezing point on many days during winter months.

REMARKS --Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for gaging station near Green River for water year October 1957 to September 1958 given in WSP 1953.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (calculated)		Hardness as CaCO ₃	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)
														Parts per million	Tons per acre-foot	Calcium, magnesium, sodium	Non-carbonate	
Oct. 1-6, 8-31, 1957	35.1	5.8	0.03	130	70	277	4.3	200	0	905	92	0.6	2.0	1,590	2.16	612	448	2,180
Oct. 7-.....	40.0	7.9	..	82	30	193	2.8	148	2	542	54	..	1.9	989	1.35	328	203	1,450
Nov. 1-30.....	60.0	9.6	.01	132	55	203	3.8	243	0	657	98	..	1.8	1,280	1.74	558	359	1,800
Dec. 1-31.....	42.9	9.0	.01	130	47	140	3.6	284	0	480	72	.5	1.6	1,020	1.39	516	283	1,470
Jan. 1-19.....	20.0	11	.01	138	48	154	3.0	309	0	522	66	.3	1.3	1,100	1.50	542	289	1,550
Jan. 20-31, 1958.....	20.0	16	..	263	93	293	7.2	360	0	1,020	128	..	2.1	2,100	2.86	1,040	379	2,720
Feb. 1-28.....	55.0	7.6	.00	99	35	129	2.7	257	0	366	52	.2	1.8	819	1.11	390	179	1,240
Mar. 1-4, 6-31.....	100	9.8	.01	75	27	113	2.9	220	0	270	66	.4	1.7	674	.92	296	116	1,080
Mar. 5-.....	286	13	.01	107	39	155	5.1	278	0	403	100	..	1.6	960	1.31	428	203	1,460
Apr. 1-17.....	286	15	.02	81	29	123	4.0	227	0	284	73	.4	1.6	726	.96	561	321	1,460
Apr. 18-30.....	589	15	.00	74	23	63	3.2	240	0	161	38	.3	2.2	438	.68	278	81	1,799
May 1-7.....	570	15	.07	64	21	50	3.1	212	0	142	30	.2	.7	430	.58	246	72	688

GREEN RIVER BASIN--Continued
9-2295. HENRY'S FORK AT LINWOOD, UTAH

LOCATION (revised).--About 1 mile downstream from gaging station, which is 1.4 miles north of Wyoming-Utah State line, 3 miles upstream from State Highway 530, at Linwood, Daggett County 4.5 miles northeast of Manila, and 8 miles upstream from mouth.
DRAINAGE AREA.--520 square miles upstream from gaging station.
RECORDS AVAILABLE.--Chemical analyses: March 1951 to September 1958.

Water temperatures: March 1951 to September 1958.

EXTRACTS. 1957-58.--Dissolved solids: Maximum, 2,890 ppm Sept. 1-3, 6-12, 18-19; minimum, 343 ppm May 22-31.

Maxims: Maximum, 1,400 ppm Sept. 1-3, 6-12, 18-19; minimum, 236 ppm May 22-31.

Water temperatures: Maximum, 80°F July 12, 19, 20; minimum, 60°F May 29.

Water conductance: Maximum, 807 μ mhos/cm Sept. 6, 20; minimum, 312 μ mhos/cm on several days during November to March.

Water to be tested: Maximum, 80°F July 12, 19, 20; minimum, 60°F May 29.

EXTREMES 1951-58. Dissolved solids: Maximum, 2,890 ppm Sept. 1-3, 6-12, 18-19; minimum, 343 ppm May 22-31.

Harshest: Maximum, 1,880 ppm Sept. 21-30 Oct. 1-10, 1958; minimum, 208 ppm June 1-6, 9-10, 1952.

Water temperatures: Maximum, 80°F July 12, 19, 20; minimum, 60°F May 29.

Specific conductance: Maximum, 807 μ mhos/cm Sept. 6, 1957; minimum, 312 μ mhos/cm on several days during November to March.

Water temperatures: Maximum, 80°F July 12, 19, 20; minimum, 60°F May 29.

REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1957 to September 1958 given in WSP 1563.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbocationate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boiron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-bicarbonate			
Oct. 1-31, 1957...	57.8	18		159	94	77	9.4	270	0	662	38		0.4	0.31	1,190	1.62	186	782	561	1.2	1,590	7.7
Nov. 1-30, 1957...	82.1	19		146	80	66	8.0	282	0	562	34		0.8	0.25	1,060	1.44	235	694	463	1.1	1,410	7.7
Dec. 1-31, 1957...	70.0	19		131	73	61	7.8	256	0	506	30		1.0	0.23	955	1.30	180	626	416	1.1	1,310	8.2
Jan. 1-31, 1958...	40.0	17		125	68	57	7.4	239	0	482	28		1.0	0.19	904	1.23	97.6	590	394	1.0	1,240	8.2
Feb. 1-28, 1958...	40.0	16		123	67	56	7.7	249	0	462	26		1.1	0.19	881	1.20	95.1	580	376	1.0	1,220	8.2
Mar. 1-31, 1958...	45.6	19		125	64	59	7.4	266	0	445	32		1.3	0.21	884	1.20	109	576	358	1.1	1,240	8.2
Apr. 1-30, 1958...	71.6	19		108	57	51	7.4	259	0	368	25		1.7	0.18	763	1.04	148	504	292	1.0	1,080	8.2
May 1-21, 1958...	58.0	19		109	56	56	7.4	245	0	378	27		1.3	0.20	774	1.05	121	504	303	1.1	1,090	8.0
May 22-31, 1958...	44.8	17		62	20	19	4.9	170	0	126	8.0		1.8	0.14	343	.47	415	236	97.5	1.5	531	7.9
June 1-15, 1958...	168	17		78	34	32	5.8	193	0	221	15		1.5	0.17	499	.68	226	334	176.8	1.7	744	7.9
June 16-30, 1958...	17.8	21		142	73	77	9.9	284	0	533	34		1.3	0.28	1,030	1.40	49.5	654	421	1.3	1,390	8.2
July 1-22, 1958...	1.2	19		126	116	133	13	304	0	978	52		1.1	0.52	1,680	2.28	3.44	1,020	766	1.8	2,110	8.0
July 23-31, 1958...	8.20			285	152	185	14	333	0	1,340	70		1.1	0.60	2,320	3.03	4.82	1,340	1,060	2.2	2,680	7.7
Aug. 1, 3-4, 10...	.5	31		154	94	91	13	247	0	716	36		.8	.38	1,260	1.71	1.70	772	569	1.4	1,630	8.1
Aug. 2, 5-9, 11-23, 26, 28-29	.4	28		283	159	205	15	286	0	1,440	72		1.4	.66	2,350	3.20	2.54	1,360	1,130	2.4	2,780	8.2

GREEN RIVER BASIN--Continued
9-2295. HENRY'S FORK AT LINWOOD, UTAH--Continued

Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂) (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (microhmhos at 25°C)	pH
													Parts per million	Tons per acre-foot	Tons per day	Calcium-Magnesium	Non-bicarbonate			
Aug. 24-25, 27, 30-31, 1958.....	0.5 25		122	81	77	13	202	0	596	30		0.6 0.30	1.040	1.41	1.40	638	472	1.3	1,400	8.2
Sept. 1-3, 6-12, 18-19.....	.5 30		297	180	230	16	286	6	1,610	82		1.0 .79	2.590	3.52	3.50	1,480	1,240	2.6	3,000	8.3
Sept. 4-5.....	.7 16		160	101	96	15	242	8	759	8		.8 .37	1.310	1.78	2.48	812	600	1.5	1,720	8.4
Sept. 13-17, 20-30	.8 25		144	87	79	14	249	0	642	33		1.0 .31	1.150	1.56	2.48	716	512	1.3	1,510	8.1
Weighted average	57.3 18		110	56	49	7.0	234	0	383	24		1.2 0.20	763	1.04	118	503	313	0.9	1,060	--

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October.....	52	52	60	58	58	56	52	52	52	52	52	48	52	54	54	52	52	52	52	52	54	52	50	50	50	52	51	52	45	45	45	53	
November.....	45	35	38	48	44	44	44	43	43	43	35	43	42	40	38	34	35	35	33	33	33	32	34	--	35	--	34	--	--	32	--	38	
December.....	--	33	--	--	--	33	--	35	--	--	35	--	34	--	--	35	--	35	--	32	33	--	--	--	--	35	--	--	--	35	--	--	
January.....	34	--	35	--	35	--	34	--	--	--	33	35	--	--	35	--	--	34	--	32	--	33	--	33	--	--	34	--	32	--	--	--	
February.....	32	--	33	--	32	--	--	32	--	32	--	32	--	--	34	--	32	--	32	--	--	--	36	--	--	--	36	--	--	--	--	--	--
March.....	33	--	33	--	32	--	--	32	--	--	--	32	--	--	35	--	35	--	40	--	--	42	--	45	--	44	44	43	44	42	41	--	
April.....	44	42	41	44	42	48	50	45	44	45	45	47	45	45	50	55	55	54	48	47	50	45	43	45	45	48	45	46	50	50	--	47	
May.....	48	50	55	52	54	52	55	55	58	55	58	58	60	58	60	55	58	60	58	65	56	56	58	60	60	--	60	60	65	60	60	57	
June.....	60	60	60	60	65	65	65	65	65	65	65	65	65	70	68	68	72	73	68	76	72	78	75	70	72	75	77	72	76	--	67		
July.....	75	72	72	72	68	69	70	72	70	72	78	80	78	70	74	78	78	73	80	72	78	70	--	78	68	72	74	78	70	68	75	73	
August.....	72	78	74	72	78	80	78	78	79	79	80	75	70	68	72	75	70	75	75	68	70	74	70	74	75	70	74	70	75	74	75	74	
September.....	70	72	72	72	70	68	70	68	74	75	75	57	65	68	68	60	59	56	--	68	70	62	61	55	54	58	60	58	58	56	--	65	

GREEN RIVER BASIN--Continued
9-2345. GREEN RIVER NEAR GREENDALE, UTAH

LOCATION.--At gaging station, 0.5 mile downstream from Ashley Falls, 1.2 miles upstream from Cart Creek, 4 miles northeast of Greendale, Daggett County, and 12 miles southeast of Linwood, Daggett County.
DRAINAGE AREA.--15,100 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: October 1956 to September 1958.
Water temperatures: October 1956 to September 1958.
Sediment records: October 1956 to September 1958.
EXTREMES, 1957-58.--Dissolved solids: Maximum, 551 ppm June 1-6.
Hardness: Maximum, 288 ppm Mar. 1-22; minimum, 130 ppm June 1-6.
Specific conductance: Maximum, 836 micromhos June 1-6.
EXTREMES, 1956-58.--Dissolved solids: Maximum, 743 ppm Nov. 23, 27, 30, 1956; minimum, 204 ppm June 1-6, 1958.
Hardness: Maximum, 400 ppm Nov. 23, 27, 30, 1956; minimum, 130 ppm June 1-6, 1958.
Specific conductance: Maximum, 1,070 micromhos Oct. 26, 1956; minimum, 328 micromhos June 1-6, 1958.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1957 to September 1958 given in WSP 1563. Flow affected by ice Nov. 19 to Mar. 9, Mar. 20-22.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium		
Oct. 1-31, 1957...	1,252	6.1	0.03	65	28	63	2.5	181	0	238	18	0.2	0.7	0.11	511	0.69	1,730	276	128	787
Mar. 1-22, 1958...	1,539	10	.01	68	29	59	2.0	184	6	224	18	--	1.2	.11	4506	.69	1,280	288	127	792
Mar. 23-31, 1958...	1,599	9.2	.02	63	26	77	2.0	186	0	221	30	--	1.6	.12	501	.75	2,080	263	110	836
Apr. 1-30, 1958...	2,424	14	.02	52	18	97	2.0	206	0	197	23	.2	1.4	.13	489	.56	2,160	261	82	744
May 1-30, 1958...	4,424	12	.04	40	9.5	17	2.3	132	0	111	12	--	1.8	.09	351	.56	4,160	203	52	549
May 24-31, 1958...	11,610	11	.04	40	9.5	17	2.3	132	0	51	5.0	--	1.4	.10	219	.30	6,860	138	22	348
June 1-6, 1958...	9,533	8.7	.01	38	8.5	17	1.8	131	0	48	6.0	--	1.9	.05	204	.28	5,250	130	23	328
June 7-30, 1958...	4,651	8.6	.01	59	11	31	2.2	180	0	95	10	--	1.6	.10	316	.43	3,970	191	42	500
July 1-31, 1958...	1,408	4.8	.01	51	18	49	2.2	178	0	147	12	.2	9	.08	377	.51	1,430	203	57	592
Aug. 1-31, 1958...	934	3.2	.01	50	22	54	2.2	159	0	174	14	.2	6	.08	409	.56	1,030	217	81	631
Sept. 1-30, 1958...	659	2.7	.00	50	29	69	2.2	159	0	233	18	.3	1.8	.13	504	.69	1,897	244	114	756
Weighted average	52,430	9.4	0.02	53	17	40	2.4	173	0	127	12	0.2	1.4	0.10	356	0.48	2,340	202	60	553

a Calculated from determined constituents.

b Represents 85 percent of runoff for water year.

GREEN RIVER BASIN--Continued
9-2345. GREEN RIVER NEAR GREENDALE, UTAH--Continued

Temperature (°F) of water, water year October 1957 to September 1958

Month		Day																														Average		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		31	
October.....	63	--	--	--	--	--	--	--	55	--	--	--	--	--	--	--	--	51	48	--	--	50	--	--	--	--	--	--	--	--	--	--	--	
November....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
December...	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
January.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
February....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
March.....	--	36	--	--	36	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	34	36	--	--	--	--	--	--	--	--	--	38	
April.....	--	39	--	--	--	--	35	--	--	38	52	--	38	--	--	--	--	--	--	--	46	--	--	38	--	--	--	--	--	45	--	--	--	
May.....	50	--	--	--	54	--	--	52	--	--	51	55	54	55	54	55	--	--	59	59	58	--	58	--	59	57	60	59	--	--	--	--	--	
June.....	--	56	54	52	56	57	--	57	56	54	54	54	--	--	--	56	56	62	57	60	--	66	60	57	56	60	--	58	--	--	--	--	--	
July.....	58	58	59	--	--	--	--	56	58	70	74	72	--	66	66	70	72	71	72	71	70	64	72	65	--	68	72	--	65	68	--	--	--	
August.....	74	--	--	73	70	74	75	75	--	--	76	75	71	70	71	--	--	72	72	--	--	--	--	--	72	70	69	64	69	--	--	--	--	--
September...	--	--	--	--	--	--	--	--	68	--	--	--	--	--	--	62	--	--	--	--	--	--	--	--	--	60	--	--	--	--	--	--	--	--

GREEN RIVER BASIN--Continued

9-2345. GREEN RIVER NEAR GREENDALE, UTAH--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediments		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	1,130	--		1,260	--		390		
2...	1,110	21		1,260	--		410		
3...	1,100	--		1,310	--	a150	440	--	a10
4...	1,160	--		1,310	--		520		
5...	1,170	--		1,270	48		650		
6...	1,180	--		1,370	--		760		
7...	1,240	--		1,400	--		860		
8...	1,300	--	a90	1,400	--	a400	960		
9...	1,310	35		1,410	--		930		
10...	1,300	--		1,400	--		870		
11...	1,290	--		1,250	--		820		
12...	1,280	--		1,230	--		740		
13...	1,280	--		1,200	48		720	--	a190
14...	1,260	--		1,220	--		780		
15...	1,250	--		1,270	--	a120	850		
16...	1,240	--		1,330	--		900		
17...	1,240	--		1,220	--		950		
18...	1,230	20		792	--		900		
19...	1,250	--		600	--	a15	820		
20...	1,260	--		510	--		750		
21...	1,260	--		470	--		700		
22...	1,280	57		430	--		760		
23...	1,320	--	a160	400	--		760		
24...	1,340	--		450	--		700		
25...	1,320	--		510	--	a10	720	--	a75
26...	1,300	--		560	--		760		
27...	1,290	--		540	--		800		
28...	1,310	--		520	--		750		
29...	1,290	--		460	--		720		
30...	1,270	39		390	--		690		
31...	1,260	--		--	--	--	640		
Total	38,820	--	3,910	28,742	--	3,735	23,020	--	3,610
	January			February			March		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	580	--		800	--		1,120	--	
2...	520	--		810	--		1,100	--	
3...	490	--		810	--		1,100	--	
4...	470	--		820	--		1,050	--	
5...	510	--	a25	820	--		1,000	--	a600
6...	540	--		820	--	a150	1,000	--	
7...	570	--		830	--		1,000	--	
8...	600	--		830	--		990	--	
9...	630	--		840	--		970	--	
10...	670	--		840	--		956	--	
11...	700	--		850	--		931	--	
12...	720	--		860	--		956	--	
13...	750	--		860	--		914	--	
14...	780	--		870	--		880	--	
15...	820	--		870	--		888	--	
16...	840	--		870	--	a250	864	--	a220
17...	850	--		880	--		848	--	
18...	830	--		880	--		872	--	
19...	820	--		930	--		864	--	
20...	800	--	a100	1,000	--		810	--	
21...	770	--		1,150	--		740	--	
22...	750	--		1,220	--		800	--	
23...	770	--		1,400	--		922	--	
24...	720	--		1,480	--	a3,500	1,260	880	
25...	730	--		1,500	--		1,330	--	
26...	750	--		1,400	--		1,390	1,700	
27...	760	--		1,300	--		1,590	--	a6,000
28...	770	--		1,230	--		1,560	--	
29...	780	--		--	--	--	1,580	--	
30...	790	--		--	--	--	1,430	--	
31...	800	--		--	--	--	1,530	1,480	
Total	21,880	--	2,425	27,770	--	31,900	33,245	--	56,860

a Computed from water-sediment discharge curves.

QUALITY OF SURFACE WATERS, 1958

GREEN RIVER BASIN--Continued

9-2345. GREEN RIVER NEAR GREENDALE, UTAH--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	1,490	--	a1,700	2,090	214	a1,000	11,500	1,100	b34,000
2...	1,410	898		1,990	--		11,000	965	28,700
3...	1,550	--		1,920	--		10,000	920	24,800
4...	1,560	--		1,950	--		9,089	739	17,900
5...	1,630	--		2,060	156		8,220	625	13,900
6...	1,440	--	a4,000	2,260	--	3,700	7,400	630	12,600
7...	1,490	418		2,640	--		7,080	570	b11,000
8...	1,550	--		3,100	--		6,680	490	b8,800
9...	1,640	--		3,530	--		6,870	500	9,270
10...	1,760	458		4,060	900		7,290	590	11,600
11...	1,720	--	a8,000	4,570	1,100	b13,600	7,270	475	9,320
12...	1,980	--		4,740	1,160	14,800	6,960	387	7,270
13...	2,120	--		4,880	970	b12,800	6,560	228	4,040
14...	2,120	944		5,190	890	12,400	5,930	180	b2,900
15...	2,140	--		5,950	1,160	18,600	5,450	210	b3,100
16...	2,300	705	a6,000	6,290	1,380	23,400	5,050	270	3,680
17...	2,500	--		6,310	1,400	b24,000	4,560	304	3,740
18...	2,750	--		6,070	1,200	b20,000	4,050	227	2,480
19...	2,900	--		5,750	875	13,600	3,630	225	2,210
20...	3,280	--		5,710	760	11,700	3,320	186	1,670
21...	3,450	1,220	a8,000	6,090	655	10,800	3,080	150	b1,200
22...	3,370	--		6,720	825	15,000	3,100	120	b1,000
23...	3,180	--		7,890	1,860	39,600	3,000	94	761
24...	3,170	848		9,210	2,500	b62,000	2,930	176	1,390
25...	3,100	--		10,500	2,600	b74,000	2,920	450	3,550
26...	2,870	--	a1,800	11,500	2,550	79,200	3,100	200	1,670
27...	2,560	--		12,100	2,350	76,800	3,220	370	3,220
28...	2,340	292		12,600	2,040	69,400	3,310	400	b3,600
29...	2,190	--		12,600	1,760	59,900	3,230	350	b3,100
30...	2,120	--		12,400	1,500	b50,000	3,040	250	2,050
31...	--	--	--	12,000	1,300	b42,000	--	--	--
Total	67,680	--	126,500	194,670	--	770,560	168,830	--	234,521
July			August			September			
1...	2,680	180	b1,300	1,140	33	102	725	18	b35
2...	2,410	117	761	1,200	50	b160	711	22	42
3...	2,260	68	415	1,260	60	b200	697	32	b60
4...	2,120	54	b310	1,180	43	137	683	60	b110
5...	1,980	52	b278	1,170	160	505	669	53	b96
6...	1,830	51	b250	1,120	76	230	662	35	b63
7...	1,710	62	286	1,080	29	85	629	25	b42
8...	1,660	68	305	1,060	24	69	622	23	b39
9...	1,600	61	264	1,030	23	b64	616	21	35
10...	1,550	62	259	1,010	21	b57	603	21	b34
11...	1,470	59	234	974	18	47	584	22	b35
12...	1,370	61	b230	948	17	44	590	37	b59
13...	1,270	57	b200	922	48	119	603	34	b55
14...	1,190	49	157	897	28	68	616	29	b48
15...	1,140	43	132	860	16	38	636	29	b50
16...	1,080	44	128	856	20	b46	669	32	b58
17...	1,060	36	103	848	20	b46	704	25	48
18...	1,050	39	111	832	17	38	704	18	b34
19...	1,060	41	b120	824	18	40	725	18	b35
20...	1,060	40	b110	832	18	40	800	27	b46
21...	1,050	36	102	824	27	60	762	18	b37
22...	1,040	42	118	832	270	607	711	18	b35
23...	1,060	32	92	840	140	b320	669	15	b27
24...	1,070	45	130	832	40	b90	655	15	b27
25...	1,120	41	124	816	21	46	636	17	29
26...	1,130	47	b140	808	22	48	629	19	b32
27...	1,120	53	b160	824	36	80	622	19	b32
28...	1,110	57	171	816	43	95	616	17	b28
29...	1,130	44	134	785	28	59	616	16	b27
30...	1,120	70	212	762	25	b51	616	17	b28
31...	1,150	47	146	755	23	b47	--	--	--
Total	43,650	--	7,482	28,957	--	3,638	19,780	--	1,338
Total discharge for year (cfs-days).....									697,044
Total load for year (tons).....									1,246,479

a Computed from water-sediment discharge curves.

b Computed from estimated-concentration graph.

GREEN RIVER BASIN--Continued

9-2345. GREEN RIVER NEAR GREENDALE, UTAH--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Sampling point	Water temp- per- ature (°F)	Discharge (cfs)	Sediment concentra- tion (ppm)	Suspended sediment											Method of analysis
						Percent finer than size indicated, in millimeters											
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
May 8, 1958.....	1020		52	3,050	367		52	66	75	88	95	99					SEWC
May 20.....	1305		59	5,730	571		48	55	62	76	86	96	100				VBWC
May 27.....	0925		57	12,200	2,140			26	40	40	52	69	80	93	100		VBWC
June 19.....	0945		57	3,650	459		18	23	26	31	40	54	78	93	98		V
June 24.....	1005		60	2,930	134							56	77	95	100		
June 27.....	1310		60	3,220	353		45	59	66	71	75	81	90	98	100		VBWC
June 30.....	1425		58	3,030	206		38	51	59	67	74	81	90	99	100		VBWC
July 1.....	1400		58	2,640	128							75	88	100		V	
July 2.....	1400		58	2,410	095							76	90	100		V	
July 9.....	1430		70	1,600	087							67	88	100		V	
July 24.....	1510		70	1,080	030												V
July 30.....	1525		65	1,130	072		50	68	76	81	87	90	95	100			VBWC
Aug. 5.....	1405		70	1,160	222			68	88	92	94	96	98	99	100		SPWC
Aug. 22.....	1450		68	824	130		66	89	93	94	96	97	99	100			SEWC
Aug. 25.....	1415		72	808	022								85	93	98		S
Sept. 2.....	1435		69	704	017							93	98	99	100		S

GREEN RIVER BASIN--Continued

9-2510. YAMPA RIVER NEAR MAYBELL, COLO.

LOCATION.--At county bridge, 1 mile north of Maybell, Moffat County, and about 3.5 miles downstream from gaging station.

DRAINAGE AREA.--3,410 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: November 1950 to September 1958.

Water temperatures: November 1950 to September 1958.

Sediment records: December 1950 to May 1958 (discontinued).

EXTREMES, 1957-58.--Dissolved solids: Maximum, 399 ppm Apr. 1-17; minimum, 86 ppm June 1-22.

Hardness: Maximum, 221 ppm Apr. 1-17; minimum, 46 ppm June 1-22.

Specific conductance: Maximum daily, 755 micromhos Sept. 10-11; minimum daily, 106 micromhos June 8.

Water temperatures: Maximum, 80°F Aug. 11; minimum, freezing point on many days during November to March.

Sediment concentrations (October 1957 to May 1958): Maximum daily, 1,910 tons May 9; minimum daily, 2 ppm Oct 11.

Sediment loads (October 1957 to May 1958): Maximum daily, 47,100 tons May 9; minimum daily, not determined.

EXTREMES, 1950-58.--Dissolved solids: Maximum, 545 ppm Sept. 21-30, 1956; minimum, 72 ppm June 21-30, 1951.

Hardness: Maximum, 238 ppm Dec. 1-10, 1952; minimum, 45 ppm June 21-30, July 1-10, 1951.

Specific conductance: Maximum daily, 947 micromhos Sept. 24, 1955; minimum daily, 94.3 micromhos June 19, 1953.

Sediment concentrations: Maximum, 81°F July 30, 1951; minimum, freezing point on many days during winter months.

Sediment loads: Maximum daily, 6,000 tons July 22, 1951; minimum daily, 2 ppm Jan. 21 to Feb. 4, 1951, July 1, 1956, Oct. 11, 1957.

REMARKS: Records of specific conductance for May 9, 1956; maximum daily, 1,910 tons May 9, 1956; minimum daily, 2 ppm Oct 11, 1956.

REMARKS: Records of specific conductance for May 9, 1956; maximum daily, 1,910 tons May 9, 1956; minimum daily, 2 ppm Oct 11, 1956. Records of discharge for water year October 1957 to September 1958 given in WSP 1563. Flow affected by ice Nov. 18 to Mar. 28.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonyl (CO ₂)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)		Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Calcium, Magnesium	Non-carbonate			
Oct. 1-31, 1957...	469	5.2		36	14	32	2.4	156	0	60	17		5.2	0.06	264	0.36	149	21	1.1	446	7.4
Nov. 1-30, 1957...	483	10	42	17	33	33	2.3	176	0	78	16		1.8	0.06	302	.41	173	29	1.1	482	7.7
Dec. 1-31, 1957...	405	12	45	19	37	37	2.3	194	0	85	18		2.2	.25	320	.44	190	31	1.2	521	7.9
Jan. 1-31, 1958...	328	14	43	17	35	35	2.0	184	0	73	18		2.7	.08	300	.41	176	25	1.1	490	7.7
Feb. 1-28, 1958...	504	7.6	46	18	39	39	3.1	165	0	109	20		4.6	.06	334	.45	186	51	1.2	529	7.6
Mar. 1-31, 1958...	675	16	48	19	43	43	2.6	167	0	127	18		3.8	.06	366	.50	197	60	1.3	579	7.8
Apr. 1-17, 1958...	1,679	13	52	22	42	42	2.8	174	0	151	14		3.7	.08	399	.54	221	76	1.2	603	7.8
Apr. 18-30, 1958...	4,072	12	35	12	16	16	2.5	124	0	61	4.4		4.9	.07	225	.31	136	34	.6	334	7.8
May 1-5, 1958...	4,846	14	33	9.7	13	13	2.5	123	0	45	3.5		3.9	.04	196	.27	123	22	.5	308	7.7
May 6-19, 1958...	8,429	12	27	6.4	7.3	7.3	1.6	101	0	25	2.0		3.5	.12	148	.20	94	11	.3	225	7.7
May 20-31, 1958...	11,220	10	19	3.8	5.1	5.1	1.4	75	0	15	1.4		2.2	.01	109	.15	3,300	62	1	159	7.4
June 1-22, 1958...	6,657	7.8	14	2.4	2.4	5.5	1.2	56	0	13	2.1		1.3	.03	86	.12	1,550	0	.4	129	7.3
June 23-30, 1958...	2,482	7.2	18	4.0	9.5	9.5	1.2	70	0	22	5.1		3.0	.00	112	.15	745	60	3	180	7.3
July 1-11, 1958...	955	8.4	25	8.5	18	2.0	100	0	36	12	12		1.7	.08	163	.22	98	16	.8	272	7.4
July 12-31, 1958...	362	5.5	34	14	34	2.1	142	0	30	30	30		1.0	.13	254	.34	142	25	1.2	416	7.5
Aug. 1-31, 1958...	178	3.3	42	19	48	3.1	182	0	98	30	30		1.0	.13	339	.46	163	38	1.6	565	7.8
Sept. 1-30, 1958...	165	3.8	41	20	36	3.2	193	0	109	34	34		.9	.08	368	.50	186	26	1.8	616	7.8
Weighted average	1,752	10	27	8.0	14	1.8	102	0	40	5.8	5.8		2.7	0.06	172	0.23	814	100	0.6	265	--

GREEN RIVER BASIN--Continued
9-2510. YAMPA RIVER NEAR MAYBELL, COLO.--Continued
Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																															Aver- age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October.....	63	61	60	55	58	56	57	49	51	57	55	49	52	50	55	58	48	47	47	51	48	42	40	49	49	45	48	42	48	51	51	
November....	46	45	48	46	45	44	43	41	43	41	40	42	41	39	40	37	33	32	32	34	33	35	32	36	35	34	34	--	32	--	38	
December....	35	35	33	34	35	35	33	43	36	32	35	34	35	--	--	37	--	37	--	35	--	--	32	--	32	--	33	--	--	--	--	
January.....	32	--	32	--	32	--	32	--	32	--	32	--	32	--	33	--	32	--	32	--	32	--	34	--	--	32	--	32	--	34	--	
February.....	--	--	33	--	33	--	33	--	32	--	32	--	32	--	36	--	41	--	44	--	48	--	--	45	--	35	--	38	--	--	--	
March.....	--	--	32	--	38	--	37	--	38	40	40	40	39	39	36	41	39	37	38	40	37	39	40	38	38	39	40	41	42	41	42	
April.....	43	39	38	40	39	42	43	47	45	44	46	47	49	49	50	60	59	50	49	50	50	49	40	50	44	46	--	--	--	55	--	
May.....	54	50	52	58	54	52	52	48	47	52	52	51	51	49	52	51	58	53	55	54	55	57	56	58	58	57	57	57	56	56	54	
June.....	58	58	58	60	60	60	58	59	60	59	60	58	60	62	60	64	62	63	64	63	66	68	62	66	65	65	--	67	70	70	--	
July.....	70	70	71	70	69	70	67	78	75	77	76	76	75	67	72	70	73	72	70	69	76	73	68	72	77	70	75	75	72	72	75	
August.....	77	78	78	76	77	75	78	78	78	78	78	79	79	78	77	78	77	76	77	77	72	72	70	70	72	69	68	69	68	69	75	
September..	68	69	69	71	70	73	72	70	75	74	72	70	65	62	66	64	66	59	65	65	64	63	65	66	60	60	61	66	65	66	--	

QUALITY OF SURFACE WATERS, 1958

GREEN RIVER BASIN--Continued

9-2510. YAMPA RIVER NEAR MAYBELL, COLO.--Continued

Suspended sediment, October 1957 to May 1958

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	316	--		558	4		400		
2...	302	--		546	--		360		
3...	298	--		576	--		370		
4...	294	9		570	--		380		
5...	294	--		552	--		390		
6...	289	--		564	--	a7	400		
7...	294	--		576	--		400		
8...	293	--	a8	534	5		400	--	a8
9...	288	--		510	--		400		
10...	294	--		486	--	a5	400		
11...	289	2		420	--		380		
12...	289	--		420	--	a3	360		
13...	289	--		458	--		360		
14...	325	--		498	--		390		
15...	430	--	a7	510	30		420		
16...	733	--		510	--	a40	450		
17...	747	--		469	--		450		
18...	691	10		520	--		450		
19...	649	--	a26	520	--		450		
20...	628	--		450	--		420		
21...	698	--		320	--	a10	440		
22...	698	--		270	--	a6	450		
23...	570	--		370	--	a16	420	--	a11
24...	594	--		410	--	a21	390		
25...	570	16		450	--		410		
26...	552	--	a15	490	--		400		
27...	558	--		500	--	a35	380		
28...	528	--		500	--		390		
29...	540	--		480	--		420		
30...	607	--		450	--		410		
31...	570	--		--	--		400		
Total	14,532	--	436	14,487	--	620	12,540	--	296
Day	January			February			March		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	360	--		280	--		620	--	a260
2...	340	--		280	--		560	--	a200
3...	320	--		290	--		530		
4...	320	--		300	--		490		
5...	320	--		300	--		460		
6...	330	--		300	--	a4	440		
7...	340	--		300	--		430		
8...	350	--		300	--		440	--	a130
9...	360	--		300	--		470		
10...	360	--	a6	300	--		520		
11...	360	--		310	--		530		
12...	360	--		320	--		530		
13...	360	--		330	--		520		
14...	360	--		340	--		520		
15...	350	--		360	--	a18	490	97	128
16...	350	--		400	--		480		
17...	350	--		470	--	a100	460	--	a120
18...	340	--		520	--	a150	480		
19...	350	--		600	--	a240	480		
20...	340	--		740	--		480	264	342
21...	300	--		780	--		520	--	a600
22...	290	--		800	--	a600	600	975	1,580
23...	290	--		840	--		780	--	a1,900
24...	300	--		900	--		1,000	--	a2,200
25...	300	--		980	--	a1,000	1,200	775	2,510
26...	290	--	a4	960	--	a1,000	1,280		
27...	300	--		800	--	a600	1,200	--	a2,600
28...	300	--		700	--	a400	1,190		
29...	300	--		--	--		1,060	253	724
30...	300	--		--	--		1,030	--	a700
31...	290	--		--	--		1,120	--	a660
Total	10,180	--	164	14,100	--	6,596	20,910	--	21,644

a Computed from water-sediment discharge curves.

GREEN RIVER BASIN--Continued

9-2510. YAMPA RIVER NEAR MAYBELL, COLO.--Continued

Suspended sediment, October 1957 to May, 1958--Continued

Day	April			May			Suspended sediment		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1...	1,290	165	575	3,290	--	a2,000			
2...	1,140			4,030	538	5,850			
3...	1,190	--	a550	4,780	--	a9,000			
4...	1,310			5,640	--	a14,000			
5...	1,260	173	589	6,490	--	a20,000			
6...	998	--	a300	7,250	--	a27,000			
7...	915	--	a230	8,380	1,660	37,600			
8...	1,180			8,960	--	a46,000			
9...	1,730			9,130	1,910	47,100			
10...	1,670	--	a1,500	8,000	--	a35,000			
11...	1,630			7,740	--	a20,000			
12...	1,520	187	767	8,940	350	8,450			
13...	1,590	--	a1,200	9,730	--	a6,400			
14...	1,840	371	1,840	9,780	243	6,420			
15...	2,300	--	a3,700	8,860	--	a6,000			
16...	3,070	--	a8,800	7,640	247	5,100			
17...	3,910	--	a9,600	7,420	--	a5,000			
18...	4,740	816	10,400	7,690	--	a4,600			
19...	5,350			8,480	146	3,340			
20...	5,280	--	a12,000	9,630	--	a4,600			
21...	5,010			10,300	192	5,340			
22...	5,050			10,600					
23...	4,830	326	4,250	11,100					
24...	4,350	--	a3,200	11,400					
25...	3,360	--	a1,600	11,400	--	a5,000			
26...	3,070	152	1,260	11,600					
27...	2,960			11,700					
28...	3,120	--	1,200	11,800	157	5,000			
29...	2,880			11,800	--	a6,000			
30...	2,940	164	1,300	11,700	212	6,700			
31...	--	--	--	11,600	--	a6,600			
Total	81,483	--	108,861	276,860	--	373,100			
Total discharge for period (cfs-days).....								445,092	
Total load for period (tons).....								511,717	

a Computed from water-sediment discharge curves.

GREEN RIVER BASIN--Continued

9-2510. YAMPA RIVER NEAR MAYBELL, COLO.--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
F, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Samp- ling point	Water temp- er- ature (°F)	Discharge (cfs)	Sediment con- cen- tration (ppm)	Suspended sediment										Method of analysis	
						Percent finer than size indicated, in millimeters											
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500		1.000
Mar. 20, 1958.....	1700		33	d 480	259			52		87	96	99	100	--	--	--	SPWC
Mar. 20.....	1700		33	d 480	259			04		79	98	99	100	--	--	--	SPN
May 9.....	0830		--	9,440	1,910		15	20	23	28	33	43	53	67	77	89	VBWC
May 9.....	0830		--	9,440	1,910			--		--	--	40	51	65	73	89	S
June 4.....	1825		59	9,270	337			18		28	37	49	68	87	99	100	SPWC

d Daily mean discharge

GREEN RIVER BASIN--Continued

9-2600. LITTLE SNAKE RIVER NEAR LILY, COLO.

LOCATION --About 2 miles upstream from gaging station, which is 6 miles north of Lily, Moffat County, and 10 miles upstream from mouth.

DRAINAGE AREA --3,730 square miles upstream from gaging station.

RECORDS AVAILABLE --Chemical analyses: December 1950 to September 1958.

Water temperatures: December 1950 to September 1958.

Sediment records: May to September 1958.

EXTREMES, 1957-58 -- Dissolved solids: Maximum, 1,940 ppm Sept. 6, 9; minimum, 113 ppm June 1-14.

Hardness: Maximum, 965 ppm Sept. 6, 9; minimum, 64 ppm June 1-14.

Specific conductance: Maximum daily, 2,340 micromhos Sept. 6; minimum daily, 135 micromhos June 10.

Water temperatures: Maximum, 87°F Aug. 9, 12; minimum, freezing point on many days during November to March.

Sediment concentrations (May to September 1958): Maximum daily, 3,560 ppm May 7; minimum daily, 3 ppm on several days.

Sediment loads (May to September 1958): Maximum daily, 33,700 tons May 9; minimum daily, 0 tons Sept. 2.

EXTREMES, 1950-58 -- Dissolved solids (1950-51, 1952-58): Maximum, 2,330 ppm July 24, 1955; minimum, 109 ppm July 1-8, 10, 1957.

Hardness (1950-51, 1952-58): Maximum, 1,340 ppm July 24, 1955; minimum, 64 ppm July 1-8, 10, 1957, June 1-14, 1958.

Specific conductance (1950-51, 1952-58): Maximum daily, 2,670 micromhos July 24, 1955; minimum daily, 135 micromhos June 10, 1958.

Water temperatures (1950-51, 1952-58): Maximum, 88°F July 17, 1955; minimum, freezing point on many days during winter months.

REMARKS --Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year

October 1957 to September 1958 given in WSP 1563. Flow affected by ice Nov. 21 to Feb. 28.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carb. sulfate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH		
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-boron					
Oct. 1-17, 22, 1957	66.5	7.6														474	0.64	85.1	181	1	3.1	502	7.9	
Oct. 18-21, 23-31	154	17														308	.42	128	136	0	2.0	588	8.0	
Oct. 18-21, 23-30	152	17														379	.49	149	172	0	1.9	579	8.1	
Nov. 22	65.0	20														a486	.66	83.3	237	24	2.2	766	7.6	
Dec. 1-31	109	18														342	.47	87.0	179	5	1.5	539	8.1	
Jan. 1-31, 1958	124.2	18														312	.42	137	138	0	2.0	503	8.0	
Feb. 1-19, 21-28	183	13														a469	.64	279	157	13	3.5	755	7.8	
Feb. 20	220	13														--	--	--	--	--	--	--	--	--
Mar. 1-31	309	17														349	.47	291	166	14	1.8	553	8.2	
Apr. 1-20	634	17														358	.49	613	190	26	1.4	550	8.2	
Apr. 21-30	106	16														211	.29	60.4	128	13	.7	324	8.1	
May 1-8	2,001	19														206	.28	1,110	130	6	.6	312	8.1	
May 9-31	4,087	15														136	.18	1,500	82	0	.4	199	8.1	
June 1-14	2,784	13														113	.15	1,849	64	0	.4	161	7.8	
June 15-23	880	13														143	.19	340	77	0	.7	215	7.9	
June 24-30	440	15														194	.26	230	102	0	1.1	300	8.0	

a Calculated from determined constituents.

GREEN RIVER BASIN--Continued

9-2600. LITTLE SNAKE RIVER NEAR LILY, COLO.--Continued

Chemical analyses in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Sodium adsorption ratio (micro-mhos at 25°C)	pH		
														Parts per million	Tons per acre-foot	Tons per day	Calcium-Magnesium	Non-bicarbonate				
July 1-10, 1958...	159	14		43	7.8	46	2.9	176	0	81	13		0.8	0.09	304	0.41	131	140	0	1.7	482	7.8
July 11-31.....	25.8	14		62	14	90	5.4	208	0	195	28		.5	.12	516	.70	35.9	213	42	2.7	788	8.1
Aug. 1-31.....	5.7	13		76	18	114	5.7	207	0	283	42		.5	.13	664	.90	10.2	261	91	3.1	987	8.2
Sept. 1-5, 8,																						
10-13, 15.....	7.2	17		89	20	123	7.1	202	0	344	41		1.2	.10	744	1.01	14.5	304	138	3.1	1,080	8.1
Sept. 6, 9.....	15.2	18		317	43	187	12	152	0	1,170	40		11	.32	1,940	2.64	17.6	965	840	2.6	2,200	8.2
Sept. 14, 16-24,	3.3	16		174	26	155	8.4	198	0	1,633	45		3.3	--	1,190	1.62	10.6	542	380	2.9	1,570	8.0
Sept. 26-30.....	23.1	13		99	21	221	7.9	245	0	486	85		1.2	.12	1,060	1.44	66.1	334	133	5.3	1,520	7.9
Sept. 25.....	35.0	11		79	14	102	5.2	188	0	272	32		4.0	--	634	.86	59.9	256	102	2.8	917	7.5
Weighted average	587	15		32	5.8	19	1.3	125	0	36	10		1.4	0.06	188	0.26	298	104	2	0.8	283	--

Temperature (°F) of water, water year October 1957 to September 1958

Month		Day																															Average
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October.....	63	64	62	50	60	54	60	61	62	62	54	57	52	58	61	58	55	54	50	51	52	49	45	46	50	47	49	47	48	50	50	54	
November....	51	46	44	42	44	38	40	42	34	41	39	41	37	37	36	34	33	33	32	32	33	32	33	32	32	32	33	33	32	33	37	--	
December....	33	33	32	32	32	32	32	32	32	32	32	34	32	--	--	32	--	32	33	--	--	--	33	--	32	--	32	--	--	--	--	--	
January.....	32	--	32	--	32	--	32	--	33	--	32	--	32	--	32	--	32	--	32	--	32	--	32	--	32	--	--	32	--	32	--	32	
February....	--	32	--	32	--	32	--	32	--	--	32	--	32	--	32	--	32	--	32	--	32	--	32	--	32	--	32	--	32	--	32	--	
March.....	32	32	32	32	32	37	34	39	40	37	36	39	40	40	41	36	40	47	50	48	50	52	50	48	44	43	45	42	46	40	41		
April.....	42	44	43	41	40	42	46	46	47	48	46	49	54	56	49	48	54	52	50	51	49	44	44	46	50	51	50	53	51	--	48		
May.....	54	59	60	58	58	56	55	51	52	56	55	56	54	51	54	54	56	59	61	57	56	60	61	61	62	62	61	64	60	60	57		
June.....	60	61	60	63	62	65	66	64	65	65	--	--	62	66	68	70	--	67	70	74	70	70	74	69	75	74	76	72	69	--	68		
July.....	71	72	77	69	73	76	--	79	80	63	61	61	62	56	59	70	65	80	68	66	61	60	63	59	66	66	59	59	--	62	60		
August.....	59	86	60	65	63	67	82	70	87	75	70	87	81	85	75	79	82	74	78	80	75	73	75	70	80	79	75	61	77	72	75		
September...	68	66	60	67	74	52	73	70	76	--	71	65	71	61	52	65	65	70	70	71	46	57	60	42	43	54	52	55	64	--	62		

GREEN RIVER BASIN--Continued

9-2600. LITTLE SNAKE RIVER NEAR LILY, COLO.--Continued

Suspended sediment, May to September 1958

Day	April			May			June		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1...				633	975	1,670	4,450	855	10,300
2...				782	1,480	3,120	4,020	750	8,140
3...				1,140	1,880	5,790	3,550	750	7,190
4...				1,670	2,480	11,200	3,360	746	6,770
5...				2,290	3,180	19,700	3,230	758	6,610
6...				2,730	3,450	25,400	2,900	690	5,400
7...				3,210	3,560	30,800	2,720	626	4,600
8...				3,550	3,450	33,100	2,740	622	4,600
9...				3,940	3,170	33,700	2,730	630	4,640
10...				3,070	2,230	18,500	2,420	604	3,950
11...				3,040	1,780	14,600	2,060	532	2,960
12...				3,750	1,950	19,700	1,800	472	2,290
13...				4,240	1,890	21,600	1,590	472	2,030
14...				4,580	1,740	21,500	1,400	458	1,730
15...				3,800	1,500	15,400	1,240	446	1,490
16...				3,000	1,110	8,990	1,110	424	1,270
17...				3,070	1,060	8,790	1,020	308	848
18...				3,240	975	6,530	928	345	864
19...				3,280	1,080	9,560	808	368	803
20...				3,020	1,300	13,400	764	371	765
21...				4,090	1,240	13,700	722	371	723
22...				4,270	1,120	12,900	697	308	580
23...				4,270	1,160	13,400	633	199	340
24...				4,590	1,220	15,100	595	175	281
25...				4,940	1,290	17,200	515	186	259
26...				4,860	1,150	15,100	462	174	217
27...				4,990	1,120	15,100	438	156	184
28...				4,940	1,120	14,900	415	129	144
29...				4,770	1,010	13,000	352	109	104
30...				4,720	975	12,400	301	90	73
31...				4,720	930	11,800	--	--	--
Total				109,995	--	479,650	49,970	--	80,155
Day	July			August			September		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1...	264	56	40	14	10	(t)	1.2	5	(t)
2...	236	43	27	13	11	(t)	.8	4	0
3...	218	33	19	12	8	(t)	1.0	3	(t)
4...	179	26	13	10	8	(t)	1.1	5	(t)
5...	152	20	8	9.9	5	(t)	3.6	9	(t)
6...	135	16	6	9.4	8	(t)	21	2,370	s298
7...	123	16	5	7.7	6	(t)	3.3	320	3
8...	114	16	5	6.0	5	(t)	3.3	135	1
9...	86	13	3	7.2	7	(t)	9.4	678	s30
10...	82	9	2	5.5	4	(t)	8.8	345	6
11...	60	8	1	5.1	7	(t)	4.4	125	1
12...	56	6	1	5.1	5	(t)	4.4	100	1
13...	44	6	1	5.1	4	(t)	30	4,050	s744
14...	33	6	1	5.1	8	(t)	42	10,600	s1,330
15...	28	4	(t)	5.1	8	(t)	21	6,550	371
16...	33	4	(t)	5.1	15	(t)	13	2,060	72
17...	30	4	(t)	5.1	12	(t)	27	1,760	128
18...	29	3	(t)	6.6	8	(t)	19	500	26
19...	24	4	(t)	5.5	6	(t)	15	265	11
20...	24	4	(t)	4.4	7	(t)	11	256	8
21...	22	4	(t)	3.6	8	(t)	12	175	6
22...	22	6	(t)	2.9	7	(t)	9.4	132	3
23...	18	5	(t)	3.6	6	(t)	7.2	124	2
24...	17	3	(t)	3.3	10	(t)	45	16,200	s3,840
25...	15	4	(t)	2.9	13	(t)	35	4,000	378
26...	14	4	(t)	1.6	7	(t)	19	660	34
27...	15	4	(t)	1.8	7	(t)	30	700	57
28...	13	5	(t)	3.6	3	(t)	38	1,060	109
29...	11	6	(t)	3.6	7	(t)	30	720	58
30...	17	7	(t)	1.5	4	(t)	29	800	63
31...	16	7	(t)	1.5	6	(t)	--	--	--
Total	2,130	--	136	177.0	--	3.69	494.9	--	7,582

Total discharge for period (cfs-days)..... 162,766.9
 Total load for period (tons)..... 567,526.98

s Computed by subdividing day.

t Less than 0.50 ton.

GREEN RIVER BASIN--Continued
9-2600. LITTLE SNAKE RIVER NEAR LILY, COLO.--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Samp- ling point	Water temp- per- ature (°F)	Discharge (cfs)	Sediment concen- tration (ppm)	Suspended sediment										Method of analysis		
						Percent finer than size indicated, in millimeters												
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500		1.000	
Apr. 30, 1958.....	1125		52	588	724		--	39	--	52	59	66	74	85	93	96	SPWC	
May 15.....	1815		54	3,440	1,530		--	21	25	30	36	44	57	81	96	100	--	VBWC
May 27.....	1845		62	5,030	1,470		--	21	25	30	36	49	73	92	98	100	--	VBWC
June 12.....	2000		65	1,920	633		--	14	19	23	31	45	63	86	100	--	--	VBWC
Sept. 6.....	0745		52	016	1,790		--	83	--	97	99	100	--	--	--	--	--	SPWC
Sept. 6.....	0745		52	016	1,790		--	02	--	87	99	100	--	--	--	--	--	SPN
Sept. 6.....	1900		57	003	214		69	83	94	96	97	97	97	97	98	99	100	SPWC
Sept. 14.....	1300		61	029	15,200		--	77	--	96	96	100	--	--	--	--	--	SPWC
Sept. 14.....	1630		60	032	11,100		--	83	--	97	100	--	--	--	--	--	--	SPWC
Sept. 15.....	0900		52	015	970		--	88	--	98	99	100	--	--	--	--	--	SPWC
Sept. 24.....	1030		42	121	36,500		--	63	--	90	97	100	--	--	--	--	--	SPWC
Sept. 24.....	1030		42	121	36,500		--	--	--	91	98	100	--	--	--	--	--	SPN
Sept. 24.....	1645		50	050	23,800		--	79	--	98	100	--	--	--	--	--	--	SPWC
Sept. 25.....	0930		43	026	3,260		--	89	--	97	100	--	--	--	--	--	--	SPWC

GREEN RIVER BASIN--Continued

9-2610. GREEN RIVER NEAR JENSEN, UTAH--Continued

LOCATION.--At gaging station, 1 mile downstream from Cub Creek and Chew Ranch, 4 miles southeast of Dinosaur National Monument headquarters, 6.5 miles northeast of Jensen, Uintah County, and 12 miles upstream from Brush Creek.

RECORDS AVAILABLE.--Water temperatures October 1952 to September 1956.

Sediment records: May 1948 to September 1956.

EXTREMES, 1957-58.--Water temperatures: Maximum, 86°F July 11; minimum, freezing point Dec. 12.

Sediment concentrations: Maximum daily, 4,100 ppm Apr. 19; minimum daily, 30 ppm Jan. 3.

EXTREMES, 1948-58.--Water temperatures: Maximum daily, 86°F July 11, 1958; minimum daily, 30°F Jan. 3.

EXTREMES, 1948-58.--Sediment concentrations: Maximum daily, 15,800 ppm Apr. 9, 1952; minimum daily, 9 ppm Oct. 7-11, 1953.

Sediment loads: Maximum daily, 567,000 tons Apr. 9, 1952; minimum daily, 19 tons Oct. 7-11, 1953.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1563. Flow affected by ice Nov. 20 to Feb. 3.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October....	--	--	51	--	--	--	50	--	--	--	--	--	35	38	35	--	--	--	--	47	--	46	--	--	--	--	--	45	--	45	--	
November....	44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	33	--	33	--	33	--	33	--	33	--	33	--	33	--	
December....	--	--	--	--	--	--	--	--	--	--	32	--	--	--	--	--	--	--	--	33	--	--	--	33	--	--	--	--	--	--	--	
January....	33	--	33	--	33	--	34	--	34	--	34	--	34	--	34	--	34	--	--	33	--	33	--	34	--	--	--	33	--	--	--	
February....	--	--	34	--	34	--	--	--	--	--	--	35	35	--	--	--	40	42	41	37	34	35	39	38	37	37	--	--	--	--	--	
March....	36	36	34	33	33	33	36	38	--	34	--	34	34	34	36	37	40	36	34	39	46	42	44	47	44	45	45	45	46	41	39	
April....	42	40	42	42	39	48	--	42	42	42	42	42	53	43	46	47	--	54	58	54	--	--	49	43	47	48	45	50	53	55	46	
May....	52	58	60	61	61	62	56	56	58	57	58	56	56	56	56	56	60	65	65	63	62	64	--	65	--	67	--	67	70	64	60	
June....	67	64	--	--	--	--	--	--	--	--	--	64	72	70	70	71	--	71	--	--	76	--	--	73	--	--	--	--	--	--	--	
July....	--	--	--	--	--	--	--	--	76	86	--	82	--	82	--	74	--	72	--	73	--	75	--	69	--	72	--	76	--	71	--	
August....	--	--	76	79	78	--	78	--	78	--	79	--	77	--	75	--	--	--	--	--	68	--	68	--	71	--	71	--	70	--	--	--
September..	73	--	69	--	69	--	69	75	66	71	--	--	63	--	63	--	62	--	59	--	59	--	55	--	55	--	56	--	60	--	--	--

GREEN RIVER BASIN--Continued

9-2610. GREEN RIVER NEAR JENSEN, UTAH--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	1,700	--		2,190	92		820	--	
2...	1,670	33		2,150	--		700	47	a130
3...	1,670	--		2,280	--		780	--	
4...	1,660	40		2,330	--		940	--	
5...	1,680	--		2,310	--		1,060	--	a400
6...	1,700	--		2,230	--		1,130	--	
7...	1,690	38		2,170	--	a550	1,250	--	a800
8...	1,700	--		2,250	--		1,400	--	
9...	1,770	--	a250	2,260	--		1,480	--	
10...	1,850	--		2,220	--		1,500	--	a1,300
11...	1,840	--		2,200	--		1,420	--	
12...	1,840	--		2,100	--		1,360	298	
13...	1,820	--		1,940	162		1,300	--	
14...	1,820	--		1,900	160		1,150	--	
15...	1,820	--		1,900	165		1,240	--	
16...	1,800	--		1,970	--	a850	1,330	--	
17...	1,860	--		2,080	--		1,430	--	
18...	2,200	--		1,980	220		1,450	--	
19...	2,360	--		1,730	--		1,350	--	
20...	2,330	--		1,250	400	1,350	1,280	56	
21...	2,270	233		1,000	--	a400	1,200	--	
22...	2,250	--		840	64		1,160	--	a150
23...	2,470	210		750	--	a150	1,230	--	
24...	2,380	--	a1,300	850	--		1,220	124	
25...	2,370	--		960	51		1,210	--	
26...	2,280	--		1,070	--		1,180	--	
27...	2,210	--		1,160	45		1,250	49	
28...	2,190	91		1,200	--	a320	1,330	--	
29...	2,170	--		1,150	125		1,310	33	
30...	2,140	93		1,000	--		1,280	44	
31...	2,110	--		--	--	--	1,220	--	
Total	61,620	--	22,450	51,420	--	16,200	37,960	--	12,890
January			February			March			
1...	1,150	31	96	1,180	--	2,540	390	2,670	
2...	1,050	--	a86	1,190	--	2,310	330	2,060	
3...	960	30	78	1,230	34	2,330	325	2,040	
4...	930	--	a77	1,300	--	2,320	325	2,040	
5...	850	31	71	1,350	34	2,170	290	1,700	
6...	880	--	a80	1,320	--	2,080	255	1,430	
7...	910	34	84	1,330	--	2,040	280	1,540	
8...	960	--	a90	1,350	--	2,040	320	1,760	
9...	1,020	34	94	1,370	--	2,150	490	b2,800	
10...	1,060	--		1,400	--	1,970	550	2,930	
11...	1,080	41		1,410	--	2,030	540	2,960	
12...	1,110	--		1,400	--	2,070	480	2,680	
13...	1,140	39		1,420	64	2,070	450	2,520	
14...	1,180	--		1,420	62	1,950	430	2,260	
15...	1,210	42		1,420	--	1,890	380	1,940	
16...	1,220	--		1,470	140	1,950	415	2,180	
17...	1,230	39		1,560	175	1,900	430	2,210	
18...	1,240	--		1,710	240	1,110	1,860	395	1,980
19...	1,220	--		1,870	340	1,720	1,920	385	2,000
20...	1,200	36	a120	1,930	400	2,080	1,850	270	1,350
21...	1,170	--		2,160	390	2,270	1,920	240	1,240
22...	1,120	41		2,410	465	3,030	2,150	330	1,920
23...	1,080	--		2,490	715	4,810	2,340	465	2,940
24...	1,070	37		2,990	1,150	9,280	2,590	625	4,370
25...	1,090	--		3,350	1,570	14,200	3,380	1,750	16,000
26...	1,120	--		3,340	1,510	13,600	3,960	2,250	24,100
27...	1,140	44		3,140	1,100	b9,300	4,120	2,250	25,000
28...	1,150	--		2,870	650	b5,000	4,190	2,050	23,200
29...	1,190	32		--	--	--	3,810	2,160	22,200
30...	1,210	--		--	--	--	3,680	1,880	18,700
31...	1,200	34		--	--	--	3,410	1,480	13,600
Total	34,140	--	3,396	51,360	--	71,597	76,900	--	196,320

a Computed from water-sediment discharge curves.

b Computed from estimated-concentration graph.

GREEN RIVER BASIN--Continued

9-2610. GREEN RIVER NEAR JENSEN, UTAH--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment Mean concentration (ppm)	Tons per day
1...	3,420	1,190	11,000	5,860	700	11,100	27,600	1,220	90,900
2...	3,660	1,230	12,200	6,150	650	10,800	26,100	1,100	77,500
3...	3,570	1,110	10,700	7,000	770	14,600	24,700	1,000	a67,000
4...	3,550	1,260	12,100	8,160	1,050	23,100	23,000	1,000	a62,000
5...	3,680	1,230	12,200	9,590	1,510	39,100	21,600	990	a58,000
6...	3,790	1,000	10,200	11,200	2,200	66,500	20,700	980	a55,000
7...	3,420	890	8,200	12,500	2,590	87,400	19,200	940	a49,000
8...	3,170	830	7,100	14,100	2,510	95,600	18,300	910	a45,000
9...	3,100	835	6,990	15,400	2,580	107,000	18,600	910	a46,000
10...	3,760	790	8,020	15,900	1,940	83,300	18,900	880	a45,000
11...	4,000	900	9,720	14,900	1,580	63,800	18,000	850	a41,000
12...	4,140	1,070	12,000	15,500	1,790	74,900	16,500	820	36,500
13...	4,080	945	10,400	17,300	1,980	92,500	15,000	730	29,600
14...	4,330	930	10,900	18,800	2,100	107,000	13,500	710	25,900
15...	4,520	965	11,800	19,300	1,950	102,000	11,900	690	22,200
16...	4,910	1,400	18,600	18,600	1,650	82,900	10,900	610	18,000
17...	5,980	2,430	39,200	17,200	1,470	68,300	10,300	570	b16,000
18...	7,570	3,160	64,600	17,200	1,400	65,000	9,570	525	13,600
19...	9,060	4,100	100,000	17,100	1,330	61,400	8,760	490	b12,000
20...	10,100	2,920	79,600	17,800	1,360	65,400	8,080	480	b10,000
21...	10,800	2,400	b70,000	19,400	1,350	70,700	7,550	490	9,990
22...	10,400	2,540	71,300	20,500	1,410	78,000	7,420	500	b10,000
23...	10,500	2,740	77,700	21,500	1,500	b87,000	7,130	460	b8,900
24...	10,100	2,290	62,400	23,000	1,980	123,000	6,800	385	7,070
25...	9,450	2,120	54,100	25,000	2,100	142,000	6,380	340	b5,900
26...	7,970	2,000	43,000	26,400	1,850	132,000	6,100	345	5,680
27...	7,240	2,330	45,500	27,200	1,710	126,000	6,220	340	b5,700
28...	6,600	1,260	22,500	27,900	1,580	119,000	6,010	180	2,920
29...	6,500	1,000	17,600	28,800	1,480	115,000	5,740	150	b2,300
30...	6,030	960	15,600	28,700	1,490	115,000	5,420	160	b2,300
31...	--	--	--	28,300	1,300	99,300	--	--	--
Total	179,400	--	935,230	556,260	--	2,528,500	405,980	--	880,960
Day	July			August			September		
	Mean discharge (cfs)	Suspended sediment Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment Mean concentration (ppm)	Tons per day
1...	5,020	150	b2,000	1,560	93	b390	961	84	218
2...	4,540	170	b2,100	1,530	100	b410	930	78	b200
3...	4,140	220	b2,500	1,470	100	b400	908	59	145
4...	3,790	260	b2,700	1,560	102	430	885	55	b130
5...	3,500	280	b2,600	1,520	108	443	870	53	124
6...	3,320	300	b2,700	1,470	105	417	863	60	140
7...	3,080	320	b2,700	1,450	110	b430	821	83	184
8...	2,870	320	b2,500	1,400	93	352	814	70	154
9...	2,720	380	b2,800	1,360	90	b330	794	60	129
10...	2,600	480	3,370	1,330	87	312	774	62	b130
11...	2,490	170	1,140	1,300	80	b280	768	50	b100
12...	2,370	80	b510	1,270	77	264	780	100	b210
13...	2,220	95	569	1,220	76	b250	898	254	s661
14...	2,050	95	b530	1,200	78	253	849	230	b530
15...	1,930	90	469	1,180	68	b220	814	270	593
16...	1,800	97	b470	1,160	58	182	842	320	b730
17...	1,690	105	479	1,130	64	b200	828	620	1,390
18...	1,650	97	b430	1,100	75	b220	856	540	b1,200
19...	1,600	94	406	1,100	78	b230	938	320	810
20...	1,550	88	b370	1,090	88	b260	1,000	250	b680
21...	1,560	69	291	1,070	110	b320	1,020	260	716
22...	1,530	64	260	1,060	345	987	1,040	280	b790
23...	1,520	50	205	1,060	250	b720	993	140	375
24...	1,490	50	b200	1,060	133	381	985	130	b340
25...	1,470	57	226	1,060	120	b340	969	115	301
26...	1,480	60	b240	1,040	163	458	953	220	b566
27...	1,480	67	268	1,020	140	b390	938	450	1,140
28...	1,470	90	b360	1,020	95	262	915	440	b1,100
29...	1,460	102	402	1,060	85	b240	969	220	576
30...	1,460	100	b390	1,050	90	b260	1,060	160	b460
31...	1,500	90	364	985	82	b220	--	--	--
Total	71,350	--	34,549	37,885	--	10,851	27,035	--	14,822

Total discharge for year (cfs days)..... 1,591,400

Total load for year (tons)..... 4,727,765

s Computed by subdividing day.

a Computed from water-sediment discharge curves.

b Computed from estimated-concentration graph.

GREEN RIVER BASIN--Continued

9-2610. GREEN RIVER NEAR JENSEN, UTAH--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Sam- pling per- ature point (°F)	Water temp- er- ature (°F)	Discharge (cfs)	Sediment con- cen- tration (ppm)	Suspended sediment											Method of analyses
						Percent finer than size indicated, in millimeters											
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Mar. 20, 1958.....	1030		39	1,820	269	--	67	--	91	94	95	98	100			SPWC	
May 1.....	0955		52	5,960	634	21	26	31	36	40	44	52	73	98	100	SBWC	
May 26.....	1725		67	26,800	1,820	--	26	--	41	56	74	91	100			VPWC	
August 22.....	1700		68	1,060	383	--	--	--	--	--	96	99	100			S	

GREEN RIVER BASIN--Continued
9-3020. DUCHESNE RIVER NEAR RANDLETT, UTAH

LOCATION --At gaging station, 0.2 mile downstream from Uinta River, 1.2 miles southeast of Randlett, and 6.5 miles southeast of Fort Duchesne, Uintah County. DRAINAGE AREA --3,920 square miles, approximately.

RECORDS AVAILABLE --Chemical analyses: December 1950 to September 1951, November 1956 to September 1958.

Water temperatures: December 1950 to September 1951, November 1956 to September 1958.

EXTREMES, 1957-58 --Dissolved solids: Maximum, 2,830 ppm Aug. 1-31; minimum, 256 ppm May 22-31.

Hardness: Maximum, 920 ppm Aug. 1-31; minimum, 160 ppm May 22-31.

Specific conductance: Maximum daily, 4,170 micromhos Aug. 14; minimum daily, 330 micromhos May 29.

Water temperatures: Maximum, 72°F Aug. 9, 18; minimum, freezing point Jan. 3.

EXTREMES, 1950-51, 1956-58 --Dissolved solids (1956-58): Maximum, 2,830 ppm Aug. 1-31, 1958; minimum, 236 ppm June 5-10, 1957.

Hardness (1956-58): Maximum, 920 ppm Aug. 1-31, 1958; minimum, 150 ppm June 5-10, 1957.

Specific conductance: Maximum daily, 4,170 micromhos Aug. 14, 1958; minimum daily, 252 micromhos June 5-10, 1957.

Water temperatures: Maximum, 72°F July 28, 29, 1951, Aug. 9-18, 1958; minimum, freezing point on many days during winter months.

REMARKS --Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1957 to September 1958 given in WSP 1563.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)		Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (microhmhos at 25°C)
														Parts per million	Tons per acre-foot	Calcium, Magnesium	Non-carbonate		
Oct. 1-31, 1957..	310	15	0.02	110	68	199	3.8	322	0	591	90	0.6	0.8	1,260	1.71	555	291	3.7	1,760
Nov. 1-10.....	980	15	.02	108	71	182	4.9	323	0	555	80	6	1.1	1,230	1.67	560	295	3.3	1,680
Nov. 11-30.....	535	15	.01	82	55	125	2.3	297	0	276	52	3	4	1,878	1.19	432	188	2.6	1,270
Dec. 1-31.....	480	13	.02	85	46	109	1.7	279	0	334	50	4	4	1,799	1.09	402	173	2.4	1,170
Jan. 1-2, 4-31, 1958	474	11	.00	69	38	81	1.4	238	0	38	2	1.7	.27	609	.83	322	127	2.0	925
Jan. 3.....	300	14	.00	98	56	135	1.8	324	0	387	70	4	2.1	8923	1.26	476	210	2.7	1,370
Feb. 1-25.....	560	12	.00	74	42	95	2.2	255	0	282	42	4	2.9	702	.95	358	149	2.2	1,050
Feb. 26-28.....	577	13	.00	87	60	144	3.1	313	0	400	68	4	1.7	969	1.32	464	207	2.9	1,390
Mar. 1-14, 21-31.	551	14	.00	86	54	127	2.3	295	0	380	60	4	.8	902	1.23	436	194	2.6	1,280
Mar. 15-20.....	663	16	.01	99	76	216	3.5	332	0	606	92	5	1.1	1,330	1.81	558	286	4.0	1,800
Apr. 1-30.....	495	17	.01	75	49	115	3.3	280	0	323	55	1	1.5	789	1.07	388	158	2.5	1,150
May 1-5.....	429	17	.01	77	45	125	2.2	290	0	329	51	4	1.3	808	1.10	378	140	2.8	1,180
May 6-21.....	1,290	19	.01	59	27	63	2.1	250	0	150	25	4	1.7	476	.65	260	55	7	733
May 22-31.....	4,853	11	.14	42	13	22	1.8	163	0	63	9.0	4	7	286	.35	160	26	1.8	410
June 1-11.....	3,486	9.31	.02	42	14	26	1.4	152	0	79	11	3	1.4	274	.37	162	37	.9	434

a Calculated from determined constituents.

GREEN RIVER BASIN--Continued

9-3020. DUCHESNE RIVER NEAR RANDOLPH, UTAH--Continued

Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonyl sulfide (CO ₂)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)
															Parts per million	Tons per acre-foot	Tons per day	Calcium	Non-boron		
June 12-23, 1958.	884	11	0.00	58	28	72	2.0	203	0	204	32	0.4	1.2	0.35	521	0.71	1,240	261	95	1.9	797
June 24-30.....	383	11	.00	77	42	130	2.6	249	0	335	59	.5	1.8	.60	827	1.12	855	363	159	3.0	1,210
July 1-7.....	159	10	.00	108	63	226	3.5	298	0	613	112	.6	1.2	.91	1,340	1.82	575	528	284	4.3	1,850
July 8-31.....	45.9	13	.00	160	92	390	4.6	316	0	969	248	.7	2.4	1.0	2,160	2.94	268	776	517	6.1	2,850
Aug. 1-31.....	18.3	9.9	.01	176	117	530	4.3	320	0	1,250	392	.8	4.5	.93	2,830	3.85	140	920	658	7.6	3,680
Sept. 1-12.....	26.3	12	.02	170	107	486	4.8	337	0	1,170	310	.9	1.8	1.0	2,540	3.45	180	866	590	7.2	3,330
Sept. 13-30.....	59.8	11	.01	134	86	319	4.3	335	0	868	160	.6	2.1	1.1	1,830	2.49	295	688	413	5.3	2,430
Weighted average	643	13	0.04	66	35	85	2.2	231	0	240	39	0.4	1.2	0.35	620	0.84	1,080	308	119	2.1	909

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October.....	55	53	56	49	41	48	49	47	47	48	50	50	50	49	50	50	52	51	54	52	52	49	45	47	46	43	43	45	44	43	45	48
November....	47	45	43	43	40	37	38	48	46	36	37	38	35	37	35	35	34	33	33	33	33	33	33	33	33	33	33	33	33	33	33	37
December...	33	33	33	33	33	33	33	33	33	33	33	--	33	--	--	33	--	33	--	33	--	--	33	--	33	--	33	--	--	--	--	--
January.....	33	--	32	--	--	33	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
February....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	33	33	34	37	38	35	35	37	38	40	40	36	34	33	--	--	--	--
March.....	33	33	36	34	35	35	37	37	37	34	35	38	36	37	40	40	37	38	39	40	44	43	44	46	45	41	39	43	43	43	44	39
April.....	39	43	42	40	38	38	43	45	44	43	45	45	45	48	47	52	53	54	50	49	52	49	45	42	43	43	46	47	50	53	--	46
May.....	52	53	54	56	57	55	53	55	55	55	56	53	50	52	52	54	57	58	56	58	56	56	56	56	58	56	57	58	58	59	54	56
June.....	55	57	57	57	58	62	61	58	58	58	60	61	57	60	60	62	64	66	66	67	67	66	64	67	69	60	65	65	64	61	--	62
July.....	61	62	64	66	65	65	67	67	64	66	62	65	64	68	62	63	63	68	64	65	63	70	66	62	68	66	62	66	67	63	65	65
August.....	66	66	69	68	69	67	68	68	72	71	70	71	70	71	70	71	72	69	67	67	67	63	64	64	64	65	65	67	65	63	63	68
September...	63	64	60	62	64	63	62	67	65	64	64	66	63	58	67	57	56	61	58	59	53	54	57	56	47	49	52	54	55	53	--	59

GREEN RIVER BASIN--Continued
9-3065. WHITE RIVER NEAR WATSON, UTAH

LOCATION.--At gaging station, 100 feet downstream from bridge on State Highway 45, 1 mile downstream from Evacuation Creek and 7 miles north of Watson, Utah County.

RECORDS AVAILABLE.--4,020 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1958.

WATER TEMPERATURES: December 1950 to September 1958.

EXTREMES, 1957-58.--Dissolved solids: Maximum, 733 ppm Apr. 13, 15-19; minimum, 170 ppm June 1, 5-16, 22-23.

Hardness: Maximum, 350 ppm Apr. 13, 15-19; minimum, 170 ppm June 1, 5-16, 22-23.

Specific conductance: Maximum daily, 1,210 microhos Apr. 15; minimum daily, 346 microhos June 13.

Water temperatures: Maximum, 80°F Aug. 6; minimum, freezing point on many days during December to March.

EXTREMES, 1954-58.--Dissolved solids: Maximum, 410 ppm Aug. 1, 1953; minimum, 230 ppm June 21-30, 1951, June 1-10, 1956.

Hardness (1954-58): Maximum, 410 ppm Aug. 1, 1953; minimum, 230 ppm June 21-30, 1951, June 1-10, 1956.

Specific conductance: Maximum daily, 4,450 microhos Aug. 4, 1955; minimum daily, 319 microhos June 29, 1951.

Water temperatures: Maximum, 88°F Aug. 8, 1954; minimum, freezing point on many days during winter months.

REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1957 to September 1958 given in WSP 1563.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carb. sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Bo-ron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		So-dium ad-sorp-tion ratio	Specific con-duct-mhos at 25°C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Cal-cium, Mag-nesium	Non-car-bonate				
Oct. 1-31, 1957...	534	15													551	0.75	794	269	121	2.0	846	7.4
Nov. 1-30.....	558	14													585	0.8	883	300	116	2.0	906	7.4
Dec. 1-31.....	461	14													578	.79	705	260	103	2.3	899	7.2
Jan. 1-31, 1958..	389	16													576	.78	605	280	114	2.1	899	7.6
Feb. 1-28.....	637	13													560	.76	963	269	166	2.2	971	7.7
Mar. 1-31.....	573	15													615	.84	951	304	111	2.4	961	8.0
Apr. 1-12, 14....	636	20													719	.98	1,230	321	138	2.7	1,070	8.8
Apr. 13, 15-19...	758	18													733	1.00	1,500	350	159	2.3	1,070	8.8
Apr. 20-30.....	905	18													757	.77	1,390	298	109	1.8	849	8.8
May 1-8.....	1,283	17													525	.71	1,820	282	88	1.7	816	8.0
May 9-31.....	2,803	15													316	.43	2,390	189	36	1.0	505	8.2
May 1-5, 16, 22-23	2,709	14													300	.41	2,190	170	67	.8	470	7.4
June 2-4.....	3,667	17													464	.63	4,590	208	146	1.4	815	7.0
June 17-21a....	1,560	19													365	.50	1,540	182	0	1.4	832	7.6
June 24-30.....	1,979	18													396	.54	1,050	224	57	1.2	638	7.8
July 1-31.....	546	18													505	.69	744	290	108	1.5	781	8.1
Aug. 1-31.....	355	15													572	.78	548	287	98	2.4	895	7.9
Sept. 1-30.....	428	18													587	.80	678	296	102	2.4	918	8.0
Weighted average	b811	15													473	0.64	1,040	246	88	1.7	739	--

a Not included for computation of weighted averages.

b Represents 97 percent of runoff for water year.

GREEN RIVER BASIN--Continued

9-3065. WHITE RIVER NEAR WATSON, UTAH--Continued

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																														Aver- age	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		31
October.....	54	52	54	50	50	50	58	52	50	52	52	50	50	50	50	52	50	48	48	48	48	46	46	46	40	40	38	38	40	40	45	48
November.....	45	40	48	42	40	42	40	42	40	42	40	40	38	38	40	38	38	40	38	38	38	36	36	38	32	36	38	38	36	--	39	39
December.....	32	34	32	32	32	32	32	32	40	42	40	34	34	36	34	32	32	38	34	38	38	40	40	38	38	32	34	34	32	32	35	35
January.....	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	35	34	34	33	32	32	32	32	32	32	32	32	32	32	32
February.....	32	32	32	36	32	38	36	34	36	42	42	42	40	38	40	40	38	40	35	32	34	34	35	35	45	48	42	42	40	42	--	36
March.....	32	32	32	32	32	35	32	35	34	32	35	35	32	34	32	32	32	--	32	45	40	40	45	45	48	42	42	40	42	45	42	37
April.....	45	48	48	42	40	42	35	38	38	40	36	38	36	38	38	40	42	42	40	42	42	38	38	40	40	38	38	40	40	46	--	40
May.....	48	38	40	40	40	42	40	40	50	55	48	50	46	50	52	50	52	52	50	55	58	56	56	58	55	56	60	58	62	60	51	51
June.....	60	50	55	52	58	60	58	60	60	62	60	60	62	60	62	--	60	65	68	68	68	70	65	65	65	68	60	65	62	68	70	--
July.....	70	68	68	70	68	70	70	70	68	70	70	70	68	68	70	70	70	68	68	68	66	70	70	70	70	68	68	70	70	68	68	69
August.....	68	70	68	70	68	70	70	78	--	72	70	74	72	68	72	73	73	--	--	74	67	65	66	68	68	70	69	68	68	68	71	71
September.....	66	66	66	68	67	66	65	67	67	68	69	68	65	--	62	59	59	65	60	61	62	63	61	58	54	55	55	56	59	59	--	63

GREEN RIVER BASIN--Continued
9-3070. GREEN RIVER NEAR OURAY, UTAH

LOCATION.--At gaging station, 2 3/4 miles upstream from Willow Creek and 3 miles southwest of Ouray, Uintah County.
DRAINAGE AREA.--36,500 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1952, November 1956 to September 1958.

Water temperatures: December 1950 to September 1952, November 1956 to September 1958.

Sediment records: December 1950 to September 1955, October 1956 to September 1958.

EXTREMES, 1957-58.--Sediment concentrations: Maximum daily, not determined; minimum daily, 56 ppm Feb. 2.

Sediment loads: Maximum daily, 520,000 tons May 15, 16; minimum daily, 260 tons Aug. 18.

EXTREMES, 1956-58.--Sediment concentrations: Maximum daily, 67,000 ppm Aug. 31, 1957; minimum daily, 56 ppm Feb. 2, 1958.

Sediment loads: Maximum daily, 1,100,000 tons Aug. 31, 1957; minimum daily, 260 tons Aug. 18, 1958.

REMARKS: Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1957 to September 1958 given in WSP 1958. Flow affected by ice Dec. 1 to Feb. 23.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 1-31, 1957....	2,949	9.8	0.02	70	29	80	2.5	204	0	246	38	0.2	0.4	0.18	580	0.79	4,620	294	127	2.0	901	8.1
Nov. 1-30, 1957....	3,465	12	.02	76	33	77	2.1	226	0	250	33	.2	.2	.21	608	.83	5,690	326	139	1.9	926	8.0
Jan. 10-31, 1958....	2,093	9.9	.00	71	31	70	2.4	226	0	211	36	.2	3.9	.13	568	.77	3,210	305	120	1.7	870	8.2
Feb. 1-28, 1958....	3,206	9.2	.00	66	27	71	2.2	208	0	206	35	.2	3.0	.14	536	.73	4,640	278	107	1.8	823	8.0
Mar. 1-31, 1958....	3,995	15	.01	68	29	83	3.4	213	0	242	38	.2	2.3	.16	584	.79	6,300	266	111	2.1	880	8.2
Apr. 1-16, 1958....	5,203	14	.01	68	28	77	3.7	219	0	232	30	--	2.5	.14	574	.78	8,060	265	105	2.0	867	7.9
May 3-8, 1958....	11,840	16	.02	51	17	33	2.4	183	0	95	15	.2	2.8	.03	334	.45	10,680	196	46	1.0	516	8.1
June 1-15, 1958....	27,050	11	.04	33	8.6	15	1.6	118	0	47	5.0	.3	1.4	.01	188	.26	13,730	119	22	.6	299	8.0
June 16-30, 1958....	10,410	11	.02	38	13	25	2.1	138	0	69	10	--	1.7	.13	244	.33	6,860	146	33	.9	390	8.1
July 1-11, 1958....	4,599	10	.06	45	15	35	2.3	167	0	93	14	.2	1.5	.08	306	.42	3,800	172	35	1.2	487	7.7
July 12-31, 1958....	2,236	9.5	.01	57	19	58	2.4	186	0	148	30	.2	1.2	.12	424	.58	2,560	220	67	1.7	659	8.2
Aug. 1-31, 1958....	1,607	6.5	.01	53	23	51	2.5	179	0	163	36	.2	.9	.12	475	.63	2,060	231	84	2.1	740	7.8
Sept. 1-30, 1958....	1,401	7.2	.02	63	25	51	4.0	194	0	243	48	.4	1.3	.19	595	.81	2,550	273	114	2.4	909	7.9
Weighted average	a4,753	11	0.02	52	20	49	2.3	171	0	143	22	0.2	1.7	0.10	393	0.53	5,040	212	72	1.5	607	--
Weighted average	b5,993	--	--	47	16	39	2.1	154	0	115	18	0.2	1.2	--	384	0.45	5,400	184	58	1.3	522	--

a Represents 63 percent of runoff for water year.

b Includes estimated data for missing periods. Represents 100 percent of runoff for water year.

GREEN RIVER BASIN--Continued

9-3070. GREEN RIVER NEAR OURAY, UTAH--Continued

Temperature (°F) of water, water year October 1957 to September 1958

Temperature (°F) of water, water year October 1907 to September 1908																																	
Month		Day																														Average	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		31
October.....	--	--	--	--	--	60	--	--	--	59	55	56	55	--	--	55	55	--	--	--	--	--	50	--	--	--	--	--	50	50	--	--	--
November.....	--	--	--	--	--	--	--	--	--	--	--	--	--	38	38	38	37	38	36	35	35	33	--	--	--	33	34	--	--	--	33	--	--
December.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
January.....	--	--	--	--	--	--	--	--	--	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	--
February.....	33	33	34	34	34	34	34	34	35	--	34	34	34	34	34	34	34	35	--	35	36	--	--	37	38	38	--	--	--	--	--	--	35
March.....	38	38	38	38	38	38	39	39	39	39	39	39	39	40	--	--	--	--	--	46	46	48	49	50	--	--	--	--	--	--	--	--	--
April.....	50	48	--	--	47	--	--	--	--	--	--	48	--	--	--	--	52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
May.....	--	--	53	53	53	53	54	54	--	--	--	--	--	--	--	--	59	59	59	--	--	--	--	--	--	--	--	--	--	--	--	--	--
June.....	--	--	--	--	65	--	59	56	59	57	57	54	--	58	--	59	59	59	--	--	--	61	--	--	--	--	--	--	--	74	--	--	--
July.....	73	73	70	--	71	70	69	76	78	77	79	78	70	--	--	75	75	--	--	--	--	--	--	--	--	--	--	--	--	--	72	76	--
August.....	77	80	72	80	80	81	82	82	78	74	84	81	80	75	78	74	73	77	79	80	75	70	65	68	77	75	68	71	68	74	65	76	--
September..	67	73	70	70	73	66	66	73	76	77	76	--	68	69	65	66	67	70	68	66	65	65	63	57	58	60	65	65	65	65	64	--	67

GREEN RIVER BASIN--Continued

9-3070. GREEN RIVER NEAR OURAY, UTAH--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment Mean concentration (ppm)	Tons per day
1...	2,510	--	2,700	3,580	--	12,000	1,900	--	680
2...	2,450			3,630	--	14,000	1,550		
3...	2,420			4,560	--	38,000	1,580		
4...	2,420			5,900	5,680	90,500	1,650		
5...	2,430	414	2,720	5,740	--	45,000	1,750	--	2,200
6...	2,430			5,360			1,950		
7...	2,450			4,600			2,300		
8...	2,450			4,170			2,400		
9...	2,420	232	1,520	3,970	--	8,000	2,800	--	3,000
10...	2,430			3,970			3,050		
11...	2,480			3,900			2,750		
12...	2,550			3,820			2,500		
13...	2,600	--	3,500	3,770	492	4,780	2,300	--	1,700
14...	2,570			3,600			2,150		
15...	2,630			3,490			2,250		
16...	2,700			3,390	237	2,170	2,350	--	2,600
17...	2,700	509	3,780	3,390			2,500		
18...	2,680			3,340			2,650		
19...	2,840			3,300			2,750		
20...	3,280	--	a 5,500	3,140	372	3,150	2,600	--	1,600
21...	3,520			2,790	215	1,620	2,450		
22...	3,630			2,450	210	1,390	2,300		
23...	3,610			2,340	--	1,400	2,200		
24...	3,650	1,390	13,500	2,000	--	1,700	2,450	--	55,480
25...	3,730			2,000	318	1,720	2,350		
26...	3,680			2,310	333	2,080	2,300		
27...	3,660			2,460	--	1,000	2,100		
28...	3,580	480	4,640	2,410	--	900	2,150	--	1,600
29...	3,580			2,360	137	873	2,250		
30...	3,700			2,210	--	300	2,200		
31...	3,630			--	--	--	2,100		
Total	91,410	--	186,390	103,950	--	373,963	70,580	--	55,480
Day	January			February			March		
	Mean discharge (cfs)	Suspended sediment Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment Mean concentration (ppm)	Tons per day
1...	2,000	--	1,100	2,350	74	470	4,720	1,830	23,300
2...	1,800			2,300	56	348	4,370	1,090	12,900
3...	1,650			2,300	59	366	3,990	1,140	12,300
4...	1,600			2,250	94	571	3,800	1,410	14,500
5...	1,500	580	580	2,250	64	389	3,820	1,250	12,900
6...	1,550			2,200	122	725	3,730	1,200	12,100
7...	1,600			2,250	86	522	3,570	1,820	17,500
8...	1,750			2,350	88	558	3,550	1,180	11,300
9...	1,850	171	854	2,500	103	695	3,580	2,040	19,700
10...	1,800			2,500	159	1,070	3,630	1,560	15,300
11...	1,900			2,450	--	e1,000	3,490	807	7,600
12...	2,100			2,550	144	991	3,250	1,160	10,200
13...	2,050	94	520	2,650	326	2,330	3,280	665	5,890
14...	2,100			2,600	302	2,120	3,310	855	7,640
15...	2,150			2,820	364	2,460	3,310	--	e7,800
16...	2,200			2,750	339	2,520	3,330		
17...	2,250	105	624	2,850	311	2,390	3,390		
18...	2,150			3,000	335	2,710	3,410		
19...	2,200			3,100	--	e5,900	3,240		
20...	2,150			3,350	1,010	9,140	3,240	851	7,440
21...	2,150	84	488	3,650	1,150	11,300	3,180	733	6,290
22...	2,100			4,200	--	e20,000	3,240	1,010	8,840
23...	2,050			4,600	--	e28,000	3,770	4,750	48,400
24...	1,900			4,900	2,740	36,200	4,310	4,960	57,700
25...	2,000	65	351	5,000	3,360	45,400	4,620	--	66,000
26...	1,900			5,690	3,830	58,800	4,880	--	72,000
27...	2,000			5,650	--	e42,000	5,630		
28...	2,100			5,020	1,800	24,400	5,650		
29...	2,150	86	499	--	--	--	5,710	--	88,000
30...	2,350			--	--	--	5,540		
31...	2,300			--	--	--	5,320		
Total	61,350	--	23,113	89,760	--	303,375	123,860	--	928,800

e Estimated

a Computed from estimated concentration graph.

GREEN RIVER BASIN--Continued

9-3070. GREEN RIVER NEAR OURAY, UTAH--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment concentration (ppm)	Tons per day
1...	5,090	1,640	22,500	7,720	--	23,000	36,200		
2...	4,900	2,110	27,900	7,400	--	21,000	35,000		
3...	4,960	--	30,000	7,890	1,080	23,000	33,600		
4...	5,240	--	52,000	8,840	1,180	28,200	31,800		
5...	5,090	3,600	49,500	10,500	1,740	49,300	30,200		
6...	5,020			13,000	1,260	100,000	28,600		
7...	5,110			15,100	3,590	146,000	27,900		
8...	4,980			15,700	4,070	173,000	27,300		
9...	4,560	--	41,000	16,200	--	190,000	26,100		
10...	4,330			17,000	--	220,000	25,700		
11...	4,520			17,800	--	250,000	25,000		
12...	5,150	1,200	16,700	18,000	--	260,000	23,000		
13...	5,260			19,600	--	340,000	20,600		
14...	5,260			21,600	--	450,000	18,300		
15...	5,450	--	19,000	22,600	--	520,000	16,500		
16...	5,740			22,600	--	520,000	14,900		
17...	6,080	--	26,000	22,000	--	470,000	14,100		
18...	6,920	1,900	35,500	21,200	--	400,000	13,300		
19...	8,290	--	56,000	22,200	--	340,000	12,500		
20...	10,100	--	89,000	23,700	--	360,000	11,800		
21...	11,200	--	90,000	25,200	--	370,000	11,200		
22...	11,900	3,710	119,000	26,600	--	370,000	10,400		
23...	11,600			28,100	--	380,000	10,100		
24...	11,700			29,500	--	390,000	9,610		
25...	11,100	--	92,000	31,300	--	390,000	8,990		
26...	10,200			32,800	--	390,000	8,470		
27...	8,960	--	39,000	33,900	--	400,000	8,060		
28...	8,440	1,340	30,500	35,000	--	400,000	7,860		
29...	7,970	--	25,000	36,900	--	410,000	7,700		
30...	7,860	--	25,000	37,300	--	410,000	7,140		
31...	--	--	--	37,100	--	410,000	--		
Total	212,980	--	1,423,600	684,350	--	9,203,500	561,930	--	2,892,000
Day	July			August			September		
	Mean discharge (cfs)	Suspended sediment concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment concentration (ppm)	Tons per day
1...	6,720	547	9,920	1,930	106	552	1,360	244	896
2...	6,220	858	14,400	1,970	110	585	1,320	93	331
3...	5,670	544	8,330	2,000	99	535	1,300	79	277
4...	5,170	--	e6,200	1,940	--	e500	1,320	601	2,140
5...	4,720	316	4,030	1,920	89	461	1,390	563	2,110
6...	4,330	269	3,140	1,970	108	574	1,340	1,700	6,150
7...	4,100	294	3,250	1,890	82	418	1,420	2,360	9,050
8...	3,820	233	2,400	1,860	86	432	1,330	201	722
9...	3,500	--	e2,000	1,790	272	1,310	1,270	348	1,190
10...	3,240	188	1,640	1,730	85	397	1,240	426	1,430
11...	3,100	169	1,410	1,730	87	406	1,250	333	1,120
12...	2,940	195	1,550	1,750	162	765	1,260	1,100	a3,700
13...	2,800	180	1,360	1,650	117	521	1,910	10,800	55,700
14...	2,680	--	e1,200	1,610	104	452	1,670	7,100	32,000
15...	2,570	--	e1,100	1,560	85	358	1,520	5,600	23,000
16...	2,450	152	1,010	1,520	86	353	1,380	3,000	11,200
17...	2,300	139	863	1,490	91	366	1,360	1,500	5,510
18...	2,230			1,460	66	260	1,340	770	2,790
19...	2,170			1,450	605	2,370	1,340	605	2,190
20...	2,110			1,430	114	440	1,330	565	2,030
21...	2,110			1,390	274	1,030	1,380	505	1,880
22...	2,080			1,390	124	465	1,440	405	1,570
23...	2,080			1,380	116	432	1,440	380	1,480
24...	2,080	--	e700	1,380	100	373	1,440	330	1,280
25...	2,060			1,380	433	1,610	1,430	265	1,020
26...	2,030			1,380	139	518	1,450	300	1,170
27...	1,990			1,380	111	414	1,500	480	1,940
28...	2,010			1,380	91	339	1,470	380	1,510
29...	2,030			1,380	191	712	1,430	295	1,140
30...	2,030	125	685	1,350	458	1,670	1,390	285	1,070
31...	1,970	117	622	1,370	134	496	--	--	--
Total	95,310	--	73,510	49,810	--	20,114	42,020	--	177,596

Total discharge for year (cfs-days)..... 2,187,310
 Total load for year (tons)..... 15,661,441

e Estimated.

a Computed from estimated concentration graph.

GREEN RIVER BASIN--Continued

9-3070. GREEN RIVER NEAR OURAY, UTAH--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Sam- pling point	Water temp- er- ature (°F)	Discharge (cfs)	Sediment concentra- tion (ppm)	Suspended sediment											Method of analysis
						Percent finer than size indicated, in millimeters											
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Oct. 6, 1957.....	1100		60	2,430	359		--	14	--	18	30	46	82	99	100	SPWC	
Oct. 16.....	1100		55	2,680	497	15	18	21	28	40	55	80	99	100	100	SPWC	
Oct. 28.....	1300		50	3,580	508	--	--	35	--	45	52	66	85	100	--	SPWC	
Nov. 14.....	1130		38	3,580	463	--	--	34	--	46	55	66	82	99	100	SPWC	
Nov. 22.....	1200		33	2,350	231	33	33	42	49	59	68	89	99	100	--	SPWC	
Jan. 10, 1958.....	1400		33	1,800	098			39	50	62	75	91	98	99	100	SPWC	
Jan. 20.....	1500		33	2,150	090	34	34	44	54	68	80	90	98	100	--	SPWC	
Jan. 30.....	1400		33	2,350	120	24	24	29	34	41	51	63	76	87	96	100	
Feb. 10.....	1330		35	2,500	129	29	29	37	44	55	65	87	98	99	100	SPWC	
Feb. 25.....	1400		38	5,050	3,430	--	--	30	--	50	57	67	83	99	100	SPWC	
Feb. 25.....	1400		38	5,050	3,430	--	--	--	--	55	61	67	83	99	--	SPN	
Mar. 8.....	1100		39	3,500	1,100	--	--	37	--	58	69	76	89	100	--	VPWC	
Mar. 21.....	1400		46	3,180	695	--	--	34	--	48	53	64	95	100	--	VPWC	
Apr. 12.....	1100		48	5,190	1,220	--	--	32	--	46	52	62	82	99	--	VPWC	
Apr. 18.....	1500		52	7,100	1,920	--	--	37	--	57	69	80	92	99	100	VPWC	
Apr. 28.....	1530		52	8,350	1,320	--	--	33	--	49	58	68	85	99	100	SPWC	
Apr. 28.....	1530		52	8,350	1,320	--	--	02	--	46	56	67	85	99	100	SPN	
May 3.....	1300		53	7,950	1,010	--	--	27	--	39	48	62	84	100	--	VPWC	
June 5.....	1455		65	29,400	1,690	--	--	21	--	30	43	65	89	99	100	VPWC	
June 5.....	1455		65	29,400	1,690	--	--	11	--	27	40	62	89	99	100	SPN	
June 9.....	1200		59	25,800	1,010	17	23	25	30	39	39	65	88	99	100	VPWC	
June 18.....	1545		59	12,900	822	11	12	15	18	22	22	40	56	96	100	VPWC	
June 28.....	1100		76	3,500	186	22	27	34	41	52	75	96	98	100	100	VPWC	
July 9.....	1400		78	3,500	186	22	27	34	41	52	75	96	98	100	--	VPWC	
Aug. 1.....	1815		77	1,920	153	21	23	29	34	42	42	65	85	100	--	VPWC	
Aug. 15.....	1900		78	1,550	069	30	37	46	56	69	83	94	100	--	--	SPWC	
Aug. 30.....	1530		74	1,350	451	--	--	72	--	94	97	99	100	--	--	SPWC	
Aug. 30.....	1530		74	1,350	451	--	--	15	--	93	98	99	100	--	--	SPN	
Sept. 13.....	1530		68	2,110	14,000	--	--	70	--	88	94	99	100	--	--	SPWC	
Sept. 13.....	1530		68	2,110	14,000	--	--	02	--	90	95	99	100	--	--	SPN	
Sept. 24.....	1830		57	1,440	282	--	--	48	--	70	78	95	100	--	--	VPWC	

GREEN RIVER BASIN--Continued
9-3145. PRICE RIVER AT WOODSIDE, UTAH

LOCATION.--At gaging station at bridge on U.S. Highway 50 at Woodside, Emery County, and 20 miles upstream from mouth.

DRAINAGE AREA.--1,500 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: December 1946 to September 1951 to September 1958.

Water temperatures: February 1951 to September 1958.

EXTREMES, 1957-58.--Dissolved solids: Maximum, 4,350 ppm Dec. 1-31; minimum, 945 ppm Apr. 1-30.

Hardness: Maximum, 1,720 ppm Dec. 1-31; minimum, 448 ppm Apr. 1-30.

Specific conductance: Maximum daily, 5,880 microhmhos Dec. 4; minimum daily, 1,220 microhmhos Apr. 24.

Water temperatures: Maximum, 88°F Aug. 13; minimum, freezing point Dec. 11, 25.

EXTREMES, 1951-58.--Dissolved solids: Maximum, 8,220 ppm Dec. 11, 1951; minimum, 592 ppm May 21-30, 1952.

Hardness: Maximum, 3,040 ppm Dec. 11, 1951; minimum, 353 ppm June 1-3, 8-10, 1952.

Specific conductance: Maximum daily, 8,540 microhmhos Dec. 11, 1951; minimum daily, 814 microhmhos June 1, 1952.

Water temperatures: Maximum, 90°F July 10, 11, 1954; minimum, freezing point on many days during winter months.

REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October

1957 to September 1958 given in WSP 1963.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Specific conductance (microhmhos at 25°C)
															Parts per million	Tons per acre-foot	Tons per day	Calcium	Non-carbonate	
Oct. 1-19, 1957.....	71.9	9.1		218	212	647	8.6	315	0	2,390	75		7.5	0.30	3,720	5.06	722	1,420	1,160	4,450
Dec. 1-31, 1957.....	51.0	7.1		277	249	753	8.4	423	0	2,750	90		10	.30	4,350	5.92	599	1,720	1,370	5,110
Jan. 1-31, 1958.....	50.0	6.9		261	236	713	7.8	432	0	2,540	90		12	.30	4,080	5.55	551	1,620	1,270	4,860
Feb. 1-17, 1958.....	51.7	6.3		228	212	623	7.8	364	0	2,310	82		11	--	3,680	4.98	511	1,440	1,140	4,580
Mar. 1-31, 1958.....	90.9	7.7		204	171	571	7.8	288	0	2,000	66		9.0	.27	3,180	4.32	780	1,220	979	4,190
Apr. 1-30, 1958.....	356	12		86	57	128	3.7	271	0	471	20		4.5	.13	915	1.24	879	448	226	1,280
May 1-31, 1958.....	643	9.7		91	66	158	4.1	270	0	567	22		3.1	.17	1,050	1.43	1,820	498	277	1,470
June 1-30, 1958.....	221	9.5		93	68	166	3.8	263	0	618	23		2.9	.16	1,110	1.51	662	512	286	1,550
July 1-31, 1958.....	70.8	4.9		172	163	498	8.6	248	0	1,870	58		3.4	.32	2,900	3.94	554	1,100	897	3,550
Aug. 1-31, 1958.....	78.8	8.2		198	188	621	9.9	253	0	2,230	68		4.3	.41	3,430	4.69	734	1,270	1,060	4,060
Sept. 1-8, 1958.....	65.0	10		162	111	350	7.7	247	0	1,330	42		5.3	.27	2,140	2.91	376	860	657	2,690
Sept. 9-30, 1958.....	125	9.6		253	209	695	10	280	0	2,590	78		7.6	.38	4,000	5.44	1,350	1,490	1,250	4,610
Weighted average.	a171	9.5		129	104	294	5.4	281	0	1,070	37		4.7	0.21	1,790	2.43	826	750	519	2,280
Weighted average.	b182	--		124	91	274	4.7	253	0	1,010	32		4.3	--	1,700	2.31	835	685	478	2,190

a Represents 80 percent of runoff for water year.

b Includes estimated data for missing periods. Represents 100 percent of runoff for water year.

GREEN RIVER BASIN--Continued

9-3145. PRICE RIVER AT WOODSIDE, UTAH--Continued

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																															Aver- age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
November....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
December....	---	---	34	---	---	---	---	---	---	32	---	---	---	---	---	---	---	33	---	---	---	---	---	---	---	32	---	---	---	---	---	---
January.....	33	---	---	---	---	---	---	33	---	---	---	---	---	33	---	---	---	---	---	---	---	33	---	---	---	---	---	---	---	---	---	---
February....	---	---	---	---	---	33	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
March.....	---	---	---	39	---	---	---	---	---	---	---	39	---	---	---	---	---	43	---	---	---	---	---	---	---	---	46	---	---	---	---	---
April.....	44	---	42	---	41	---	---	42	---	40	---	41	---	43	---	40	---	42	---	---	---	40	---	41	---	---	---	---	---	---	---	---
May.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
June.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
July.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	76	---	---	---	74	---	74	---	75	---	74	---	76	---
August.....	78	---	79	---	60	---	80	---	79	---	81	88	---	---	---	---	68	---	---	---	73	---	76	---	76	---	76	---	74	---	---	---
September..	77	---	76	---	76	---	75	---	69	---	67	---	67	---	67	---	67	---	67	---	65	---	63	---	62	---	62	---	62	---	---	---

GREEN RIVER BASIN--Continued

9-3150, GREEN RIVER AT GREEN RIVER, UTAH

LOCATION.--At gaging station, 1 mile southeast of the town of Green River, Emery County, 22 miles upstream from San Rafael River, and 117 miles upstream from mouth.

DRAINAGE AREA.--40,600 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: August 1928 to September 1958.

Water temperatures: May 1949 to September 1958.

Sediment records: May 1930 to September 1958.

EXTREMES, 1957-58.--Dissolved solids: Maximum, 1,350 ppm Sept. 13-14; minimum, 259 ppm June 1-30.

Hardness: Maximum, 662 ppm Sept. 13-14; minimum, 156 ppm June 1-30.

Specific conductance: Maximum daily, 1,750 micromhos Sept. 13; minimum daily, 324 micromhos June 1.

Water temperatures: Maximum daily, 86°F Aug. 11; minimum, 33°F Dec. 11.

Sedimentation: Maximum daily, 152,800 ppm Sept. 14; minimum daily, 38 ppm Aug. 16.

Sediment loads: Maximum daily, 40,000 tons May 28; minimum daily, 179 tons Aug. 16.

EXTREMES, 1928-58.--Dissolved solids: Maximum, 2,010 ppm Sept. 29, 1943; minimum, 194 ppm June 21-30, 1933.

Hardness: Maximum, 698 ppm Aug. 7, 1957; minimum, 128 ppm June 21-30, 1933.

Specific conductance (1941-58): Maximum daily, 2,420 micromhos Sept. 29, 1943; minimum daily, 272 micromhos May 13, 1956.

Water temperatures (1949-58): Maximum, 86°F Aug. 13, 1958; minimum, freezing point on many days during winter months.

Sediment concentrations (1930-58): Maximum daily, 63,100 ppm July 11, 1936; minimum daily, 20 ppm Sept. 27, 1956.

Sediment loads (1930-58): Maximum daily, 2,230,000 tons July 11, 1936; minimum daily, 54 tons Sept. 27, 1956.

REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1957 to September 1958 given in WSP 1563.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue at 180°C)		Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)
													Parts per million	Tons per acre-foot	Calcium magnesium	Non-carbonate		
Oct. 1-31, 1957...	3,006	8.7		75	35	100	2.7	210	0	309	38		694	0.94	328	156	2.4	1,030
Nov. 1-30, 1957...	3,834	10		76	38	98	2.3	228	0	304	36		705	.96	348	161	2.3	1,040
Dec. 1-31, 1957...	2,422	11		80	39	98	2.3	242	0	298	40		711	.97	361	163	2.2	1,050
Jan. 1-31, 1958...	2,076	12		81	37	90	2.3	247	0	282	41		686	.93	354	151	2.1	1,020
Feb. 1-28, 1958...	3,306	12		70	33	89	2.4	212	0	269	35		632	.86	310	136	2.2	950
Mar. 1-31, 1958...	4,005	10		71	35	99	2.5	218	0	297	38		677	.92	318	139	2.4	1,020
Apr. 1-28, 1958...	5,888	13		69	32	85	2.8	216	0	262	32		617	.84	306	129	2.1	910
Apr. 23-30, 1958...	11,040	13		51	19	43	2.1	179	0	130	16		379	.52	208	61	1.3	579
May 1-9, 1958...	10,150	15		57	21	48	2.6	202	0	126	18		405	.55	228	62	1.4	616
May 10-31, 1958...	25,890	14		47	14	26	1.8	174	0	70	10		276	.33	176	33	.9	435
June 1-30, 1958...	19,730	11		43	12	27	1.8	148	0	76	10		259	.35	156	35	.9	411
July 1-31, 1958...	3,643	11		57	23	59	2.7	186	0	175	28		454	.63	232	83	1.7	707
Aug. 1-31, 1958...	1,789	8.5		67	29	89	3.2	204	0	246	36		612	.83	286	119	2.3	915
Sept. 1-12, 1958...	1,568	8.6		73	34	114	3.6	211	0	326	49		727	.99	319	146	2.8	1,070
Sept. 13-14, 1958...	2,180	11		187	48	153	5.2	218	0	756	38		1,350	1.84	662	483	2.6	1,700
Weighted average	6,169	12		57	22	54	2.2	186	0	159	21		431	0.59	232	80	1.5	655

GREEN RIVER BASIN--Continued

9-3150. GREEN RIVER AT GREEN RIVER, UTAH--Continued

Temperature (°F) of water, water year October 1957 to September 1958

Temperatures at 1 P. M. each, from October 1897, to September, 1900.																																
Month			Day																												Average	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	—	—
October.....	61	68	--	59	--	62	59	59	60	59	61	61	53	60	60	--	--	--	--	--	--	57	55	54	56	54	--	54	55	--	--	
November.....	50	--	--	--	--	--	--	--	--	--	--	45	--	--	39	41	38	39	40	36	36	38	37	--	--	--	--	41	--	--	--	
December.....	36	35	36	35	35	37	39	37	--	35	36	38	36	37	35	--	38	35	39	38	35	35	34	36	38	34	33	--	34	--	44	36
January.....	35	--	--	--	--	34	35	34	37	35	33	35	35	36	36	39	38	35	35	36	--	35	34	35	35	35	--	--	34	--	--	--
February.....	35	--	--	36	38	--	36	42	38	39	40	39	--	--	41	41	41	--	42	44	--	--	43	--	41	42	41	--	--	--	--	--
March.....	41	41	42	41	44	43	45	46	42	45	42	41	45	--	44	45	--	50	52	50	52	51	--	--	52	53	52	51	--	52	50	47
April.....	47	53	57	57	49	50	47	49	52	52	--	--	54	57	59	61	61	61	60	62	60	59	55	54	52	51	53	54	56	56	--	55
May.....	59	62	62	65	67	65	65	62	64	60	61	--	59	60	61	60	61	65	63	67	66	65	66	67	67	--	68	69	68	67	65	64
June.....	65	63	64	67	69	68	71	69	70	69	70	68	69	69	70	71	72	74	75	75	77	78	77	77	78	75	79	78	76	75	--	72
July.....	76	76	76	--	73	77	78	78	77	79	81	83	82	81	80	78	77	79	79	81	81	80	78	73	79	78	78	81	77	79	81	79
August.....	80	77	77	80	84	84	--	85	83	83	--	86	84	83	84	80	76	81	82	78	--	72	80	76	77	78	76	78	79	79	80	--
September..	79	70	75	76	78	77	--	76	69	76	66	74	68	71	72	--	73	73	72	71	72	69	65	65	64	62	64	66	69	67	--	71

QUALITY OF SURFACE WATERS, 1958

GREEN RIVER BASIN--Continued

9-3150. GREEN RIVER AT GREEN RIVER, UTAH--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	2,540	235	1,610	3,560	880	8,460	2,190	710	4,200
2...	2,490	210	1,410	4,140	1,600	a18,000	1,800	303	1,470
3...	2,470	360	a2,400	8,710	12,000	s300,000	1,740	300	1,410
4...	2,370	455	2,910	8,560	10,000	sa240,000	1,720	244	1,130
5...	2,350	290	a1,800	5,980	3,400	a55,000	1,820	210	1,030
6...	2,370	203	1,300	6,020	3,200	a52,000	2,170	668	3,910
7...	2,390	215	1,390	5,490	2,200	a33,000	2,420	820	5,360
8...	2,390	190	1,230	4,830	1,600	a21,000	2,440	682	4,490
9...	2,390	210	1,360	4,200	1,100	a12,000	2,740	--	b4,900
10...	2,370	200	1,280	3,890	900	a9,500	3,090	851	7,100
11...	2,420	700	4,570	3,900	--	b9,500	3,170	740	6,330
12...	2,540	1,270	8,710	3,900	--	b10,000	2,980	937	7,540
13...	2,490	700	a4,700	3,850	1,000	10,400	2,660	616	4,420
14...	2,560	430	2,970	3,800	--	b11,000	2,390	--	b2,800
15...	2,660	685	4,920	3,700	--	b11,000	2,280	359	2,210
16...	2,610	160	1,130	3,550	1,180	11,300	2,330	--	b2,200
17...	2,640	220	a1,600	3,300	1,140	10,200	2,490	324	2,180
18...	2,740	290	2,150	3,250	951	8,340	2,560	417	2,880
19...	2,770	450	3,370	3,250	891	7,820	2,710	621	4,540
20...	3,360	1,500	a14,000	3,200	918	7,930	2,840	808	6,200
21...	3,960	1,600	sa26,000	3,100	831	6,960	2,770	443	3,310
22...	5,430	6,100	sa110,000	2,800	921	6,960	2,540	304	2,080
23...	3,980	1,640	17,600	2,610	1,020	7,190	2,440	357	2,350
24...	3,860	1,330	13,900	2,330	766	4,820	2,260	324	1,980
25...	3,680	1,370	13,600	2,200	549	3,260	2,510	378	2,560
26...	3,620	700	6,840	2,050	355	1,960	2,420	352	2,300
27...	3,650	500	4,930	2,030	471	2,580	2,420	358	2,340
28...	3,590	a900	8,720	2,190	1,090	6,450	2,190	--	b1,400
29...	3,540	940	8,980	2,390	684	4,410	2,280	276	1,700
30...	3,480	850	7,990	2,240	--	b4,800	2,370	--	b2,100
31...	3,480	1,430	13,400	--	--	--	2,330	316	1,990
Total	93,190	--	296,770	115,020	--	895,840	75,070	--	100,410
Day	January			February			March		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	2,170	314	1,840	2,490	192	1,290	5,100	2,980	41,000
2...	2,000	--	b1,600	2,510	351	2,380	5,000	2,510	33,900
3...	1,890	--	b1,400	2,470	--	b2,200	5,100	1,990	27,400
4...	1,860	--	b1,400	2,350	238	1,510	4,300	1,440	16,700
5...	1,690	--	b1,200	2,350	225	1,430	3,850	1,190	12,400
6...	1,650	246	1,100	2,300	--	b1,300	3,800	1,010	10,400
7...	1,600	162	700	2,280	210	1,290	3,800	928	9,520
8...	1,760	198	941	2,370	274	1,750	3,600	804	7,810
9...	1,840	220	1,090	2,490	--	b2,200	3,450	918	8,550
10...	1,930	234	1,220	2,590	321	2,240	3,390	793	7,260
11...	1,890	208	1,060	2,560	290	2,000	3,480	1,000	9,400
12...	2,030	210	1,150	2,690	322	2,340	3,510	835	7,910
13...	2,220	262	1,570	2,740	--	b2,500	3,390	--	b8,600
14...	2,150	215	1,250	2,820	--	b3,400	3,280	1,120	9,920
15...	2,190	230	1,360	2,740	334	2,470	3,250	1,090	9,560
16...	2,240	270	1,630	2,870	452	3,500	3,340	829	7,480
17...	2,280	266	1,640	2,900	487	3,810	3,360	--	7,500
18...	2,330	267	1,680	3,000	--	b5,000	3,400	641	5,880
19...	2,220	258	1,550	3,110	748	6,280	3,400	647	5,940
20...	2,350	279	1,770	3,360	980	8,890	3,300	588	4,240
21...	2,280	--	1,500	3,800	--	b15,000	3,250	511	4,480
22...	2,260	229	1,400	4,100	--	b20,000	3,280	594	5,260
23...	2,240	243	1,470	4,600	2,070	25,700	3,600	--	b7,000
24...	2,080	215	1,210	4,930	--	b35,000	4,000	--	b9,600
25...	1,990	178	956	5,060	2,880	39,300	4,400	1,090	12,900
26...	2,070	179	11,000	5,500	2,430	36,100	4,610	2,090	26,000
27...	2,030	--	b1,000	5,900	3,270	52,100	4,740	3,460	44,300
28...	2,130	--	b1,200	5,100	--	b50,000	4,960	3,600	48,200
29...	2,170	227	1,330	--	--	--	5,390	--	b39,000
30...	2,280	212	1,310	--	--	--	5,430	2,680	39,300
31...	2,540	--	b2,400	--	--	--	5,390	2,770	40,300
Total	64,370	--	41,927	92,580	--	330,980	124,150	--	528,710

s Computed by subdividing day.

a Computed from estimated-concentration graph.

b Computed from water-sediment discharge curves.

GREEN RIVER BASIN--Continued

9-3150. GREEN RIVER AT GREEN RIVER, UTAH--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	5,260	2,120	30,100	8,000	1,930	41,700	37,900	3,110	318,000
2...	5,120	1,970	27,200	7,800	1,960	41,300	37,200	2,690	270,000
3...	4,930	1,790	23,800	7,520	1,730	35,100	36,100	2,950	288,000
4...	4,860	1,550	20,300	7,520	1,750	35,500	34,100	3,860	355,000
5...	4,930	1,330	17,700	8,030	1,940	42,300	32,000	3,820	330,000
6...	5,090	1,370	18,800	9,400	3,180	80,700	29,900	3,140	253,000
7...	5,030	1,260	17,100	11,600	3,880	122,000	28,200	3,300	251,000
8...	4,930	1,160	15,400	14,500	5,700	223,000	27,700	3,330	249,000
9...	4,960	1,100	14,700	16,900	6,640	303,000	27,000	3,020	220,000
10...	4,770	906	11,700	18,800	6,850	348,000	25,700	2,710	188,000
11...	4,580	--	67,000	19,800	6,140	328,000	25,100	2,730	185,000
12...	4,670	--	69,000	20,000	5,310	287,000	24,200	2,570	168,000
13...	5,090	1,710	23,500	19,400	6,730	353,000	22,300	2,830	170,000
14...	5,490	1,680	24,900	21,000	5,900	335,000	20,100	2,430	132,000
15...	5,630	2,120	32,200	22,800	5,630	347,000	18,300	1,980	97,800
16...	5,660	2,160	33,000	23,700	5,180	331,000	16,600	1,730	77,500
17...	5,880	2,600	41,300	22,900	4,630	286,000	15,100	1,520	62,000
18...	6,270	3,250	55,000	21,700	4,450	261,000	14,200	1,470	56,400
19...	6,670	4,130	74,400	21,000	4,160	236,000	13,500	1,510	55,000
20...	7,840	6,950	147,000	21,400	3,950	228,000	12,800	1,470	50,800
21...	9,980	8,130	219,000	22,400	4,110	249,000	11,900	1,260	40,500
22...	11,900	7,950	255,000	24,500	4,880	323,000	11,000	--	b30,000
23...	12,800	7,160	247,000	26,600	4,620	332,000	10,400	924	25,900
24...	12,500	5,960	201,000	28,100	5,130	389,000	10,000	864	23,300
25...	12,400	4,780	160,000	29,500	4,780	331,000	9,540	864	22,300
26...	12,000	3,900	126,000	31,300	4,340	367,000	8,920	802	19,300
27...	11,200	3,590	109,000	32,700	4,230	373,000	8,630	649	15,100
28...	9,900	2,830	75,600	33,900	4,380	401,000	8,040	601	13,000
29...	9,010	2,670	65,000	34,700	3,670	344,000	7,720	599	12,500
30...	8,540	2,140	49,300	36,200	3,610	353,000	7,640	510	10,500
31...	--	--	--	37,200	3,720	374,000	--	--	--
Total	217,890	--	2,151,000	660,920	--	8,150,600	591,790	--	3,988,900
Day	July			August			September		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	7,320	501	9,900	2,110	58	330	1,460	178	702
2...	7,090	458	8,770	2,090	59	333	1,440	167	649
3...	6,670	430	7,740	2,090	123	694	1,430	143	552
4...	6,300	--	b9,000	2,150	54	313	1,390	133	499
5...	5,940	630	10,100	2,090	58	327	1,380	193	719
6...	5,560	415	6,230	2,010	50	271	1,410	144	548
7...	5,160	601	8,370	1,950	54	284	1,600	460	a2,000
8...	4,740	362	4,630	1,950	--	e250	1,480	330	1,320
9...	4,510	283	3,450	1,950	42	221	1,580	2,100	8,960
10...	4,200	--	b3,000	1,950	43	226	1,530	1,700	7,020
11...	3,920	228	2,410	1,870	43	217	1,390	620	2,330
12...	3,680	217	2,160	1,830	--	e220	1,500	1,500	6,080
13...	3,510	208	1,970	1,800	46	224	2,390	5,500	35,500
14...	3,340	179	1,610	1,760	49	233	1,970	12,800	68,100
15...	3,140	139	1,180	1,710	41	189	2,130	5,250	30,200
16...	3,000	140	1,130	1,740	38	179	2,070	2,100	a12,000
17...	2,870	106	821	1,740	659	3,100	1,800	1,150	5,590
18...	2,660	97	697	1,690	1,940	8,850	1,600	1,650	7,130
19...	2,510	99	671	1,650	691	3,080	1,550	1,750	7,320
20...	2,490	97	652	1,650	3,320	14,800	1,480	730	2,920
21...	2,300	84	522	1,720	760	3,530	1,480	720	2,880
22...	2,300	111	689	1,780	--	5,000	1,460	682	2,690
23...	2,260	86	525	1,820	1,250	6,140	1,510	480	1,960
24...	2,220	77	462	1,800	2,200	10,700	1,630	412	1,810
25...	2,220	74	444	1,780	642	3,090	1,600	500	2,160
26...	2,240	74	448	1,510	591	2,410	1,580	338	1,440
27...	2,190	74	438	1,480	332	1,330	1,580	265	1,130
28...	2,190	82	485	1,460	287	974	1,580	255	1,090
29...	2,150	67	389	1,460	264	1,120	1,630	242	1,070
30...	2,150	62	360	1,480	212	847	1,650	210	936
31...	2,110	60	342	1,480	242	967	--	--	--
Total	112,940	--	89,595	55,550	--	70,449	48,280	--	217,305

Total discharge for year (cfs-days)..... 2,251,750

Total load for year (tons)..... 16,862,486

e Estimated.

a Computed from estimated-concentration graph.

b Computed from water-sediment discharge curves.

GREEN RIVER BASIN--Continued

9-3285. SAN RAFAEL RIVER NEAR GREEN RIVER, UTAH

LOCATION --At gaging station just downstream from bridge on State Highway 24, 15 miles southwest of Green River, Emery County, and 35 miles upstream from mouth.

DRAINAGE --1,680 square miles, approximately.

RECORDS AVAILABLE --Chemical analyses: November 1946 to September 1949, November 1950 to September 1958.

Water temperatures: July to September 1949, October 1950 to September 1958.

Sediment records: March 1948 to September 1949, October 1950 to September 1958.

EXTREMES: 1957-58.--Dissolved solids: Maximum, 3,770 ppm Sept. 6; minimum, 516 ppm May 20-31.

Hardness: Maximum, 2,030 ppm Sept. 6; minimum, 315 ppm June 1-15.

Specific conductance: Maximum daily, 4,950 microhmhos Aug. 15; minimum daily, 726 microhmhos May 29.

Water temperatures: Maximum, 90°F Aug. 8; minimum, freezing point on many days during November to February.

Sediment concentrations: Maximum daily, 57,500 ppm Oct. 13; minimum daily, 0 ton Aug. 4-9, 10-15, Sept. 4.

Sediment loads: Maximum daily, 220,000 tons Nov. 4; minimum daily, 0 ton Aug. 4-9, 10-15, Sept. 4.

EXTREMES (1948-49, 1950-58).--Dissolved solids: Maximum, 5,650 ppm July 11, 13-18, 1954; minimum, 487 ppm June 21-30, 1957.

Hardness: Maximum, 2,280 ppm July 11, 13-18, 1954; minimum, 288 ppm June 21-30, 1957.

Specific conductance: Maximum daily, 7,230 microhmhos July 15, 1954; minimum daily, 689 microhmhos June 29, 1957.

Water temperatures (1949, 1950-58): Maximum, 95°F July 11, 1954; minimum, freezing point on many days during winter months.

Sediment concentrations: Maximum daily, 115,000 ppm Aug. 4, 1951; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 786,000 tons Aug. 4, 1951; minimum daily, 0 tons on many days.

REMARKS--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1957 to September 1958 given in WSP 1363.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbocation (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (microhmhos at 25°C)
														Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate		
Oct. 1-20, 28-31, 1957.....	77.9	10		263	163	459	9.4	242	0	1,950	55		1.9	3,030	4.12	637	1,320	1,130	5.5	3,730
Oct. 21-27.....	455	12		248	81	268	8.2	174	0	1,280	33		3.7	2,020	2.75	2,480	955	812	3.8	2,610
Nov. 1-2, 7-30.....	164	9.6		216	143	397	7.0	277	0	1,590	48		3.7	2,560	3.40	1,130	1,130	886	5.1	3,240
Nov. 3-6.....	1,619	9.0		213	47	185	6.2	190	0	864	22		3.4	1,420	1.93	6,210	784	579	2.7	1,890
Dec. 1-31.....	79.7	9.5		204	148	380	6.2	304	0	1,610	47		3.8	2,560	3.48	551	1,120	871	4.9	3,120
Jan. 1-31, 1958.....	72.9	9.0		194	130	316	5.6	346	0	1,290	43		3.8	2,160	2.84	425	1,020	736	4.3	2,780
Feb. 1-27.....	126.9	10		186	120	334	5.2	275	0	1,350	46		3.7	2,450	2.94	753	1,020	600	4.3	2,710
Feb. 28-Mar. 1-10.....	104.3	10		176	141	384	5.2	270	0	1,550	46		2.1	2,500	3.33	450	1,020	789	5.2	3,130
Mar. 11-31.....	108.7	7.1		178	143	408	5.7	284	0	1,590	46		2.4	2,520	3.43	694	1,040	803	5.2	3,130
Apr. 1-15.....	88.7	8.2		158	140	374	5.9	261	0	1,470	46		1.3	2,330	3.17	558	970	756	5.2	2,930
Apr. 16-18.....	363	9.4		112	60	168	4.4	253	0	633	26		2.6	1,140	1.55	1,120	526	319	3.2	1,570
Apr. 19-26.....	436	8.7		82	40	88	3.4	244	0	338	15		2.7	1,110	.95	822	368	168	2.0	1,020
Apr. 27-30.....	192	7.9		111	66	156	3.5	289	0	593	24		2.0	1,118	1.81	575	546	309	2.9	1,520
May 1-6.....	241	12		99	71	177	3.9	244	4	678	25		0.16	1,190	1.62	774	540	333	3.3	1,640
May 7-11, 19.....	657	11		82	46	102	3.4	258	0	382	14		2.7	1,070	1.05	1,370	394	182	2.2	1,120
May 12-18.....	886	11		95	73	231	3.7	202	12	813	22		2.7	--	1.85	3,250	535	350	4.3	1,800

GREEN RIVER BASIN--Continued

9-3285. SAN RAFAEL RIVER NEAR GREEN RIVER, UTAH--Continued

Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carb- onate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		So- dium ad- orp- tion (micro- mhos at 25°C)	pH		
														Parts per million	Tons per acre- foot	Tons per day	Cal- cium, Mag- ne- sium	Non- car- bon- ate				
May 20-31, 1958....	1,907	9.3		77	31	50	2.9	235	0	220	7.2		2.9	0.12	516	0.70	2,660	319	126	1.2	793	8.1
June 1-15.....	1,487	8.6		70	34	55	2.5	229	0	231	7.8		2.5	.07	524	.71	2,100	315	137	1.3	802	8.2
June 16-24.....	562	8.6		83	53	102	3.4	249	0	416	14		1.9	.04	804	1.09	1,220	426	222	2.2	1,160	8.1
June 25-30.....	235	8.1		115	80	191	5.6	249	0	782	26		2.5	.25	1,330	1.81	844	616	412	3.4	1,790	8.0
July 1-6.....	82.3	9.0		156	126	319	7.0	229	0	1,340	40		1.8	2.10	2,870	2.87	469	910	722	4.6	2,670	8.2
July 7-31.....	22.7	8.1		242	187	554	9.9	234	0	2,210	70		1.0	.38	3,400	4.62	208	1,380	1,180	6.5	3,970	8.0
Aug. 1-22, 25-31...	57.6	8.9		353	173	498	13	250	0	2,280	76		1.4	.38	3,530	4.80	549	1,590	1,380	5.4	4,080	7.8
Aug. 23-24.....	246	11		398	148	96	11	224	0	677	21		3.7	--	1,170	1.59	778	1,382	1,220	1.6	1,610	7.4
Sept. 1-5, 7-17...	104	14		385	102	305	12	192	0	1,760	48		3.1	.28	2,720	3.70	784	1,380	1,220	3.3	3,100	7.8
Sept. 18-30.....	54.0	11		487	192	346	31	136	0	2,580	47		1.9	.23	3,770	5.13	550	2,030	1,920	6.1	4,070	8.0
Weighted average.	277.0	9.4		127	65	160	4.5	241	0	684	21		2.8	0.14	1,190	1.62	890	584	387	2.9	1,590	--

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																															Aver- age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October....	68	63	60	62	62	62	63	60	63	62	57	60	55	54	58	55	59	58	57	53	50	48	50	50	52	49	49	51	48	53	52	56
November....	53	49	50	43	40	41	36	42	45	45	46	43	32	44	--	40	--	47	--	36	34	--	--	--	--	--	--	34	--	33	--	--
December....	--	33	--	33	--	34	--	--	--	32	--	33	--	33	32	36	--	--	--	--	--	--	--	--	--	--	--	--	--	33	--	--
January....	32	32	32	--	33	32	--	32	32	32	--	--	--	32	32	32	--	32	--	32	32	32	32	--	32	--	32	32	32	32	--	--
February....	--	--	32	33	33	--	33	--	34	--	35	--	--	36	--	38	--	--	--	--	--	--	--	--	--	--	--	35	--	--	--	--
March....	45	44	46	44	35	--	49	46	--	45	--	43	40	45	42	--	44	43	43	--	55	52	46	56	48	--	40	--	--	--	--	--
April....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
May....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	50	55	50	55	65	65	--	55	62	61	61	62	--	--	--	--	--	--
June....	60	--	64	--	64	63	65	62	62	--	--	--	62	66	70	70	72	74	74	75	75	76	65	77	75	67	76	79	77	76	--	70
July....	74	76	--	75	--	75	77	--	80	81	82	85	78	76	76	72	78	78	78	80	82	70	77	68	74	77	81	74	76	76	80	77
August....	78	79	80	80	81	85	88	90	78	88	80	87	82	84	79	--	71	80	84	83	75	75	--	78	72	74	72	75	76	79	80	77
September....	72	75	75	75	74	74	75	76	78	76	--	--	66	68	67	68	67	65	68	62	67	60	64	64	60	58	66	68	66	59	--	68

GREEN RIVER BASIN--Continued

9-3285. SAN RAFAEL RIVER NEAR GREEN RIVER, UTAH--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December				
	Mean dis- charge (cfs)	Suspended sediment		Mean dis- charge (cfs)	Suspended sediment		Mean dis- charge (cfs)	Suspended sediment			
		Mean concen- tration (ppm)	Tons per day		Mean concen- tration (ppm)	Tons per day		Mean concen- tration (ppm)	Tons per day		
1...	39	140	15	89	570	137	90	--	80		
2...	39	260	27	304	2,800	3,500		338			
3...	39	250	26	1,240	17,200	50,000		--			
4...	39	450	47	4,160	20,300	220,000		339			
5...	48	315	41	696	11,400	22,000		--			
6...	49	235	31	381	3,450	4,600	80	234	67		
7...	49	345	46	290	2,080	1,630		--			
8...	48	310	40	245	1,810	1,200		--			
9...	44	250	30	226	1,430	873		--			
10...	44	240	29	207	980	548		533			
11...	47	235	30	191	715	369	80	--	67		
12...	55	1,500	223	183	580	287		264			
13...	254	57,500	s47,100	188	500	254		--			
14...	119	24,500	7,870	178	510	245		221			
15...	120	15,000	s4,540	178	530	255		315			
16...	94	4,800	1,220	179	450	217	70	274	38		
17...	71	4,400	843	174	370	a170		--			
18...	67	2,050	371	159	320	137		--			
19...	72	900	175	147	290	115		--			
20...	151	2,040	s1,220	143	295	114		301			
21...	1,100	20,100	s105,000	148	310	124	70	--	38		
22...	1,080	42,200	s126,000	139	290	a110		--			
23...	408	17,200	18,900	120	269	87		--			
24...	217	7,600	4,450	1,070	85	293		--			
25...	148	3,050	1,220					--			
26...	121	1,410	461	110	--	85	70	--	38		
27...	109	1,370	403		--			250			
28...	99	800	214		--			--			
29...	102	610	168	--	--	--		--			
30...	92	680	169					148			
31...	88	690	164					--			
Total	5,052	--	321,073	10,735	--	307,567	2,470	--	1,968		
January				February			March				
1...	70	184	52	85	116	23	82	1,480	328		
2...		670			--		80	580	125		
3...		270			85		76	410	83		
4...		86			162		80	340	a73		
5...		--			226		81	300	66		
6...	70	174	52	100	214	54	80	290	a63		
7...		--			282		84	318	72		
8...		--			--		81	298	65		
9...		161			--		88	320	a76		
10...		250			375		80	340	73		
11...	70	--	52	125	--	120	71	260	a50		
12...		--			412		67	107	19		
13...		186			115		80	106	23		
14...		175			110		80	122	30		
15...		182			107		88	115	27		
16...	70	193	52	100	95	54	88	120	a29		
17...		--			107		95	150	38		
18...		372			128		136	273	100		
19...		--			141		95	176	45		
20...		924			162		86	210	a49		
21...	70	172	52	100	1,000	120	76	198	41		
22...		413			980		a490	84	110	25	
23...		196			202		1,000	a550	88	115	27
24...		229			221		1,100	a660	120	150	49
25...		139			224		1,200	a730	145	490	192
26...	85	--	36	110	209	120	176	1,000	475		
27...		--			187		1,100	a560	145	1,040	407
28...		202			116		915	287	107	970	280
29...		133			--		--	92	560	139	
30...		162			--		--	102	420	116	
31...	97	--	--	--	100	355	96				
Total	2,260	--	1,516	3,794	--	6,762	2,944	--	3,281		

s Computed by subdividing day.

a Computed from estimated-concentration graph.

QUALITY OF SURFACE WATERS, 1958

GREEN RIVER BASIN--Continued

9-3285. SAN RAFAEL RIVER NEAR GREEN RIVER, UTAH--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1...	109	340	100	160	1,220	527	1,750	8,800	41,600
2...	109	300	88	174	1,300	a610	1,650	7,000	a31,000
3...	97	480	126	192	1,240	643	1,580	6,150	26,200
4...	107	430	124	234	2,100	a1,300	1,560	6,000	a25,000
5...	111	520	156	294	2,800	a2,200	1,550	6,100	25,500
6...	107	520	150	392	3,600	a3,800	1,710	8,000	36,900
7...	88	390	93	475	3,100	a4,000	2,050	7,000	38,700
8...	74	270	54	563	5,000	a7,600	2,160	5,100	29,700
9...	70	225	43	523	5,500	7,770	1,900	7,600	39,000
10...	60	205	33	509	4,600	6,320	1,560	7,200	a30,000
11...	59	250	40	663	5,800	a10,000	1,300	5,700	a20,000
12...	59	190	30	797	6,900	a15,000	1,100	4,600	a14,000
13...	70	230	43	807	6,900	a15,000	900	4,100	9,960
14...	74	325	65	609	5,650	9,290	800	3,700	7,990
15...	136	1,200	441	578	4,950	7,720	740	3,450	6,890
16...	272	6,750	s5,610	557	4,350	6,540	700	3,550	6,710
17...	365	13,300	s13,800	644	4,850	8,430	660	3,000	5,350
18...	452	13,800	s17,900	886	6,300	15,100	640	2,750	4,750
19...	633	17,000	sa32,000	1,160	9,700	30,400	610	2,580	4,250
20...	511	13,000	s18,200	1,340	12,000	43,400	580	1,830	2,870
21...	503	10,300	s14,200	1,460	12,000	a47,000	540	1,660	2,420
22...	491	9,360	s12,700	1,620	12,600	55,100	500	1,860	2,510
23...	452	9,600	s11,800	1,680	12,200	55,300	450	1,730	2,100
24...	353	5,000	4,770	1,900	13,900	71,300	377	1,280	1,300
25...	301	2,880	2,340	2,060	12,600	70,100	333	820	737
26...	244	1,810	1,190	1,960	9,500	50,300	271	800	585
27...	211	1,300	a740	2,120	10,000	a57,000	236	540	344
28...	187	910	459	2,240	11,000	66,500	216	450	262
29...	167	870	439	2,220	10,000	59,900	194	1,250	655
30...	183	1,000	a490	2,160	10,000	a58,000	158	1,200	a510
31...	--	--	--	2,120	10,700	61,200	--	--	--
Total	6,675	--	138,224	33,097	--	847,350	28,775	--	417,793
Day	July			August			September		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1...	116	760	238	14			20		
2...	95	275	71	12		1	14		3
3...	78	160	a34	11			10		
4...	70	150	28	9.7			8.5		0
5...	65	140	a25	8.2			166		7,000
6...	70	118	22	7.6		0	54		240
7...	62	105	18	7.0			35		57
8...	53	118	17	6.5			25		16
9...	44	108	13	6.0			86		1,000
10...	30	207	17	--		1	140		4,400
11...	25	230	16	7.0			55		260
12...	25	166	11	5.0			44		120
13...	22	418	25	4.0		0	484		96,000
14...	18	180	9	3.0			314		37,000
15...	19	40	a2	3.0			136		4,000
16...	18			40		90	75		680
17...	18			86		1,000	53		230
18...	19		4	35			45		
19...	17			36		47	44		
20...	16			29			39		85
21...	15			330		40,000	34		
22...	15			406		70,000	33		
23...	14			220		15,000	29		
24...	15		3	271		25,000	26		
25...	14			134		4,000	27		
26...	16			63		400	26		20
27...	20			41		100	24		
28...	21		7	60		330	26		
29...	18			154		6,000	26		
30...	17		4	96		1,500	22		11
31...	16		3	45		130	--		--
Total	1,061	--	612	2,160.0	--	163,695	2,120.5	--	151,586
Total discharge for year (cfs-days).....								101,143.5	
Total load for year (tons).....								2,361,429	

s Computed by subdividing day.

a Computed from estimated-concentration graph.

GREEN RIVER BASIN--Continued

9-3285. SAN RAFAEL RIVER NEAR GREEN RIVER, UTAH--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Samp- ling per- centage point	Water temp- erature (°F)	Discharge (cfs)	Sediment concent- ration (ppm)	Suspended sediment											Method of analysis	
						Percent finer than size indicated, in millimeters												
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		
Mar. 25, 1958.....	1130		48	126	245		65	77	82	89	94	98	98	99	100		SBWC	
Apr. 29.....	1130		--	194	894			46	66	66	77	85	94	99	100		SPWC	
Apr. 29.....	1130		--	194	694			05	64	64	77	86	95	99	100		SPN	
May 13.....	0840		51	824	11,000			33	52	52	66	81	94	100	--		SPWC	
May 27.....	1230		62	1,990	12,400			16	26	26	39	65	92	99	100		SPWC	
June 1.....	1930		60	d	8,240			15	24	24	35	66	92	99	100		SPWC	
June 1.....	1930		60	d	8,240			04	21	21	31	55	90	99	100		SPN	
d Daily mean discharge.																		

d Daily mean discharge.

COLORADO RIVER MAIN STEM
9-3350, COLORADO RIVER AT HITE, UTAH

LOCATION.--At gaging station at Hite, Garfield County, 0.2 mile upstream from Trachyte Creek, 1 mile downstream from White Canyon, 8 miles downstream from Dirty Devil River, and 84 miles upstream from San Juan River.

DRAINAGE AREA.--76,600 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1958.

Water temperatures: May 1949 to September 1958.

Sediment records: October 1948 to September 1958.

EXTREMES, 1957-58.--Dissolved solids: Maximum, 1,990 ppm Nov. 4; minimum, 232 ppm June 1-15.

Hardness: Maximum, 1,240 ppm Nov. 4; minimum, 146 ppm June 1-15.

Specific conductance: Maximum daily, 2,760 micromhos Nov. 4; minimum daily, 333 micromhos June 7.

Water temperatures: Maximum, 84°F Aug. 13; 16: minimum, freezing point Jan. 22.

Sediment concentrations: Maximum daily, 38,700 ppm Nov. 4; minimum daily, 36 ppm Aug. 7-9.

EXTRIMES, 1948-58.--Dissolved solids: Maximum, 1,990 ppm Aug. 31, 1957; minimum, 219 ppm July 1-10, 1957.

Hardness: Maximum, 1,240 ppm Aug. 31, 1957; minimum, 146 ppm June 1-15, 1957.

Specific conductance: Maximum daily, 3,110 micromhos Aug. 31, 1957; minimum daily, 317 micromhos July 9, 1957.

Water temperatures: Maximum, 84°F Aug. 13, 1958; minimum, freezing point on several days during winter months.

Sediment concentrations: Maximum daily, 38,700 ppm Nov. 4, 1957; minimum daily, 36 ppm Aug. 7-9, 1958.

Sediment loads: Maximum daily, 2,920,000 tons Nov. 4, 1957; minimum daily, 320 tons Aug. 13-15, 1958.

REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1957 to September 1958 given in WSP 1563.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharges (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium-sulfate ratio	Specific conductance (micro-mhos at 25°C)	
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 1-12, 14-21, 23-31, 1957....	8,538	12	137	45	126	5.5	188	0	504	95			7.3	0.18	1,020	1.39	23,510	527	373	2.4	1,530	7.8
Oct. 13.....	8,360	15	172	51	103	11	194	0	1,010	132			5.8	--	1,790	2.43	40,400	1,140	977	1.3	2,580	8.2
Oct. 22.....	9,111	11	291	41	79	8.7	184	0	792	90			9.7	--	1,530	2.08	89,840	896	745	1.1	2,060	8.0
Nov. 1-3, 5-30....	9,911	11	131	42	137	4.7	203	0	476	92			7.2	1.18	1,000	1.36	26,760	500	334	2.7	1,480	7.6
Nov. 4.....	26,000	14	422	47	115	13	148	0	1,200	88			17	--	1,990	2.71	139,700	1,240	1,120	1.4	2,760	8.0
Nov. 1-31.....	6,544	14	108	45	149	5.0	211	0	432	121			8.7	1.14	987	1.34	17,440	456	283	3.0	1,450	8.1
Dec. 1-31, 1958...	5,462	13	109	45	153	5.0	219	0	412	132			11	1.14	988	1.34	14,570	456	276	3.1	1,430	7.9
Jan. 1-28.....	7,428	12	99	39	138	4.7	205	0	386	110			7.7	1.12	898	1.22	18,010	410	242	3.0	1,350	7.6
Feb. 1-31.....	8,326	13	94	37	130	4.2	204	0	359	98			5.1	1.13	840	1.14	18,880	388	221	2.9	1,290	8.0
Mar. 1-20.....	12,320	15	84	34	109	4.2	204	0	308	78			5.8	1.15	738	1.00	24,550	348	181	2.5	1,130	8.3
Apr. 21-30.....	34,450	15	67	18	43	3.2	161	0	148	27			4.2	1.15	415	.86	36,600	241	93	1.2	653	7.9
May 1-10.....	30,460	15	51	17	41	2.6	163	0	130	26			3.9	1.14	373	.51	30,660	212	78	1.2	585	8.2
May 11-31.....	64,610	14	48	13	25	1.9	152	0	81	15			3.4	1.09	276	.38	48,150	172	47	.8	443	8.0

June 1-15, 1958...	70,570	12	42	10	20	1.6	125	0	71	12	2.1	0.11	232	0.32	44,210	146	44	0.7	376	8.0
June 16-30.....	27,810	12	65	14	36	2.1	134	0	121	26	2.2	.19	331	.45	24,850	188	78	1.1	530	7.6
July 1-13.....	11,810	11	65	21	66	2.2	152	0	188	52	2.4	.10	464	.66	15,430	250	125	1.8	769	7.5
July 14-31.....	5,197	9.5	103	41	136	5.5	188	0	386	118	4.6	.12	886	1.22	13,570	426	272	2.9	1,370	7.5
Aug. 1-23.....	3,579	9.6	111	50	159	6.4	184	0	474	128	5.5	.16	1,030	1.40	9,950	482	331	3.2	1,540	7.5
Aug. 24-31.....	4,131	10	162	63	195	8.6	182	0	707	145	12	.20	1,380	1.89	15,500	665	516	3.3	1,950	7.7
Sept. 1-17, 21-30	3,999	9.3	149	58	177	7.3	200	0	637	135	18.4	.20	1,280	1.74	13,820	612	448	3.1	1,830	7.7
Sept. 18-20.....	5,230	9.3	192	67	253	9.3	188	0	816	198	14	.19	1,630	2.22	23,020	755	601	3.7	2,270	7.6
Weighted average	15,460	13	75	24	68	3.2	165	0	223	50	4.6	0.13	542	0.74	23,620	286	150	1.8	828	--

Temperature (°F) of water, water year October 1957 to September 1958

Month		Day																			Average												
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		20	21	22	23	24	25	26	27	28	29	30	31
October....	66	65	63	64	63	61	56	59	61	60	60	58	59	59	58	57	58	60	57	56	53	52	51	52	52	52	52	52	52	52	52	52	58
November....	52	54	52	49	49	46	47	45	47	45	46	--	--	--	--	44	44	43	42	40	39	39	38	37	37	38	37	38	37	36	36	--	43
December....	35	34	35	34	35	35	35	35	36	36	36	35	35	35	35	36	36	--	--	37	36	37	35	37	--	--	36	36	35	33	34	35	
January....	34	33	33	33	33	34	33	--	34	35	35	34	35	33	33	34	34	34	34	33	34	32	34	33	34	34	--	36	36	37	35	34	
February....	36	36	35	36	38	38	39	39	--	--	--	41	40	41	42	44	43	44	43	45	45	47	47	48	47	48	47	44	42	--	42	--	42
March....	41	43	40	40	40	41	42	43	43	42	42	42	42	42	43	45	44	46	47	50	49	51	50	50	50	--	51	50	51	51	51	51	45
April....	50	49	48	46	48	48	49	50	50	50	51	52	52	46	55	58	58	59	58	57	56	55	53	53	52	55	53	52	55	54	55	--	52
May....	55	56	58	61	60	62	63	61	60	59	60	59	58	58	59	60	60	64	63	64	65	65	65	66	66	66	66	65	66	65	64	62	62
June....	64	65	65	65	66	65	67	66	66	66	67	66	65	67	67	68	68	70	71	73	73	75	74	74	74	73	74	74	75	74	--	69	
July....	73	73	73	74	74	75	76	76	76	77	--	--	--	--	--	78	77	--	--	--	--	--	--	--	--	76	75	77	76	77	78	77	--
August....	76	79	82	80	81	80	81	80	82	82	81	82	84	82	82	84	82	81	80	81	80	78	78	77	76	77	76	77	76	78	78	--	80
September...	77	78	75	74	74	73	74	74	74	74	75	76	74	73	71	71	68	69	71	68	70	69	69	67	65	64	65	65	65	65	--	71	

COLORADO RIVER MAIN STEM--Continued

9-3350, COLORADO RIVER AT HITE, UTAH--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	5,790	860	13,400	8,540	2,460	56,700	6,700	1,440	26,000
2...	5,590	1,060	16,000	9,130	3,560	592,700	6,340	1,480	25,300
3...	5,450	990	14,600	13,800	11,000	410,000	6,200	1,440	24,100
4...	5,300	1,190	17,000	26,000	38,700	2,920,000	5,790	1,410	22,000
5...	5,220	1,020	14,400	22,000	19,500	1,160,000	5,570	1,480	22,300
6...	5,190	890	12,500	17,900	16,500	797,000	5,750	1,510	23,400
7...	5,090	860	11,800	14,900	15,000	603,000	6,030	1,600	26,000
8...	5,110	840	11,600	13,400	8,000	289,000	6,360	1,290	22,200
9...	5,190	910	12,800	12,100	5,600	183,000	6,830	1,210	22,300
10...	5,240	990	14,000	10,800	4,800	140,000	7,030	1,450	27,500
11...	5,400	880	12,800	10,000	4,300	116,000	7,140	1,400	27,000
12...	7,830	33,900	1,130,000	9,510	4,050	104,000	7,310	1,440	28,400
13...	8,360	27,500	8687,000	9,200	3,700	282,000	7,230	1,320	25,800
14...	6,940	7,900	148,000	9,030	3,100	276,000	6,870	1,240	23,000
15...	10,400	5,600	1160,000	8,980	2,800	286,000	6,450	1,140	19,900
16...	12,100	7,600	248,000	9,280	2,500	62,600	5,990	1,250	20,200
17...	10,100	5,500	150,000	9,280	1,950	48,900	6,110	1,270	21,000
18...	9,130	5,200	128,000	8,980	1,770	42,900	6,320	1,300	22,000
19...	9,360	7,200	182,000	8,660	1,650	38,600	6,870	1,300	22,400
20...	9,590	6,300	163,000	8,490	1,640	37,600	7,340	1,270	25,200
21...	16,500	33,000	1,690,000	8,320	1,520	34,100	7,470	1,120	22,600
22...	21,700	33,500	2,060,000	8,250	1,670	37,200	7,310	1,260	24,900
23...	20,700	17,400	972,000	8,120	1,590	34,900	7,140	1,020	19,700
24...	12,200	16,000	527,000	7,820	1,830	38,600	6,900	1,180	22,000
25...	10,400	15,000	421,000	7,160	1,370	26,500	6,720	1,100	20,000
26...	9,540	10,000	258,000	6,640	1,700	30,500	6,450	936	16,300
27...	8,960	5,500	133,000	6,720	1,390	25,200	6,380	887	15,300
28...	8,830	3,680	87,700	6,790	1,350	24,700	6,320	861	14,700
29...	8,830	3,050	72,700	6,810	1,200	22,100	6,150	939	15,600
30...	8,900	2,590	62,200	6,810	1,370	25,200	6,070	833	13,700
31...	8,710	2,460	57,900	--	--	--	5,710	962	14,800
Total	277,650	--	8,488,400	313,420	--	7,637,000	202,850	--	677,200
Day	January			February			March		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	5,750	1,060	16,500	6,200	733	12,300	10,800	2,800	81,600
2...	5,970	952	15,300	6,090	546	8,980	10,000	2,400	64,800
3...	5,750	1,200	18,600	5,930	466	7,460	9,310	2,270	57,100
4...	4,910	1,080	14,300	5,910	539	8,600	8,660	2,180	51,000
5...	4,730	959	12,200	5,950	630	10,100	8,280	1,710	38,200
6...	4,500	991	12,000	6,010	486	7,890	7,930	1,670	35,800
7...	4,390	1,130	13,400	6,300	536	9,120	7,680	1,460	30,300
8...	4,680	900	11,400	6,510	581	10,200	7,520	1,100	22,300
9...	4,860	1,000	113,000	6,720	600	11,000	7,630	840	17,300
10...	5,070	1,140	15,600	6,750	600	11,000	7,500	765	15,500
11...	5,260	1,210	17,200	6,320	550	9,400	7,590	724	14,800
12...	5,610	1,210	18,300	6,490	577	10,100	7,610	633	13,000
13...	5,830	1,080	17,000	6,900	738	13,700	7,520	599	12,200
14...	5,850	1,340	21,200	6,660	748	13,400	7,800	609	12,300
15...	5,830	1,010	15,900	6,490	636	11,100	7,250	577	11,300
16...	5,710	915	14,100	6,430	620	10,800	7,090	612	11,700
17...	5,610	1,070	16,200	6,490	694	12,200	7,120	573	11,000
18...	5,650	1,020	15,600	6,380	652	11,200	7,270	654	12,800
19...	5,690	932	14,300	6,720	669	12,100	7,430	697	14,000
20...	5,710	962	14,800	7,560	934	19,100	7,610	669	13,700
21...	5,590	831	12,500	7,860	1,110	23,600	7,700	638	13,300
22...	5,410	804	11,700	8,140	1,550	34,100	7,610	656	13,500
23...	5,280	736	10,500	8,660	1,790	41,900	7,650	613	12,700
24...	5,000	631	8,520	9,490	2,300	58,900	7,980	718	15,500
25...	4,980	560	7,530	10,400	2,750	77,200	8,370	1,060	24,000
26...	5,240	844	11,900	11,300	3,670	112,000	9,000	1,300	32,000
27...	5,530	850	113,000	12,000	3,500	113,000	9,590	1,480	38,300
28...	5,910	850	13,600	11,500	3,310	103,000	10,100	1,770	48,300
29...	6,280	1,230	20,900	--	--	--	10,200	1,600	44,100
30...	6,400	1,000	17,300	--	--	--	10,000	2,010	54,300
31...	6,340	940	16,100	--	--	--	10,600	2,280	65,300
Total	169,320	--	450,450	207,980	--	783,450	258,100	--	902,000

s Computed by subdividing day.

a Computed from estimated-concentration graph.

COLORADO RIVER MAIN STEM--Continued

9-3350. COLORADO RIVER AT HITE, UTAH--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	10,500	2,720	77,100	23,000	3,000	186,000	88,900	3,900	936,000
2...	10,100	2,100	57,300	21,000	2,800	159,000	84,000	3,800	862,000
3...	9,830	1,700	45,100	20,500	3,000	166,000	79,000	3,950	843,000
4...	9,880	1,520	40,500	21,500	2,530	147,000	78,700	3,950	839,000
5...	9,800	1,350	35,700	22,600	2,700	165,000	76,200	3,400	700,000
6...	9,640	1,210	31,500	26,900	3,500	254,000	74,200	3,350	671,000
7...	9,620	1,120	29,100	33,600	4,100	372,000	73,000	2,850	562,000
8...	9,700	1,140	29,900	40,600	4,900	537,000	77,900	3,200	673,000
9...	9,490	1,110	28,400	45,800	5,250	649,000	77,900	3,000	631,000
10...	9,380	1,010	25,600	49,100	5,100	676,000	74,200	2,550	511,000
11...	9,540	1,010	26,000	49,900	5,050	680,000	67,600	2,550	465,000
12...	9,700	1,100	28,800	49,800	5,500	740,000	60,300	2,500	407,000
13...	9,750	1,070	28,200	51,900	5,400	757,000	54,000	2,700	394,000
14...	10,200	994	27,400	55,300	5,000	747,000	48,900	2,700	356,000
15...	10,800	1,300	37,900	55,200	6,000	894,000	43,700	2,500	295,000
16...	11,600	1,820	57,000	54,500	5,000	736,000	39,400	2,550	271,000
17...	13,500	3,000	109,000	52,700	4,450	633,000	36,800	2,300	229,000
18...	18,300	5,700	282,000	52,400	4,570	647,000	34,500	2,100	196,000
19...	24,200	8,200	536,000	52,200	3,950	557,000	32,900	1,950	173,000
20...	30,900	9,100	759,000	53,400	3,700	533,000	31,300	1,800	152,000
21...	36,100	9,400	916,000	57,200	3,850	595,000	30,200	1,600	130,000
22...	40,300	9,200	1,000,000	61,200	3,450	570,000	29,700	1,480	117,000
23...	43,200	8,650	1,010,000	66,800	3,600	649,000	27,700	1,320	114,000
24...	42,900	7,700	892,000	71,600	4,200	812,000	25,600	1,450	100,000
25...	40,000	6,800	734,000	74,600	4,500	906,000	24,200	1,380	90,200
26...	33,200	6,200	556,000	76,900	4,500	934,000	24,000	1,300	84,200
27...	30,100	5,100	414,000	78,800	4,450	947,000	22,800	1,080	66,500
28...	26,900	4,250	309,000	81,300	4,300	944,000	21,200	940	53,800
29...	26,400	3,950	282,000	84,600	4,450	1,020,000	19,200	841	43,600
30...	25,400	3,450	237,000	88,000	4,100	974,000	17,700	780	37,300
31...	--	--	--	88,600	3,900	933,000	--	--	--
Total	590,930	--	8,641,500	1,661,500	--	19,519,000	1,475,700	--	11,002,600
	July			August			September		
1...	16,700	650	29,300	4,250	47	530	3,370	225	2,050
2...	15,900	611	26,200	4,190			3,380	238	2,170
3...	15,100	620	25,300	4,090			3,380	224	2,040
4...	14,300	520	20,100	3,980	43	450	3,320	140	1,250
5...	13,200	560	20,000	3,900			3,230	107	933
6...	12,400	400	13,400	3,760			3,210	112	971
7...	11,500	470	14,600	3,650	36	350	3,210	133	1,150
8...	10,600	360	10,300	3,570			3,110	195	1,640
9...	10,100	380	10,400	3,580			3,190	260	2,240
10...	9,360	320	8,090	4,120	37	390	3,370	198	1,800
11...	8,660	280	6,550	4,080			3,360	122	1,110
12...	8,070	280	a6,100	3,540			3,450	257	2,390
13...	7,630	250	a5,200	3,300	37	320	4,120	3,500	38,900
14...	7,160	210	a4,100	3,240			4,500	10,300	125,000
15...	6,700	170	a3,100	3,110			4,300	5,100	59,200
16...	6,300	146	2,480	3,070	76	630	5,530	2,780	41,500
17...	5,930	124	1,990	3,060	68	562	5,730	1,840	28,500
18...	5,610	130	1,970	2,980	450	3,620	5,410	2,600	38,000
19...	5,320	130	a1,900	2,930	220	1,740	5,300	3,230	46,200
20...	5,070	120	a1,600	3,120	80	674	4,980	3,440	46,300
21...	4,880	110	a1,400	3,230	105	916	4,790	1,680	21,700
22...	4,800	100	a1,300	3,340	92	830	4,530	800	9,780
23...	4,910	100	a1,300	4,220	110	1,250	4,390	670	7,940
24...	4,970	90	a1,200	5,590	690	10,400	4,310	435	5,060
25...	4,890	170	2,240	4,970	2,580	34,600	4,190	310	3,510
26...	4,730	310	3,960	4,140	1,040	11,600	4,300	295	3,420
27...	4,560	78	960	3,850	760	7,900	4,390	405	4,800
28...	4,480	49	593	3,710	890	8,920	4,580	420	5,190
29...	4,440	45	540	3,710	560	5,610	4,360	460	5,420
30...	4,410			3,640	400	3,930	4,360	400	4,710
31...	4,390			3,440	290	2,690	--	--	--
Total	247,070	--	227,253	115,360	--	101,992	123,650	--	514,874
Total discharge for year (cfs-days).....									5,643,530
Total load for year (tons).....									58,945,719

a Computed from estimated-concentration graph.

GREEN RIVER BASIN--Continued
9-3350. COLORADO RIVER AT HITE, UTAH--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temp- er- ature (°F)	Discharge (cfs)	Sediment concentra- tion (ppm)	Suspended sediment											Method of analysis
					Percent finer than size indicated, in millimeters											
					0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Oct. 12, 1957.....	1530	61	6,220	2,210		30		50	57	72	97	100	--	--	SPWC	
Oct. 12.....	1845	59	13,600	43,500		40		70	86	95	100	--	--	--	SPWC	
Oct. 13.....	2025	59	6,920	13,000		50		75	86	95	99	100	--	--	SPWC	
Oct. 15.....	1800	60	12,500	6,050		23		41	58	86	99	100	--	--	SPWC	
Oct. 16.....	1800	59	11,200	7,310		49		69	79	87	98	100	--	--	SPWC	
Oct. 17.....	1140	61	10,200	5,380		51		72	79	85	97	100	--	--	SPWC	
Oct. 19.....	1300	60	9,160	7,400		56		74	79	85	97	100	--	--	SPWC	
Oct. 21.....	1025	57	18,600	42,400		30		56	77	96	100	--	--	--	SPWC	
Oct. 21.....	1025	57	18,600	42,400		53		53	78	96	100	--	--	--	SPN	
Oct. 22.....	1740	54	19,700	22,300		34		51	66	87	99	100	--	--	SPWC	
Oct. 23.....	1845	53	18,500	4,420		47		67	77	85	99	100	--	--	SPWC	
Oct. 25.....	1810	53	10,100	12,800		54		77	82	87	99	100	--	--	SPWC	
Nov. 3.....	1650	52	13,500	7,750		31		52	66	81	98	100	--	--	SPWC	
Nov. 4.....	1040	49	30,600	4,660		39		57	72	87	96	100	--	--	SPWC	
Nov. 5.....	1725	51	21,600	17,200		38		60	71	86	98	100	--	--	SPWC	
Nov. 7.....	1645	48	14,700	13,600		46		70	76	79	93	100	--	--	SPWC	
Dec. 10.....	1020	36	7,010	1,260		10		15	19	29	63	100	--	--	VPWC	
Jan. 13.....	1110	34	5,830	1,150		08		12	15	26	75	98	100	--	VPWC	
Mar. 18.....	0940	46	7,250	639		52		69	77	82	87	99	100	--	SPWC	
Mar. 18.....	0940	46	7,250	639		01		69	80	82	87	99	100	--	SPN	
Apr. 18.....	1810	60	19,900	6,250		17		43	63	86	97	100	--	--	VPWC	
Apr. 23.....	1840	54	42,800	8,110		26		42	59	80	97	99	100	--	VPWC	
Apr. 25.....	1850	52	37,600	6,590		21		38	55	75	99	96	98	100	VPWC	
Apr. 27.....	1835	55	29,000	4,950		28		41	57	77	98	100	--	--	VPWC	
May 9.....	1915	60	47,400	4,870		20		36	52	80	97	100	--	--	VPWC	

May 12, 1958.....	1030	58	0 049,800	005,040				22	37	52	75	93	99	100	SPWC
May 12.....	1030	58	0 049,800	005,040				12	36	51	67	92	100	--	SPN
May 20.....	1915	64	0 053,600	003,570				17	26	36	63	89	100	--	VPWC
May 30.....	0730	65	0 087,700	003,770				15	25	34	53	77	98	100	VPWC
June 11.....	1830	66	0 065,100	002,260				15	25	36	69	91	98	100	VPWC
June 21.....	1930	74	0 030,600	001,450				15	24	37	71	88	98	100	VPWC
July 5.....	1915	74	0 013,000	000,494				20	34	49	65	76	99	100	VPWC
Aug. 24.....	1515	81	0 005,970	000,562				58	83	90	96	97	100	--	VPWC
Aug. 25.....	1430	80	0 004,880	002,880				68	98	98	100	--	--	--	PWC
Sept. 14.....	0840	73	0 004,770	011,600				53	96	100	--	--	--	--	PWC
Sept. 15.....	0740	71	0 004,190	005,380				66	96	98	100	--	--	--	PWC
Sept. 30.....	1730	67	0 000,440	003,120				73	91	93	96	97	99	100	SPWC

SAN JUAN RIVER BASIN

9-3555. SAN JUAN RIVER NEAR ARCHULETA, N. MEX.

LOCATION.--At gaging station, 4.5 miles downstream from Los Pinos River and 4.5 miles northeast of Archuleta, San Juan County.

DRAINAGE AREA.--3,240 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: December 1954 to September 1958.

Water temperatures: December 1954 to September 1958.

Sediment records: December 1954 to September 1958.

EXTREMES, 1957-58.--Dissolved solids: Maximum, 334 ppm Feb. 17-23; minimum, 96 ppm June 1-23.

Hardness: Maximum, 196 ppm Oct. 20; minimum, 32 ppm June 1-23.

Specific conductance: Maximum daily, 591 micromhos July 10; minimum daily, 121 micromhos June 10.

Water temperatures: Maximum, 78°F Aug. 5; minimum, 48°F Aug. 18; minimum during winter months.

Sediment loads: Maximum daily, 14,300 ppm Aug. 22; minimum daily, 14 ppm July 14-15.

Sediment loads: Maximum daily, 255,000 tons Apr. 18; minimum daily, 23 tons July 15.

EXTREMES, 1954-58.--Dissolved solids (1956-58): Maximum, 415 ppm Nov. 21-23, 1956; minimum, 85 ppm June 14 to July 11, 1957.

Hardness (1956-58): Maximum, 213 ppm Nov. 21-23, 1956; minimum, 40 ppm July 1-11, 1957.

Specific conductance: Maximum daily, 659 micromhos Nov. 22, 1956; minimum daily, 101 micromhos July 2, 1957.

Water temperatures: Maximum, 79°F Aug. 19, 1955; minimum, freezing point on many days during winter months.

Sediment concentrations: Maximum daily, 34,200 ppm Aug. 17, 1956; minimum daily, 15 ppm Jan. 23, 1956.

Sediment loads: Maximum daily, 522,000 tons July 27, 1957; minimum daily, 9 tons Dec. 23, 1956, Jan. 31, Feb. 1, 1957.

REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1957 to September 1958 given in WSP 1563. Flow affected by ice Dec. 29 to Feb. 4.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carb. sulfate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)		Hardness as CaCO ₃	Sediment sorption ratio	Specific conductance (micro-mhos at 25°C)
															Parts per million	Tons per acre-foot	Calcium, Magnesium		
Oct. 1-12, 1957..	694	14	0.01	30	4.5	17	2.8	107		37	3.8	0.8	0.4	0.05	172	0.23	94	6	264
Oct. 13.....	1,330	--	--	35	3.8	23	--	110		--	--	--	--	--	206	.28	103	13	304
Oct. 14.....	1,210	--	--	40	5.7	29	--	122		--	--	--	--	--	239	.33	124	24	362
Oct. 15.....	2,318	--	--	34	3.0	20	--	166		--	--	--	--	--	257	.35	146	16	373
Oct. 16-18.....	2,380	--	--	56	8.8	26	--	196		--	--	--	--	--	321	.44	196	35	494
Oct. 19.....	2,380	--	--	64	8.8	26	--	131		--	--	--	--	--	237	.31	120	12	339
Oct. 20.....	2,770	--	--	40	4.8	24	--	185		--	--	--	--	--	270	.37	161	10	409
Oct. 21.....	2,770	--	--	53	7.1	23	--	141		--	--	--	--	--	215	.29	126	11	321
Oct. 22.....	2,750	--	--	39	7.1	20	--	105		--	--	--	--	--	193	.26	114	28	297
Oct. 23-31.....	1,022	--	--	38	4.7	19	--	127		--	--	--	--	--	240	.33	133	29	365
Nov. 1-27.....	1,192	--	--	43	6.2	23	--	127		--	--	--	--	--	278	.38	149	28	409
Nov. 28-30.....	618	--	--	48	7.1	28	--	103		--	--	--	--	--	227	.31	143	29	362
Dec. 1.....	448	--	--	40	6.2	20	--	103		--	--	--	--	--	227	.31	143	29	362
Dec. 2.....	755	--	--	33	5.7	15	--	116		--	--	--	--	--	184	.25	106	22	329
Dec. 3-16.....	856	--	--	33	5.7	15	--	116		--	--	--	--	--	212	.29	113	27	371
Dec. 17-19.....	909	--	--	35	6.2	26	--	130		--	--	--	--	--	256	.34	134	27	376
Dec. 20-28.....	543	--	--	44	5.7	25	--	140		--	--	--	--	--	273	.37	146	32	414
Dec. 29-31.....	423	--	--	46	7.6	28	--	140		--	--	--	--	--	273	.37	146	32	414

a Includes 6 parts per million of carbonate (CO₃).

18	355	48	6.9	27	2.5	133	79	5.9	0.8	0.3	0.09	267	0.36	147	30	1.0	411	7.6		
Jan. 1-31, 1958..	579	44	6.6	29	---	139	---	---	---	---	---	270	---	138	24	1.0	409	7.5		
Feb. 1-16,	1,325	58	8.8	36	---	219	---	---	---	---	---	354	---	180	1	1.5	543	7.6		
Feb. 17-23,	1,465	50	10.0	40	---	248	---	---	---	---	---	354	---	180	1	1.5	543	7.6		
Feb. 24-28,	2,042	52	12	32	---	164	---	---	---	---	---	332	---	166	32	1.0	456	7.7		
Mar. 1-19,	2,746	52	12	25	---	160	---	---	---	---	---	293	---	167	36	1.8	433	7.8		
Mar. 20-31,																				
Apr. 1-16,	2,466	52	14	21	3.1	167	90	4.5	.2	1.2	.08	300	.41	2,000	187	50	7	445	7.7	
Apr. 17-23,	5,571	45	8.1	10	---	153	---	---	---	---	---	217	.30	5,020	146	20	4	388	7.7	
Apr. 24-30,	5,886	30	5.2	8.6	---	104	---	---	---	---	---	156	.21	2,480	96	12	4	237	7.6	
May 1-6,	5,750	28	5.0	8.2	---	96	---	---	---	---	---	146	.20	2,370	90	12	4	222	7.7	
May 7-20,	7,571	22	3.8	6.3	---	80	---	---	---	---	---	122	.17	2,490	70	5	3	174	7.3	
May 21-31,	8,295	19	2.6	5.5	---	70	---	---	---	---	---	107	.15	2,400	58	0	3	146	7.3	
June 1-23,	5,355	17	2.4	5.8	---	60	---	---	---	---	---	96	.13	1,390	52	4	3	135	7.2	
June 24-28,	2,950	20	2.6	8.3	---	68	---	---	---	---	---	115	.16	637	60	5	5	167	7.2	
June 29-July 4,	1,240	36	4.3	12	---	89	---	---	---	---	---	150	.20	502	82	10	6	285	7.6	
July 5-10,	837	32	5.9	17	2.6	109	49	3.5	.3	.09	---	190	.26	429	104	15	7	288	7.5	
July 11-14,	734	31	5.0	15	---	105	---	---	---	---	---	173	.20	343	98	12	7	287	7.4	
July 15-31,	517	37	6.4	21	---	130	---	---	---	---	---	218	.30	304	119	12	8	333	7.5	
Aug. 1-8,	498	39	5.9	26	---	137	---	---	---	---	---	225	.31	303	122	10	1.0	344	7.7	
Aug. 9-11,	577	51	12	30	---	177	---	---	---	---	---	318	.43	495	176	48	1.0	469	7.5	
Aug. 10-18,	517	41	6.9	25	---	144	---	---	---	---	---	235	.32	328	131	13	1.0	399	7.5	
Aug. 19-20,	563	48	9.0	28	---	154	---	---	---	---	---	276	.38	421	157	31	1.0	418	7.5	
Aug. 21-31,	665	39	6.9	23	---	136	---	---	---	---	---	216	.29	387	126	14	9	331	7.6	
Sept. 1-14,	625	40	6.4	27	---	140	---	---	---	---	---	232	.32	392	126	12	1.0	357	7.5	
Sept. 15-30,	716	33	5.2	20	---	114	---	---	---	---	---	189	.26	365	104	10	9	289	7.6	
Weighted average	2,009	31	5.5	13	---	105	---	---	---	---	---	172	0.23	933	100	14	0	6	255	---

Temperature ($^{\circ}\text{F}$) of water, water year October 1957 to September 1958
 /Once-daily measurement, generally between 8 a.m. and 6 p.m.⁷

Month	Day												Average																		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
October.....	59	60	59	56	55	64	63	56	57	58	53	50	49	49	53	56	52	53	48	48	45	43	43	45	48	48	46	48	48	48	52
November.....	46	46	47	46	44	40	34	40	41	42	40	41	41	41	42	40	39	36	--	33	34	33	34	37	37	36	32	33	--	39	34
December....	34	32	33	33	33	34	35	36	34	34	34	34	34	34	37	35	35	35	33	33	33	33	33	33	33	33	33	33	33	33	33
January.....	33	33	33	33	33	33	33	33	33	34	33	33	33	33	33	33	33	33	33	33	33	32	33	33	33	33	33	33	33	33	33
February.....	33	33	33	33	33	34	33	33	33	33	33	33	33	33	33	34	34	36	37	37	37	37	37	38	39	35	35	34	--	33	33
March.....	33	35	33	38	41	44	39	39	35	36	34	35	41	42	42	42	39	40	41	42	39	41	39	40	42	43	43	40	42	43	39
April.....	43	43	40	42	37	42	45	42	40	43	44	41	42	46	46	46	47	45	46	46	47	47	46	43	46	45	46	48	44	45	44
May.....	48	47	48	51	50	53	50	48	49	49	49	49	50	52	51	53	52	53	54	54	54	54	54	54	54	53	53	53	51	51	51
June.....	53	54	53	53	53	54	53	54	55	54	55	55	56	57	60	60	60	60	61	63	64	63	65	65	64	64	65	67	66	--	59
July.....	65	70	66	69	65	66	63	66	64	66	67	65	65	65	67	66	68	71	68	68	65	64	65	65	64	65	67	65	67	71	67
August.....	65	66	68	70	76	75	70	89	71	69	68	69	69	70	70	71	71	70	69	69	65	68	66	64	64	65	66	68	69	69	69
September....	64	63	64	64	62	64	65	65	65	65	66	66	62	69	57	57	58	57	58	57	62	58	59	58	59	58	59	59	57	--	61

SAN JUAN RIVER BASIN--Continued

9-3555. SAN JUAN RIVER NEAR ARCHULETA, N. MEX.--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1...	631	33	56	864	200	467	448	132	160
2...	637	36	62	978	420	1,110	755	130	a270
3...	655	33	58	960	185	480	856	122	282
4...	662	28	50	1,070	400	1,160	832	181	407
5...	683	48	89	1,420	1,680	6,440	872	203	478
6...	683	39	72	1,570	1,800	7,630	936	258	652
7...	697	24	45	1,610	1,440	6,260	888	125	300
8...	704	22	42	1,550	830	3,470	816	56	123
9...	697	26	49	1,530	1,160	4,790	848	75	172
10...	690	23	43	1,400	425	1,610	832	53	119
11...	683	24	44	1,330	184	661	816	50	110
12...	904	340	830	1,320	157	560	824	49	109
13...	1,330	857	s3,290	1,290	110	383	824	53	118
14...	1,210	1,120	3,660	1,220	88	290	832	66	148
15...	969	425	1,110	1,250	100	338	848	48	110
16...	904	145	354	1,260	96	327	960	79	205
17...	888	70	168	1,290	298	1,040	1,120	328	992
18...	912	100	246	1,230	116	385	888	270	647
19...	2,380	13,200	s90,400	1,140	90	a280	718	227	440
20...	2,310	9,500	59,300	1,000	62	167	583	67	105
21...	2,770	8,300	62,100	996	51	137	529	34	49
22...	2,750	10,000	74,200	1,000	98	265	559	29	44
23...	1,580	2,600	11,100	872	63	148	565	23	35
24...	1,140	520	1,600	936	69	174	577	24	37
25...	996	252	678	996	62	167	595	24	39
26...	978	146	386	1,020	98	270	523	24	34
27...	896	102	247	1,090	169	497	493	20	27
28...	936	104	263	755	75	157	464	35	44
29...	928	93	233	577	49	76	410	49	54
30...	928	84	210	523	180	254	450	34	41
31...	816	52	115	--	--	--	410	67	74
Total	33,947	--	331,100	34,047	--	39,993	22,071	--	6,425
Day	January			February			March		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1...	370	46	46	380	123	126	625	510	861
2...	310	45	38	380	110	113	613	350	579
3...	350	66	62	360	106	103	595	210	337
4...	380	32	33	370	390	390	589	200	318
5...	400	74	80	686	1,680	s4,040	577	160	249
6...	400	91	98	1,110	1,800	s6,040	565	175	267
7...	390	87	92	913	1,610	s4,400	607	480	787
8...	370	91	91	535	710	1,030	662	870	1,560
9...	380	108	111	655	1,340	2,370	711	1,190	2,280
10...	370	100	100	824	2,500	5,560	595	1,630	2,620
11...	360	103	100	697	2,280	4,290	547	530	783
12...	360	108	105	553	1,250	1,870	541	400	584
13...	360	84	82	481	750	974	505	220	300
14...	360	98	95	410	280	310	493	250	333
15...	350	152	144	400	300	324	559	420	634
16...	340	118	108	517	1,450	2,020	669	1,770	3,200
17...	330	147	131	856	9,000	s24,200	1,200	12,400	40,200
18...	320	132	114	978	11,000	s32,500	1,500	8,300	33,600
19...	320	104	90	1,080	8,000	s26,100	1,950	12,000	63,200
20...	320	161	139	1,240	9,750	s36,600	1,430	7,000	27,000
21...	320	150	130	1,460	11,300	s49,900	1,470	6,000	23,800
22...	320	198	171	1,900	14,300	s80,200	2,000	11,200	60,500
23...	310	160	134	1,760	11,300	s59,100	2,500	14,200	95,800
24...	290	193	151	1,920	11,300	s64,400	2,700	10,500	76,500
25...	320	130	112	1,890	9,000	45,900	2,550	6,750	46,500
26...	370	168	168	1,670	8,300	s41,200	2,450	7,200	47,600
27...	370	122	122	1,150	2,800	8,690	2,300	6,300	39,100
28...	400	142	153	697	1,170	2,200	2,100	5,000	28,400
29...	400	153	165	--	--	--	1,750	2,380	11,200
30...	390	135	142	--	--	--	1,550	2,000	8,370
31...	390	118	124	--	--	--	1,750	2,980	14,100
Total	11,020	--	3,431	25,872	--	504,950	38,653	--	631,562

s Computed by subdividing day.

a Computed from estimated-concentration graph.

SAN JUAN RIVER BASIN--Continued

9-3555. SAN JUAN RIVER NEAR ARCHULETA, N. MEX.--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	1,900	4,000	20,500	5,560	1,050	15,800	7,650	816	16,900
2...	2,050	3,070	17,000	5,360	950	13,700	7,720	842	17,600
3...	2,000	2,150	11,600	5,260	780	11,100	7,720	988	20,600
4...	1,850	2,000	9,990	5,460	950	14,000	7,500	707	14,300
5...	1,460	1,640	6,460	6,040	1,060	17,300	7,220	739	14,400
6...	1,360	1,520	5,580	6,820	1,450	26,700	7,580	932	19,100
7...	1,700	2,100	9,640	7,550	1,310	26,700	8,680	1,250	29,300
8...	2,140	3,750	21,700	7,900	1,350	28,800	7,700	758	15,800
9...	2,290	5,250	32,500	7,820	1,370	28,900	7,500	747	15,100
10...	2,600	10,700	75,100	7,780	1,300	27,300	6,340	580	9,930
11...	2,900	9,500	74,400	7,520	1,080	21,900	5,500	474	7,040
12...	2,600	3,600	25,300	8,200	1,300	28,800	4,860	432	5,670
13...	2,350	2,850	18,100	8,280	1,350	30,200	4,240	344	3,940
14...	2,650	6,500	46,500	7,480	1,010	20,400	3,750	292	2,960
15...	4,000	11,800	127,000	6,780	820	15,000	3,580	258	2,490
16...	5,600	12,800	194,000	6,920	950	17,700	3,550	248	2,380
17...	6,600	9,500	169,000	6,800	950	17,400	3,520	230	2,190
18...	8,600	11,000	255,000	7,220	980	19,100	3,300	187	1,670
19...	9,900	8,500	227,000	7,700	1,320	27,400	3,160	178	1,520
20...	9,200	6,300	156,000	8,050	1,500	32,600	3,090	186	1,550
21...	8,900	5,300	127,000	7,650	1,160	24,000	3,100	162	1,360
22...	8,600	3,700	85,900	7,250	1,070	20,900	3,080	168	1,400
23...	8,200	3,500	77,500	7,180	1,240	24,000	2,820	156	1,190
24...	6,600	2,120	37,800	7,920	1,560	33,400	2,420	167	1,090
25...	5,800	2,000	31,300	8,720	2,050	48,300	2,270	123	754
26...	5,200	1,520	21,300	8,920	1,300	31,300	2,080	89	500
27...	5,600	2,830	42,800	8,850	1,380	33,000	1,870	97	490
28...	6,300	2,550	43,400	8,920	1,810	43,600	1,610	63	274
29...	5,900	1,420	22,600	8,680	1,260	29,500	1,440	52	202
30...	5,800	1,310	20,500	8,880	1,170	28,100	1,380	73	272
31...	--	--	--	8,280	969	21,700	--	--	--
Total	140,650	--	2,012,470	231,750	--	778,600	136,230	--	211,972
Day	July			August			September		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	1,290	31	108	458	72	89	415	65	73
2...	1,150	62	193	487	120	158	390	48	51
3...	1,120	33	100	442	181	216	370	51	51
4...	1,060	34	97	436	94	111	361	39	38
5...	987	31	83	475	97	124	361	39	38
6...	928	29	73	559	114	172	380	39	40
7...	872	37	87	583	240	378	390	85	90
8...	770	23	48	547	470	694	420	85	96
9...	704	22	42	577	850	1,320	410	76	84
10...	762	31	64	547	380	561	410	76	84
11...	944	94	240	529	220	314	390	92	97
12...	808	31	68	487	686	902	395	150	160
13...	613	31	51	464	680	852	1,480	5,070	s17,900
14...	571	16	25	464	400	501	2,580	4,750	s22,500
15...	529	16	23	470	630	799	1,410	1,000	3,810
16...	505	31	42	458	170	210	978	300	792
17...	511	31	43	637	1,060	1,820	832	290	651
18...	517	44	61	601	950	1,540	725	123	241
19...	571	44	68	547	600	886	683	123	227
20...	607	58	95	583	670	1,050	669	58	105
21...	547	58	86	601	300	487	631	58	99
22...	475	61	78	960	1,200	3,110	583	55	87
23...	458	61	75	1,040	1,380	3,880	559	55	83
24...	453	58	71	800	560	1,210	595	55	88
25...	487	58	76	676	340	621	683	116	214
26...	547	79	117	625	198	334	725	116	227
27...	565	79	121	565	194	296	637	67	115
28...	571	88	136	529	96	137	583	67	105
29...	505	54	74	517	80	112	595	87	140
30...	481	59	77	517	64	89	565	87	133
31...	458	72	89	464	60	75	--	--	--
Total	21,366	--	2,611	17,645	--	23,048	20,205	--	78,919
Total discharge for year (cfs-days).....								733,456	
Total load for year (tons).....								4,625,081	

s Computed by subdividing day.

SAN JUAN RIVER BASIN--Continued
9-3555. SAN JUAN RIVER NEAR ARCHULETA, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Sampling point	Water temp- er- ature (°F)	Discharge (cfs)	Sediment con- cen- tration (ppm)	Suspended sediment										Method of analysis
						Percent finer than size indicated, in millimeters										
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500		1.000
	1540		53	2,520	12,600		51	56	69	79	88	95	98	100	---	VPWC
	1540		53	2,520	12,600		19	42	63	78	89	95	98	100	---	VPN
	0755		43	0755	419		---	---	---	---	---	86	91	97	---	S
	0915		41	1,540	487		---	---	---	---	---	65	78	96	---	S
	1200		35	952	56		---	---	---	---	---	70	84	95	---	S
	1355		32	474	616		68	75	80	85	93	95	97	99	---	SPWC
	1355		32	474	616		13	50	68	77	83	95	97	99	---	SPN
	1355		32	2,550	8,650		---	---	---	---	---	78	90	99	---	VPWC
	0800		44	3,500	12,100		---	28	---	41	---	71	85	98	---	VPWC
	1330		54	7,650	,953		---	---	---	---	---	60	73	88	---	V
	1850		54	8,350	922		---	---	---	---	---	49	65	80	100	V
	1900		70	912	2,960		---	77	---	98	---	99	100	---	---	SPWC
	0730		62	2,890	5,830		---	44	---	77	---	94	96	97	---	VPWC

SAN JUAN RIVER BASIN--Continued

9--3570. SAN JUAN RIVER AT BLOOMFIELD, N. MEX.

LOCATION--At gaging station at bridge on State Highway 44, 0.8 mile south of Bloomfield, San Juan County, 3 miles upstream from Kutz Canyon, 14.10 miles upstream from Canyon, and 10.5 miles upstream from Canyon.

DRAINAGE AREA--5,410 square miles, approximately.

RECORDS AVAILABLE--Water temperatures: November 1955 to September 1958.

Sediment records: November 1955 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 81°F Aug. 6, 9, 11, 14, 16; minimum, freezing point on several days November to February.

Sediment concentrations: Maximum daily, 31,600 ppm Aug. 22; minimum daily, 7 ppm July 16.

Sediment loads: Maximum daily, 355,000 tons Apr. 18; minimum daily, 6 tons July 16.

EXTREMES, 1955-58.--Water temperatures: Maximum, 84°F Aug. 13, 1956; minimum, freezing point on many days during winter months.

Sediment concentrations: Maximum daily, 101,000 ppm Aug. 1, 1956; minimum daily, 7 ppm July 16, 1958.

Sediment loads: Maximum daily, 1,110,000 tons Aug. 31, 1957; minimum daily, 8 tons July 16, 1958.

REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1957 to September 1958 given in WSP 1563. Flow affected by ice Jan. 3-5, 10, 11, Jan. 14 to Feb. 2.

Temperature (°F) of water, water year October 1957 to September 1958

Month		Day																														Average
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		31
October....	65	64	59	54	65	64	63	62	64	53	54	51	54	56	48	60	57	53	52	50	48	49	51	52	55	50	50	54	55	50	56	
November...	47	48	53	51	44	43	44	37	47	42	49	46	44	45	45	42	38	39	36	32	35	35	38	40	42	33	35	32	36	36	--	40
December...	34	34	34	32	32	32	39	--	37	--	--	35	--	34	35	40	40	--	36	32	--	--	32	32	34	34	36	32	36	--	--	
January....	32	34	--	32	36	36	36	36	36	36	34	37	34	--	35	36	--	34	34	36	34	32	33	35	34	35	37	37	--	37	35	
February....	37	37	37	40	39	40	32	36	40	40	40	41	--	40	41	44	44	45	47	46	48	47	45	41	39	38	39	--	--	41	41	
March.....	41	41	40	--	44	45	43	44	39	43	36	40	43	46	46	41	43	36	45	49	49	45	47	40	46	46	48	45	46	50	48	44
April.....	48	45	48	43	45	50	48	46	48	49	41	41	51	42	34	51	45	53	51	50	54	55	50	50	52	55	50	48	50	--	49	
May.....	51	49	54	56	57	51	--	55	56	53	54	52	57	58	55	60	54	57	61	61	60	62	60	56	65	63	62	60	59	56	57	
June.....	61	61	62	60	61	59	60	60	63	63	61	63	64	66	66	--	68	71	68	71	74	72	73	75	74	74	74	72	72	--	66	
July.....	75	70	72	65	--	73	77	71	76	76	76	77	75	75	71	74	--	68	76	76	76	72	70	71	75	74	77	--	75	75	74	
August....	75	--	80	78	78	61	79	70	67	71	67	76	--	81	80	81	80	79	76	78	68	74	73	74	76	76	76	76	--	77	77	
September..	65	72	--	65	--	--	69	75	75	76	75	69	70	84	80	82	86	82	66	--	70	65	66	63	69	62	63	68	67	65	--	68

SAN JUAN RIVER BASIN--Continued

9-3570. SAN JUAN RIVER AT BLOOMFIELD, N. MEX.--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	646	920	1,600	914	800	1,970	570	210	323
2...	570	770	1,190	1,100	2,080	6,180	626	600	1,010
3...	606	800	1,310	1,070	1,500	4,330	902	1,680	4,090
4...	626	1,260	2,130	1,200	1,250	4,050	795	880	1,890
5...	656	570	1,010	1,800	3,150	a16,300	878	1,390	3,300
6...	656	660	1,170	2,050	3,850	21,300	951	1,380	3,540
7...	597	1,130	1,820	2,090	2,900	16,400	938	740	1,870
8...	616	470	782	1,630	2,000	8,800	890	475	1,140
9...	739	500	998	1,470	1,740	6,910	841	500	a1,100
10...	686	300	556	1,400	1,100	4,160	964	240	625
11...	676	320	584	1,370	1,170	4,330	926	250	a630
12...	853	4,900	11,300	1,340	840	3,040	902	240	a580
13...	1,170	3,100	9,790	1,340	830	3,000	890	200	481
14...	1,590	2,530	10,900	1,340	500	1,810	926	350	a880
15...	1,280	1,830	6,320	1,320	400	1,430	951	550	1,410
16...	1,130	1,140	3,480	1,310	390	a1,400	1,040	275	772
17...	1,020	950	2,620	1,370	450	1,660	1,260	570	1,940
18...	991	1,000	2,680	1,290	410	1,430	1,140	540	1,660
19...	3,540	29,800	a276,000	1,190	380	1,220	938	350	a890
20...	3,120	19,400	163,000	1,130	400	1,220	717	300	581
21...	3,610	16,500	161,000	1,060	650	1,860	636	165	283
22...	4,740	20,500	262,000	1,080	290	846	552	180	a270
23...	2,340	7,950	50,200	926	300	750	561	190	a290
24...	1,320	2,500	8,910	938	600	1,520	579	241	377
25...	1,130	1,790	5,460	1,000	420	1,130	588	83	132
26...	1,080	1,680	4,900	1,040	450	1,260	476	90	116
27...	926	1,120	2,800	1,110	450	1,350	468	108	136
28...	991	1,000	2,680	964	390	1,020	452	92	112
29...	964	900	2,340	666	350	629	415	66	74
30...	951	960	2,460	656	230	407	444	115	138
31...	841	1,090	2,480	--	--	--	422	129	147
Total	40,661	--	1,004,470	37,164	--	121,712	23,638	--	30,787
Day	January			February			March		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	394	85	90	360	150	146	706	1,320	2,520
2...	340	47	43	340	93	85	666	1,000	1,800
3...	360	80	a80	315	122	104	606	840	1,370
4...	380	123	126	353	129	123	588	700	a1,100
5...	400	53	57	500	320	432	636	690	1,180
6...	429	454	526	1,330	3,600	12,900	597	700	1,130
7...	444	76	91	1,170	4,750	15,000	636	670	1,150
8...	408	53	58	750	2,830	5,730	773	1,120	2,340
9...	429	255	295	795	1,720	3,690	817	1,420	3,130
10...	410	103	114	1,130	2,600	7,930	806	2,280	4,960
11...	400	77	83	1,030	3,450	9,590	666	1,940	3,490
12...	394	263	280	773	2,500	5,220	717	850	1,650
13...	394	270	287	666	2,100	3,780	706	570	1,090
14...	370	200	a200	534	1,300	a1,900	706	640	1,220
15...	370	131	131	492	450	598	762	560	1,150
16...	360	138	134	561	420	636	784	850	1,800
17...	350	150	a140	1,050	20,000	56,700	1,400	12,900	a67,400
18...	350	160	151	1,200	27,600	89,400	1,900	16,200	83,100
19...	350	100	94	1,440	29,600	115,000	2,100	18,800	107,000
20...	340	142	130	1,600	20,500	88,600	1,820	12,600	61,900
21...	340	146	134	1,800	19,000	92,300	1,880	8,800	44,700
22...	330	232	207	2,200	25,200	150,000	2,430	12,100	79,400
23...	330	280	249	2,000	17,300	93,400	3,990	21,800	a246,000
24...	320	161	139	2,150	13,100	76,000	3,360	14,200	129,000
25...	350	150	142	2,150	9,000	52,200	2,950	12,000	95,600
26...	370	135	135	1,950	16,200	85,300	2,840	10,500	80,500
27...	380	187	192	1,510	5,700	23,200	2,560	6,800	47,000
28...	390	148	156	938	3,110	7,880	2,540	6,000	41,100
29...	390	171	180	--	--	--	1,980	3,500	18,700
30...	380	160	a160	--	--	--	1,610	2,200	9,560
31...	380	158	162	--	--	--	1,960	2,590	13,700
Total	11,632	--	4,966	31,087	--	997,844	46,492	--	1,155,740

s Computed by subdividing day.

a Computed from estimated-concentration graph.

SAN JUAN RIVER BASIN--Continued

9-3570. SAN JUAN RIVER AT BLOOMFIELD, N. MEX.--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	2,170	3,600	21,100	5,580	2,390	36,000	8,400	1,440	32,700
2...	2,210	3,300	19,700	5,520	2,150	32,000	7,940	1,220	25,700
3...	2,280	1,740	10,700	5,340	2,030	29,300	7,660	1,190	24,600
4...	2,070	1,820	10,200	5,490	1,800	26,700	7,390	1,190	23,700
5...	1,940	2,170	11,400	5,990	2,060	33,300	6,680	1,050	19,500
6...	1,840	1,650	8,200	6,820	1,680	34,600	7,050	1,040	19,800
7...	2,110	2,140	12,200	7,660	2,200	a46,000	8,430	2,000	45,500
8...	2,360	3,320	21,200	6,110	2,320	50,800	7,690	1,450	30,100
9...	2,700	5,400	39,400	8,150	1,940	42,700	7,110	1,210	23,200
10...	3,120	9,700	81,700	8,110	1,860	40,700	6,460	900	15,700
11...	3,510	10,100	95,700	7,830	1,710	36,200	5,770	700	10,900
12...	3,140	5,600	47,500	8,220	1,950	43,300	5,130	580	8,030
13...	2,650	3,350	24,000	8,830	2,880	68,700	4,540	540	6,620
14...	2,860	8,500	65,600	7,760	2,400	50,300	4,010	380	4,110
15...	4,010	12,200	132,000	6,880	1,870	34,700	3,770	360	3,660
16...	5,830	14,400	227,000	6,780	1,790	32,800	3,770	370	3,770
17...	6,750	13,500	246,000	6,880	1,800	33,400	3,670	380	3,770
18...	9,380	14,000	355,000	7,220	1,620	31,600	3,560	380	3,650
19...	10,200	12,600	347,000	7,630	2,500	52,900	3,340	330	2,980
20...	9,380	10,400	263,000	8,110	2,250	49,300	3,240	310	2,710
21...	8,900	8,200	197,000	8,110	2,080	45,500	3,240	280	2,450
22...	8,830	7,200	172,000	7,730	1,500	31,300	3,190	212	1,830
23...	8,650	6,300	147,000	7,450	1,610	32,400	2,930	126	1,080
24...	6,980	5,150	97,100	8,080	1,800	39,300	2,540	150	1,030
25...	6,050	3,900	63,700	8,670	2,000	47,900	2,280	123	757
26...	5,190	2,800	39,200	9,240	1,960	48,900	2,090	125	705
27...	5,960	3,900	62,800	9,050	1,620	39,600	1,880	100	a510
28...	6,820	3,750	69,100	9,090	2,050	50,300	1,680	88	399
29...	6,300	3,000	51,000	9,310	1,770	44,500	1,470	64	254
30...	5,630	1,980	31,200	9,160	1,650	40,800	1,390	48	180
31...	--	--	--	9,050	1,510	36,900	--	--	--
Total	150,020	--	2,968,700	238,250	--	1,262,700	138,500	--	319,895
	July			August			September		
1...	1,290	54	188	340	49	45	373	190	191
2...	1,190	40	129	353	50	a48	334	68	61
3...	1,060	28	80	360	55	53	315	38	32
4...	1,000	35	94	334	69	62	264	34	24
5...	914	30	a74	334	55	50	242	30	a20
6...	641	28	64	415	100	112	242	30	a20
7...	606	25	54	516	660	920	291	49	38
8...	750	22	45	508	350	480	321	43	37
9...	646	16	31	508	550	754	353	72	69
10...	588	18	29	492	410	545	321	72	62
11...	806	42	91	476	630	810	340	74	68
12...	762	20	41	429	560	672	360	74	72
13...	616	17	28	429	600	a690	808	23,400	s68,800
14...	468	9	11	394	550	585	2,740	22,800	s178,000
15...	452	9	11	408	180	198	1,630	3,750	16,500
16...	408	7	8	401	3,580	3,880	1,070	770	2,200
17...	401	10	a11	468	770	973	890	350	841
18...	408	10	a11	597	580	935	762	160	329
19...	422	13	15	508	500	686	666	100	180
20...	484	23	30	508	430	590	646	90	a160
21...	468	42	53	579	600	938	616	90	150
22...	394	14	15	1,170	31,600	s119,000	543	63	92
23...	340	45	41	1,030	5,700	15,900	516	54	75
24...	355	20	19	817	1,570	3,460	516	54	75
25...	360	28	27	646	450	785	597	75	121
26...	415	45	50	579	620	969	676	141	257
27...	460	36	45	543	370	542	606	213	349
28...	476	67	86	492	220	292	570	54	83
29...	429	50	a58	444	600	719	516	105	146
30...	373	48	48	452	500	a610	516	105	146
31...	360	37	36	429	230	a270	--	--	--
Total	18,742	--	1,523	15,959	--	156,573	18,640	--	269,218

Total discharge for year (cfs-days)..... 770,785

Total load for year (tons)..... 6,294,128

s Computed by subdividing day.

a Computed from estimated-concentration graph.

SAN JUAN RIVER BASIN--Continued

9-3570. SAN JUAN RIVER AT BLOOMFIELD, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; F, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Samp- ling point	Water temp- per- ature (°F)	Discharge (cfs)	Sediment concentra- tion (ppm)	Suspended sediment										Method of analysis	
						Percent finer than size indicated, in millimeters											
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		2.000
Oct. 19, 1957.....	1335		56	4,100	25,700	26	30	35	42	51	61	72	80	91	100		SPWC
Oct. 19.....	1335		56	4,100	25,700	3	11	31	41	51	61	72	80	91	100		SPN
Nov. 20.....	1400		38	1,140	300	--	--	--	--	--	31	45	77	100	--		V
Dec. 7.....	0815		32	864	772	--	--	--	--	--	11	19	88	100	--		V
Jan. 10, 1958.....	1300		35	302	90	--	--	--	--	--	21	27	69	98	100		V
Apr. 23.....	1600		50	9,570	5,630	14	17	21	28	35	47	64	87	99	100		VPWC
Apr. 23.....	1600		50	9,570	5,630	10	13	21	25	34	47	64	87	99	100		VPN
May 11.....	0730		51	7,450	1,790	--	--	--	--	30	46	82	99	100	--		V
June 4.....	1125		58	7,020	1,320	--	8	--	16	--	29	41	59	86	100		VPWC
June 11.....	0600		55	5,740	735	--	--	--	--	42	54	82	100	--		V	
Aug. 22.....	0715		64	1,190	58,800	--	62	--	87	--	100	--	--	--		PWC	
Sept. 13.....	1845		70	1,020	37,500	--	61	--	84	--	100	--	--	--		PWC	

SAN JUAN RIVER BASIN--Continued
9-3645. ANIMAS RIVER AT FARMINGTON, N. MEX.

LOCATION.--At gaging station at bridge on former State Highway 17, 0.6 mile southeast of Farmington, San Juan County, and 1.3 miles upstream from mouth.

DRAINAGE AREA.--1,360 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses, June 1940 to September 1958.

Water temperatures: December 1950 to September 1958.

EXTREMES: 1957-58.--Dissolved solids: Maximum, 900 ppm June 1-13.

Hardness: Maximum, 388 ppm Sept. 13; minimum, 129 ppm June 1-13.

Specific conductance: Maximum daily, 1,230 micromhos Sept. 13; minimum daily, 189 micromhos June 8.

Water temperatures: Maximum, 81°F Aug. 2, 15; minimum, freezing point Dec. 6, Jan. 21-24.

Sediment concentrations: Maximum daily, 13,500 ppm Oct. 20; minimum daily, 1 ppm Sept. 8-10.

Sediment loads: Maximum daily, 46,900 tons Apr. 19; minimum daily, less than 0.50 ton Sept. 8-10.

EXTREMES, 1940-58.--Dissolved solids (1940-49, 1952-54, 1956-58): Maximum, 1,500 ppm Aug. 19, 1940; minimum, 111 ppm June 11-17, 19-20, 1944.

Hardness (1956-58): Maximum, 490 ppm Oct. 1-24, 1956; minimum, 80 ppm July 1-7, 1957.

Specific conductance (1941-58): Maximum daily, 1,980 micromhos Aug. 19, 1944; minimum daily, 170 micromhos June 27, 1944.

Water temperatures (1950-58): Maximum, 88°F July 29, 1951; minimum, freezing point on many days during winter months.

Sediment concentrations (1950-58): Maximum daily, 36,100 ppm July 23, 1954; minimum daily, 1 ppm on several days during September 1956, 1958.

Sediment loads (1950-58): Maximum daily, 337,000 tons July 23, 1954; minimum daily, less than 0.50 ton on many days.

REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1957 to September 1958 given in WSP 1563. Flow affected by ice Jan. 22-24.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbomate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Bo-ron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		So-dium ad-sorp-tion ratio	Specific con-duct-ance (micro-mhos at 25°C)	
															Parts per million	Tons per acre-foot	Tons per day	Cal-cium, Mag-nes-ium	Non-car-bon-ate			
Oct. 1-11, 1957..	246	8.7	0.02	99	15	58	4.6	186		230	32	0.7	0.6	0.32	557	0.76	370	308	156	1.4	815	7.9
Oct. 12-13.....	439	--	--	107	11	66	--	188	--	--	--	--	--	--	595	.81	705	312	158	1.6	854	7.9
Oct. 14-21.....	586	--	--	95	9.5	48	--	190	--	--	--	--	--	--	501	.68	793	276	120	1.3	736	7.9
Oct. 22.....	1,020	--	--	71	4.7	43	--	140	--	--	--	--	--	--	426	.58	1,170	196	82	1.3	575	8.6
Oct. 23-31.....	577	--	--	77	14	37	--	168	--	--	--	--	--	--	432	.59	673	250	112	1.0	648	7.8
Nov. 1-3.....	719	--	--	81	11	40	--	173	--	--	--	--	--	--	430	.58	835	247	105	1.1	653	8.1
Nov. 4-17.....	848	--	--	75	11	31	--	166	--	--	--	--	--	--	379	.52	868	232	96	.9	576	7.6
Nov. 18-30.....	636	--	--	79	13	36	--	173	--	--	--	--	--	--	425	.58	730	250	108	1.0	638	7.8
Dec. 1-20.....	556	--	--	83	17	38	--	180	--	--	--	--	--	--	438	.60	658	277	130	1.0	656	7.7
Dec. 21-31.....	429	--	--	89	13	43	--	187	--	--	--	--	--	--	434	.59	503	276	122	1.1	720	7.6
Jan. 1-31, 1958..	363	8.3	.03	91	14	49	4.8	182	--	198	30	.5	1.2	.22	507	.69	497	284	136	1.3	733	7.9
Feb. 1-5.....	341	--	--	93	16	56	--	178	--	--	--	--	--	--	545	.74	502	298	152	1.4	801	7.8

a Includes 10 parts per million of carbonate (CO₃).

SAN JUAN RIVER BASIN--Continued

9-3645. ANIMAS RIVER AT FARMINGTON, N. MEX.--Continued

Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (residue at 180° C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Feb. 6-16, 1958...	451	--	--	88	9.5	50	--	177	--	--	--	--	--	481	0.65	586	258	114	1.4	713	7.5
Feb. 17-27.....	582	--	--	77	11	46	--	177	--	--	--	--	--	481	0.65	586	258	114	1.4	713	7.5
Feb. 28-Mar. 17...	450	--	--	87	12	47	--	182	--	--	--	--	--	453	.62	583	226	134	1.3	610	7.6
Mar. 18-22.....	706	--	--	76	11	50	--	186	--	--	--	--	--	428	.57	803	234	142	1.4	633	7.8
Mar. 23.....	1,100	--	--	80	9.5	40	--	170	--	--	--	--	--	332	.45	986	188	49	1.3	522	7.9
Mar. 24-31.....	800	--	--	80	15	39	--	190	--	--	--	--	--	416	.57	899	261	106	1.1	651	7.8
Apr. 1-14.....	745	9.6	0.00	82	14	38	4.3	190	--	161	18	0.3	1.9	440	.60	885	262	106	1.0	655	7.6
Apr. 15-18.....	1,150	--	--	74	13	24	--	200	--	--	--	--	--	352	.48	1,090	238	74	.7	548	7.5
Apr. 17-18.....	1,875	--	--	67	10	16	--	194	--	--	--	--	--	284	.39	1,440	208	49	.5	464	7.4
Apr. 19-30.....	2,992	--	--	54	7.6	10	--	154	--	--	--	--	--	225	.31	1,820	166	40	.3	367	7.5
May 1-5.....	2,084	--	--	56	7.6	14	--	153	--	--	--	--	--	244	.33	1,370	171	46	.5	390	7.7
May 6-8.....	3,567	--	--	49	6.6	7.6	--	144	--	--	--	--	--	196	.27	1,890	150	32	.3	324	7.5
May 9-20.....	4,396	--	--	41	5.2	6.7	--	116	--	--	--	--	--	168	.23	1,990	124	29	.3	282	7.3
May 21-31.....	7,281	--	--	34	4.5	5.2	--	89	--	--	--	--	--	136	.18	2,670	104	30	.2	221	7.3
June 1-13.....	5,945	--	--	22	8.6	5.3	--	77	--	--	--	--	--	129	.18	2,070	90	28	.2	212	7.2
June 14-26.....	2,887	--	--	31	5.2	9.2	--	73	--	--	--	--	--	150	.20	1,350	99	39	.4	242	7.2
June 27-30.....	1,882	--	--	45	5.0	14	--	83	--	--	--	--	--	144	.19	1,140	122	61	.7	310	7.4
July 1-5.....	1,298	--	--	45	5.9	20	--	93	--	--	--	--	--	232	.32	813	137	61	.7	364	7.4
July 6-10.....	835	--	--	56	7.1	26	--	112	--	--	--	--	--	305	.41	688	168	76	.9	450	7.6
July 11-13.....	637	--	--	60	7.1	29	--	116	--	--	--	--	--	318	.43	547	178	84	.9	482	7.7
July 14-20.....	478	--	--	67	8.1	32	--	131	--	--	--	--	--	351	.48	453	200	93	1.0	540	7.7
July 21-24.....	339	--	--	81	9.2	39	--	151	--	--	--	--	--	418	.57	383	240	116	1.1	644	7.6
July 25-31.....	291	--	--	89	12	44	--	170	--	--	--	--	--	475	.65	373	272	132	1.2	714	7.5
Aug. 1-21.....	195	--	--	94	14	57	--	166	--	--	--	--	--	524	.71	276	292	156	1.5	799	7.8
Aug. 22.....	432	--	--	120	14	78	--	216	--	--	--	--	--	687	.93	801	357	180	1.8	978	7.4
Aug. 23-31.....	272	--	--	94	14	54	--	178	--	--	--	--	--	530	.72	389	292	146	1.4	802	7.6
Sept. 1-11.....	143	--	--	112	16	68	--	199	--	--	--	--	--	650	.88	251	346	182	1.6	937	7.7
Sept. 12, 14.....	664	--	--	87	14	51	--	166	--	--	--	--	--	901	.67	880	274	108	1.3	754	8.2
Sept. 13.....	448	--	--	134	13	141	--	210	--	--	--	--	--	900	1.22	1,090	388	216	3.1	1,230	8.2
Sept. 15.....	852	--	--	62	7.1	23	--	122	--	--	--	--	--	290	.39	667	184	84	.8	471	7.9
Sept. 16-18.....	555	--	--	79	10	36	--	150	--	--	--	--	--	390	.53	584	238	115	1.0	622	7.6
Sept. 19-30.....	367	--	--	87	13	48	--	154	--	--	--	--	--	483	.66	479	270	144	1.3	739	7.7
Weighted average	1,261	--	--	50	8.2	18	--	123	--	--	--	--	--	246	0.33	838	158	58	0.6	387	--

SAN JUAN RIVER BASIN--Continued
9-3645. ANIMAS RIVER AT FARMINGTON, N. MEX.--Continued

Temperature (°F) of water, water year October 1957 to September 1958
/Once-daily measurement, generally between 6 a.m. and 7 p.m./

Month	Day																															Aver- age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October....	63	65	62	59	61	65	65	62	63	62	58	53	52	54	55	55	51	53	56	53	50	48	49	50	54	51	50	50	53	53	53	56
November....	50	48	50	50	47	44	44	44	45	46	46	45	42	46	43	40	40	37	38	37	37	33	36	37	40	40	37	37	33	34	--	42
December....	34	33	33	33	35	52	37	40	40	37	36	36	35	37	36	40	40	40	34	35	37	38	35	36	37	36	34	35	36	37	36	36
January....	33	33	33	36	35	35	34	36	36	37	37	35	34	35	34	35	36	35	38	37	32	32	32	32	34	35	39	35	37	37	39	35
February....	38	37	38	39	40	42	39	42	45	43	35	41	40	40	44	45	45	46	38	47	50	50	50	50	49	43	40	39	40	--	--	42
March....	42	42	41	38	45	45	44	43	39	45	40	42	45	46	47	45	45	39	48	50	43	47	46	45	47	50	51	47	47	39	49	45
April....	41	47	53	46	49	53	50	48	52	53	49	49	52	55	57	53	55	57	53	53	52	53	51	50	51	53	52	50	50	50	--	51
May....	54	52	56	59	58	56	54	55	55	56	51	55	53	57	58	58	58	59	61	59	58	56	57	58	59	59	61	61	60	56	60	57
June....	60	61	61	60	58	58	59	62	64	60	61	61	60	62	62	63	65	65	63	58	59	60	67	66	67	68	69	68	70	71	--	63
July....	68	64	74	69	70	71	74	75	76	76	76	77	75	75	71	74	75	71	76	89	75	77	72	69	69	70	74	69	75	73	74	73
August....	73	71	69	77	78	80	80	79	79	72	73	75	80	76	81	78	70	78	73	76	75	74	73	75	73	73	74	73	74	73	72	66
September...	73	74	72	76	70	76	72	73	73	75	76	69	70	70	69	70	70	--	71	69	70	71	61	60	62	63	64	70	61	58	--	69

SAN JUAN RIVER BASIN--Continued

9-3645. ANIMAS RIVER AT FARMINGTON, N. MEX.--Continued

Suspended sediment, water year October 1957 to September 1958									
Day	October			November			December		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1...	247	17	11	660	860	1,530	613	254	420
2...	243	20	13	716	1,500	2,900	620	184	308
3...	232	15	9	780	4,200	8,850	599	222	359
4...	239	21	14	789	1,800	3,830	577	140	218
5...	243	25	16	1,050	3,800	10,800	599	261	422
6...	243	16	10	1,230	4,100	13,600	613	384	636
7...	243	19	12	1,060	3,000	8,590	577	296	461
8...	243	34	22	843	1,100	2,500	570	186	286
9...	251	22	15	772	700	1,460	550	173	257
10...	255	18	12	756	500	1,020	536	159	230
11...	271	42	31	748	400	808	529	235	336
12...	370	230	230	764	400	825	508	160	219
13...	508	870	1,190	780	350	737	501	178	241
14...	515	1,670	2,320	748	360	727	487	155	204
15...	456	490	603	764	380	784	494	96	128
16...	438	220	260	772	1,100	2,290	536	234	339
17...	456	115	142	789	600	1,280	585	519	820
18...	450	180	219	748	500	1,010	606	850	1,390
19...	570	1,500	2,310	676	350	821	536	500	724
20...	816	13,500	31,500	668	255	460	487	185	243
21...	990	10,400	27,800	636	213	366	456	136	167
22...	1,020	9,000	24,800	628	171	290	450	116	141
23...	724	2,000	3,910	570	212	326	438	102	121
24...	613	550	910	585	215	340	450	82	100
25...	585	320	505	606	172	281	450	77	94
26...	563	300	456	620	257	430	420	86	98
27...	550	260	386	636	235	404	405	129	141
28...	536	180	260	644	257	447	405	129	141
29...	529	220	314	620	247	413	410	77	85
30...	543	200	293	636	319	548	420	103	117
31...	550	200	297	--	--	--	415	119	133
Total	14,492	--	98,870	22,294	--	68,667	15,842	--	9,579
January			February			March			
1...	390	92	97	330	55	49	420	290	329
2...	360	96	93	306	56	46	420	221	251
3...	380	96	98	316	172	147	420	190	215
4...	390	81	85	345	150	140	426	181	208
5...	370	85	85	410	200	221	432	214	250
6...	365	77	76	536	1,600	2,320	426	173	199
7...	370	101	101	494	1,280	1,710	444	279	334
8...	370	84	84	415	390	437	450	558	678
9...	370	70	70	450	340	413	444	456	547
10...	365	73	72	470	1,460	1,850	432	335	391
11...	385	60	62	450	985	1,200	415	170	190
12...	370	70	70	410	620	686	432	151	176
13...	360	66	64	390	282	297	420	184	209
14...	360	61	59	380	169	173	415	138	155
15...	350	83	78	420	98	111	438	192	227
16...	340	67	62	550	424	630	487	480	631
17...	345	78	73	580	2,760	4,320	592	2,100	3,360
18...	370	77	77	563	2,570	3,910	620	3,380	5,660
19...	375	59	60	470	2,030	2,580	716	4,400	8,510
20...	355	52	50	450	2,540	3,090	700	3,920	7,410
21...	340	67	62	650	2,780	4,880	692	3,350	6,260
22...	350	66	62				800	7,000	15,100
23...	360	101	98				1,100	9,050	26,900
24...	370	150	150				950	8,700	22,300
25...	375	147	149				850	3,800	8,720
26...	365	142	140	580	1,360	2,130	800	2,970	6,420
27...	370	85	85						
28...	350	93	88						
29...	345	84	78						
30...	345	59	55	--	--	--	700	1,090	2,060
31...	345	60	56	--	--	--			
Total	11,255	--	2,539	13,655	--	52,370	18,541	--	134,650

SAN JUAN RIVER BASIN--Continued

9-3645. ANIMAS RIVER AT FARMINGTON, N. MEX.--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...				2,000	900	4,860	5,850	555	8,770
2...				1,890	650	3,320	5,870	654	10,400
3...				1,840	677	3,360	6,520	566	9,960
4...	670	1,090	1,970	2,030	660	3,620	6,100	520	8,560
5...				2,660	1,000	7,180	6,150	478	7,940
6...				3,270	1,740	15,400	6,900	830	15,500
7...	650	1,030	1,810	3,540	1,740	16,600	7,920	1,140	24,400
8...				3,890	2,000	21,000	7,290	900	17,700
9...				4,200	1,760	20,000	6,640	771	13,800
10...	800	2,190	4,730	4,330	1,660	19,400	5,570	460	6,920
11...				4,460	1,310	15,800	4,720	433	5,520
12...				4,480	1,160	14,000	4,180	362	4,090
13...	807	1,500	3,270	4,300	768	8,920	3,580	275	2,660
14...	825	2,500	5,570	3,990	664	7,150	3,110	252	2,120
15...	990	4,700	12,600	3,720	596	5,990	2,980	260	2,090
16...	1,310	6,250	22,100	3,850	730	7,590	3,090	253	2,110
17...	1,620	5,100	22,300	4,110	876	9,720	3,030	212	1,730
18...	2,130	6,300	36,200	4,540	1,220	15,000	2,960	270	2,160
19...	2,850	6,100	46,900	5,060	1,560	21,300	2,980		
20...	3,380	4,400	40,200	5,710	2,060	31,800	3,000		
21...	3,510	3,400	32,200	6,500	2,000	35,100	3,130	171	1,340
22...	3,630	2,600	25,500	6,500	1,700	29,800	3,070		
23...	3,720	3,000	30,100	6,870	1,430	26,500	2,740		
24...	3,310	2,100	18,800	7,380	1,480	29,500	2,520		
25...	2,960	1,600	12,800	7,470	1,120	22,600	2,480	141	944
26...	2,720	1,300	9,550	7,260	920	18,000	2,180	110	647
27...	2,530	1,100	7,510	7,530	900	18,300	1,930	96	500
28...	2,570	890	6,180	8,130	1,120	24,600	1,730	96	448
29...	2,510	940	6,370	7,920	1,040	22,200	1,580	163	695
30...	2,220	830	4,980	7,660	841	17,400	1,490	139	559
31...	--	--	--	6,870	800	14,800	--	--	--
Total	52,395	--	382,620	153,960	--	510,810	121,290	--	158,263
	July			August			September		
1...	1,460	94	371	264	22	16	164	5	2
2...	1,400	53	200	244	22	14	150	5	2
3...	1,290	76	265	228	44	27	146	3	1
4...	1,200	178	577	206	44	24	146	3	1
5...	1,140	30	92	177	25	12	154	6	2
6...	1,020	30	83	190	24	12	154	3	1
7...	900	39	95	172	61	28	140	3	1
8...	816	39	86	168	61	28	136	1	(t)
9...	747	39	79	190	21	11	122	1	(t)
10...	692	31	58	195	21	11	154	1	(t)
11...	660	31	55	195	34	18	112	2	1
12...	640	31	54	164	10	4	118	31	10
13...	610	22	36	150	10	4	448	3,330	s5,570
14...	543	22	32	143	14	5	1,210	2,690	s9,690
15...	507	39	53	140	14	5	852	390	897
16...	498	39	52	164	10	4	650	156	274
17...	456	23	28	177	10	5	534	83	120
18...	448	18	22	177	86	41	480	80	a100
19...	464	22	28	200	86	46	416	83	93
20...	432	22	26	239	37	24	408	34	37
21...	392	23	24	313	100	85	368	51	51
22...	344	23	21	432	933	1,090	306	17	14
23...	320	19	16	440	450	535	271	25	18
24...	299	18	15	376	90	91	313	21	18
25...	299	32	26	313	23	19	352	21	20
26...	299	53	43	264	23	16	400	43	46
27...	306	30	25	244	14	9	384	43	45
28...	299	30	24	228	14	9	376	18	18
29...	285	35	27	212	14	8	392	22	23
30...	271	35	26	190	10	5	416	21	24
31...	278	35	26	177	10	5	--	--	--
Total	19,315	--	2,565	6,972	--	2,211	10,272	--	17,080

Total discharge for year (cfs-days)..... 460,283

Total load for year (tons)..... 1,440,224

s Computed by subdividing day.

a Computed from estimated-concentration graph.

t Less than 0.50 ton.

SAN JUAN RIVER BASIN--Continued

9-3645. ANIMAS RIVER AT FARMINGTON, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;

P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Sam- pling point	Water tem- per- ature (°f)	Discharge (cfs)	Sediment concent- ration (ppm)	Suspended sediment											Method of analysis
						Percent finer than size indicated, in millimeters											
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Oct. 13, 1957.....	1645		52	606	1,750		55		82		95	96	98	100	--	--	SPWC
Nov. 6.....	0650		43	1,260	9,470		47		72		91	97	100	--	--	--	VPWC
Nov. 19.....	1430		40	652	366		--	--	--		38	52	86	99	100	100	V
Dec. 20.....	1950		35	501	185		--	--	--		60	61	72	90	99	100	S
Jan. 9, 1958.....	1500		37	350	068		--	--	--		80	86	98	100	--	--	S
Feb. 7.....	0625		34	577	1,550		56		72		84	91	99	100	--	--	VPWC
Apr. 10.....	1755		53	800	3,050		48		67		84	92	96	100	--	--	VPWC
Apr. 22.....	1805		53	3,770	2,950		15		24		44	65	89	98	100	100	VPWC
May 21.....	0830		53	6,350	1,890		--	--	--		34	47	69	92	100	100	V
June 7.....	1750		59	8,020	1,420		18		31		56	72	88	99	100	100	VPWC
Sept. 14.....	0805		62	1,500	6,070		54		84		96	97	98	100	--	--	VPWC

SAN JUAN RIVER BASIN--Continued

9-3680. SAN JUAN RIVER AT SHIPROCK, N. MEX.

LOCATION.--At gaging station, 3 miles west of Shiprock, San Juan County, and 6 miles downstream from Chaco River.

DRAINAGE AREA.--12,900 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: July 1957 to September 1958.

Water temperatures: December 1950 to September 1958.

Water temperature records: December 1950 to September 1958.

EXTREMES 1958.--Dissolved solids (cf): Maximum, 327 ppm Aug. 17-18, 22-23; minimum, 135 ppm June 1-14.

Hardness (Watershed): Maximum, 327 ppm Aug. 17-18, 22-23; minimum, 83 ppm June 1-14.

Specific conductance: Maximum, 88 μ July 9; minimum, 24 μ Aug. 17-18, 22-23; minimum, 83 ppm June 1-14.Water temperatures: Maximum, 88 $^{\circ}$ F July 9; minimum, 24 $^{\circ}$ F Aug. 17-18, 22-23; minimum, 83 ppm June 1-14.

Sediment concentrations: Maximum daily, 42,000 ppm Oct. 21; minimum daily, 43 ppm July 31.

Sediment loads: Maximum daily, 571,000 tons Apr. 19; minimum daily, 44 tons Aug. 5.

EXTREMES, 1950-58.--Dissolved solids (July 1957 to September 1958): Maximum, 791 ppm Aug. 17-18, 22-23, 1958; minimum, 134 ppm July 1-10, 1957.

Hardness (July 1957 to September 1958): Maximum, 327 ppm Aug. 17-18, 22-23, 1958; minimum, 79 ppm July 1-10, 1957.

Specific conductance (July 1957 to September 1958): Maximum daily, 1,240 micromhos Aug. 18, 1958; minimum daily, 188 micromhos June 6, 1958.

Water temperatures: Maximum, 88 $^{\circ}$ F July 9, 1958; minimum, freezing point on many days during winter months.

Sediment concentrations: Maximum daily, 86,000 ppm Aug. 14, 1955; minimum daily, 8 ppm July 13, 1951.

Sediment loads: Maximum daily, 1,700,000 tons July 27, 1957; minimum daily, 2 tons Sept. 16, 23, 1956.

REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1957 to September 1958 given in WSP 1563. Flow affected by ice Jan. 13-16, 21-23.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F) (NO ₃) (B)	Bo-ron (B)	Dissolved solids (residue at 180°C)		Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)
														Parts per million	Tons per acre-foot	Calcium Magnesium	Non-carbonate		
Oct. 1-31, 1957..	1,881	15		70	12	55	--	166	--	179	18	3.1	0.08	434	0.59	224	88	1.6	626
Nov. 1-29.....	2,019	13		65	11	41	3.0	157	--	150	14	2.3	--	376	.51	207	78	1.2	558
Nov. 30-Dec. 2...	1,117	13		61	14	60	--	165	2	207	22	5.2	--	485	.66	260	121	1.6	698
Dec. 3-19.....	1,589	11		67	12	44	3.1	154	--	164	16	2.8	--	396	.54	216	90	1.3	570
Dec. 20-Jan. 1, 1958	1,115	10		83	16	60	--	175	--	222	22	3.3	.05	502	.68	273	130	1.6	715
Jan. 2-21.....	835	9.8		90	18	67	--	186	--	248	26	4.0	.05	554	.75	298	146	1.7	812
Jan. 22-Feb. 5...	780	15		97	16	71	--	187	--	265	27	4.7	.12	588	.80	308	155	1.8	860
Feb. 6-14.....	1,382	12		75	13	59	--	180	--	189	19	4.5	.03	461	.63	240	93	1.7	642
Feb. 15-21.....	1,875	13		87	13	75	--	194	--	244	18	3.3	.08	548	.75	270	112	2.0	812
Feb. 22-Mar. 17...	2,550	--		85	13	--	--	190	--	--	16	--	--	--	--	197	79	--	612
Mar. 18-20.....	2,516	11		75	13	58	--	164	--	215	18	1.9	.07	497	.68	266	110	1.6	760
Mar. 21-31.....	3,240	11		65	10	45	--	166	--	173	16	4.2	.14	425	.58	210	75	1.7	651
Apr. 1-8.....	2,615	13		72	15	36	--	180	--	148	12	2.5	.08	388	.53	240	94	1.0	605
Apr. 9-14.....	3,517	16		69	12	41	--	150	6	154	14	2.3	.12	388	.53	270	88	1.2	598
Apr. 15.....	4,210	16		68	12	44	--	179	--	148	9	3.8	.20	389	.53	219	72	1.3	588

SAN JUAN RIVER BASIN--Continued

9-3680. SAN JUAN RIVER AT SHIPROCK, N. MEX.--Continued

Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂) (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbocationate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)		Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)
														Parts per million	Tons per acre-foot	Calcium, Magnesium, Silicon	Non-carbonate		
Apr. 16-17, 1958.	7,120	15	60	9.5	22	--	169	--	76	13	3.7	0.07	0.07	282	0.38	188	50	0.7	445
Apr. 18-19.....	10,820	5.3	33	7.6	21	--	172	7	12	12	1.1	0.06	1.06	193	.26	5,980	114	.9	308
Apr. 20-21.....	13,280	9.2	48	15.7	15	--	136	--	52	8.0	1.2	0.06	1.20	217	.30	7,660	121	.3	363
Apr. 24-25.....	9,280	10	37	7.0	15	--	116	--	51	5.0	.6	0.07	0.07	183	.25	4,590	122	.6	239
Apr. 1-10.....	9,298	10	37	7.0	15	--	116	--	51	5.0	.6	0.07	0.07	183	.25	4,590	122	.6	239
May 11-25.....	12,290	12	38	2.8	10	--	106	--	36	4.5	.9	0.04	0.04	156	.21	5,180	106	.4	248
May 26-31.....	15,950	11	33	1.9	11	--	92	--	31	4.0	1.0	0.04	0.04	138	.19	5,940	90	.5	221
June 1-14.....	12,070	11	30	1.9	12	--	80	--	35	5.0	.8	0.04	0.04	135	.18	4,400	83	.6	211
June 15-26.....	5,670	11	33	1.9	16	--	77	--	53	6.0	1.1	0.03	0.21	160	.22	2,450	90	.7	251
June 27-July 3...	2,969	11	47	5.2	23	--	98	--	90	12	1.5	.21	0.21	238	.32	1,910	139	.8	371
July 4-7.....	1,885	12	52	6.2	38	--	112	--	115	19	1.8	.02	0.29	49	.41	1,520	155	63	1.3
July 8-14.....	1,164	11	61	8.1	46	--	130	--	152	15	2.1	.40	0.36	49	.41	1,130	186	79	1.5
July 15-22.....	676	9.7	75	11	58	--	151	--	175	37	3.6	.07	0.44	60	.73	809	232	108	1.7
July 23-31.....	543	11	85	14	72	--	169	--	235	31	4.5	.07	0.56	73	.73	786	270	131	1.9
Aug. 1-16.....	420	21	86	17	87	--	178	--	280	30	5.4	.10	0.64	84	.84	696	284	138	2.2
Aug. 17-18, 22-23	1,431	26	108	14	128	--	246	--	358	29	6.5	.13	0.79	1.08	1.08	3,060	327	136	3.1
Aug. 19-21, 24-31	826	20	76	12	64	--	154	--	214	22	3.7	.06	0.48	.86	.86	1,090	239	113	1.8
Sept. 1-13.....	412	13	94	17	110	--	186	--	335	34	6.4	.13	0.72	.95	.95	1,781	304	154	2.7
Sept. 14-19.....	2,128	18	60	9.0	40	--	146	--	133	44	2.9	.08	0.34	.87	.87	2,010	186	171	1.3
Sept. 20-30.....	974	13	73	14	62	--	136	--	214	24	2.3	.08	0.41	.65	.65	1,260	244	116	1.7
Weighted average	3,301	12	49	6.8	27	--	125	--	92	9.9	1.6	0.07	0.25	0.35	0.35	2,310	150	48	1.0

a Carbonate values included in weighted averages.

SAN JUAN RIVER BASIN--Continued

9-3680. SAN JUAN RIVER AT SHIPROCK, N. MEX.--Continued

Temperature (°F) of water, water year October 1957 to September 1958
(Once-daily measurement, generally between 12 m and 9 p.m.)

Month	Day																															Aver- age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October....	59	53	63	56	--	65	56	57	62	53	55	--	--	--	54	--	59	--	--	48	48	48	48	52	50	53	50	50	51	53	--	
November....	--	48	51	47	48	45	41	44	45	46	--	42	42	43	43	--	--	36	41	36	32	32	31	38	39	41	37	--	33	32	--	
December....	32	33	32	31	36	--	39	39	41	--	35	35	36	38	35	--	--	39	36	36	33	35	32	--	34	35	32	32	36	34	34	35
January....	35	35	34	31	36	34	33	33	36	35	--	38	32	33	35	35	35	33	34	34	32	31	--	33	33	34	--	35	37	35	36	34
February....	35	39	36	--	--	--	38	42	44	40	43	42	--	42	46	43	44	50	48	53	--	49	51	--	46	--	34	33	--	--	--	34
March....	38	45	40	38	44	43	--	46	44	37	38	--	42	44	44	46	--	45	45	46	51	--	46	--	52	43	44	--	46	49	47	44
April....	47	--	49	47	45	47	46	43	42	44	44	46	52	51	49	50	46	52	56	56	52	50	49	52	49	52	49	50	47	48	--	49
May....	50	53	60	62	59	57	54	56	47	--	53	53	56	56	60	60	65	61	60	60	58	60	63	62	67	60	64	65	63	64	65	59
June....	68	67	65	57	61	67	67	64	64	65	71	63	71	70	68	72	69	78	70	63	70	73	76	75	72	73	72	--	79	82	--	69
July....	81	71	76	70	70	73	71	72	88	78	77	75	71	75	70	70	79	68	71	72	81	76	71	75	80	77	71	80	80	77	75	75
August....	80	85	75	82	84	70	76	85	82	83	84	85	82	86	79	84	81	79	68	75	75	76	79	75	76	79	80	84	75	80	76	--
September..	--	73	75	80	76	74	72	73	78	79	--	74	74	73	66	51	55	64	56	--	56	55	56	--	57	56	--	67	--	59	--	67

SAN JUAN RIVER BASIN--Continued

9-3680, SAN JUAN RIVER AT SHIPROCK, N. MEX.--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December		
	Suspended sediment			Suspended sediment			Suspended sediment		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1...	880	378	898	1,800	3,200	a16,000	1,100	1,150	3,420
2...	815	463	1,202	1,950	4,000	21,100	1,140	1,560	4,800
3...	806	425	925	2,220	4,350	26,100	1,350	2,760	10,100
4...	834	438	986	2,090	4,950	27,900	1,420	2,860	11,000
5...	920	450	a1,100	2,510	7,000	47,400	1,490	2,630	10,600
6...	1,000	460	1,240	2,980	9,550	76,800	1,610	2,300	a10,000
7...	960	522	1,350	2,770	9,300	69,600	1,620	1,900	8,310
8...	960	932	2,420	2,630	6,750	47,900	1,620	1,640	7,170
9...	940	1,900	4,820	2,330	3,500	22,000	1,570	1,730	7,330
10...	920	3,900	8,690	2,260	2,750	16,800	1,540	1,600	a6,700
11...	950	1,250	3,210	2,120	2,400	a14,000	1,560	1,490	6,280
12...	1,400	8,300	sa38,000	2,260	1,800	11,000	1,560	1,400	5,900
13...	2,450	7,200	a48,000	2,210	2,600	15,500	1,440	1,980	7,700
14...	2,520	9,000	a61,000	2,160	1,970	11,500	1,510	1,480	6,030
15...	1,860	7,200	36,200	2,160	2,000	11,700	1,520	1,600	6,570
16...	1,570	5,800	a25,000	2,140	1,900	a11,000	1,650	1,700	a7,600
17...	1,570	4,300	18,200	2,150	2,000	a12,000	1,860	2,400	a12,000
18...	1,430	3,400	a13,000	2,110	2,130	12,100	1,950	2,750	14,500
19...	3,440	32,000	sa390,000	1,980	1,620	8,660	1,740	2,120	9,960
20...	4,020	21,800	237,000	1,780	1,450	6,970	1,480	2,000	7,990
21...	4,270	42,000	484,000	1,690	1,300	5,930	1,300	1,740	6,110
22...	5,660	33,000	504,000	1,580	1,810	7,720	1,160	1,110	3,480
23...	3,860	15,400	160,000	1,510	2,100	8,560	1,170	1,030	3,250
24...	2,350	8,000	50,800	1,410	1,700	a6,500	1,200	1,100	a3,600
25...	1,940	4,650	24,400	1,570	1,400	5,930	1,230	1,420	4,720
26...	1,770	5,150	24,600	1,600	1,610	6,960	1,200	1,120	3,630
27...	1,660	3,600	16,100	1,640	2,040	9,030	1,070	1,190	3,440
28...	1,530	2,350	9,710	1,620	2,000	a8,700	974	1,180	3,100
29...	1,640	2,500	11,100	1,320	1,320	4,700	922	735	1,830
30...	1,700	2,150	9,870	1,110	1,100	3,300	948	877	2,240
31...	1,700	2,800	a13,000	--	--	--	1,000	956	2,580
Total	58,325	--	2,200,639	59,660	--	553,360	42,904	--	201,940
Day	January			February			March		
	Suspended sediment			Suspended sediment			Suspended sediment		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1...	835	509	1,150	835	787	1,780	1,400	3,250	12,300
2...	848	1,030	2,360	732	610	1,210	1,230	2,750	9,130
3...	766	1,290	2,670	720	950	1,850	1,210	1,720	5,620
4...	989	1,400	3,390	789	2,000	a4,300	1,210	1,750	5,720
5...	948	1,100	2,820	860	3,500	a8,100	1,130	1,900	5,800
6...	885	1,000	2,390	1,570	7,500	sa36,000	1,180	1,620	5,160
7...	800	1,200	2,590	1,840	7,350	36,500	1,210	1,900	a6,200
8...	848	1,050	2,400	1,560	6,200	a26,000	1,240	2,100	7,030
9...	885	930	2,220	1,130	3,500	10,700	1,260	1,220	4,150
10...	922	816	2,030	1,410	3,900	14,800	1,340	2,570	9,300
11...	890	750	a1,800	1,450	4,150	16,200	1,120	1,530	4,630
12...	861	672	1,560	1,260	4,500	15,300	1,180	1,400	a4,500
13...	800	1,300	2,810	1,100	4,000	11,900	1,200	1,300	4,210
14...	780	1,410	2,970	1,120	3,200	a9,700	1,150	1,120	3,480
15...	780	2,100	4,420	948	1,750	4,480	1,180	1,150	3,660
16...	780	2,000	a4,200	898	1,800	4,360	1,260	1,000	3,400
17...	815	1,130	2,490	1,280	4,550	a17,600	1,760	6,900	sa52,000
18...	812	810	1,780	2,020	23,000	s125,000	3,080	15,200	126,000
19...	860	560	1,300	2,120	21,500	123,000	2,860	12,800	98,800
20...	778	670	1,410	2,220	21,000	126,000	2,810	14,200	108,000
21...	750	1,060	2,150	2,240	24,000	145,000	2,410	10,200	66,400
22...	700	760	1,440	2,590	27,000	a190,000	3,000	12,000	a97,000
23...	720	730	a1,400	2,880	21,500	167,000	4,640	18,300	229,000
24...	720	830	1,610	2,570	13,500	93,700	3,910	17,000	a180,000
25...	766	936	1,940	2,690	12,000	a87,000	3,520	13,200	125,000
26...	800	757	1,640	2,660	11,000	a79,000	3,500	10,400	98,300
27...	789	820	a1,700	2,510	9,300	63,000	3,500	10,100	95,400
28...	898	892	2,160	1,700	6,000	27,500	3,320	9,800	a88,000
29...	789	850	1,810	--	--	--	3,150	6,650	56,600
30...	789	842	1,150	--	--	--	2,300	4,600	28,600
31...	800	638	1,380	--	--	--	2,390	4,150	26,800
Total	25,312	--	67,140	45,702	--	1,446,980	65,650	--	1,570,190

s Computed by subdividing day.

a Computed from estimated-concentration graph.

SAN JUAN RIVER BASIN--Continued

9-3680. SAN JUAN RIVER AT SHIPROCK, N. MEX.--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment concentration (ppm)	Tons per day
1...	2,740	4,200	31,100	7,760	3,050	63,900	13,700	3,100	115,000
2...	2,810	5,000	a38,000	7,380	2,770	55,200	12,600	3,600	122,000
3...	2,930	4,000	31,600	7,180	2,750	53,300	13,100	2,200	a78,000
4...	2,480	2,750	18,400	7,150	2,600	50,200	13,000	3,000	105,000
5...	2,540	3,650	25,000	7,930	2,940	62,900	12,500	2,130	71,900
6...	2,220	2,800	16,800	9,380	3,950	100,000	12,500	2,450	82,700
7...	2,240	2,850	17,200	11,000	4,600	137,000	15,100	2,980	121,000
8...	2,960	4,400	35,200	11,500	4,730	147,000	16,000	2,870	124,000
9...	3,580	5,250	50,700	11,900	3,730	120,000	13,900	2,000	75,100
10...	3,450	6,450	60,100	11,800	3,100	a99,000	12,400	2,040	68,300
11...	3,890	9,800	103,000	11,900	3,620	116,000	10,500	1,800	51,000
12...	4,000	10,000	108,000	11,600	2,870	89,900	9,040	2,100	51,300
13...	3,480	6,000	56,400	12,400	3,420	115,000	7,890	1,630	34,700
14...	3,300	4,650	41,400	11,500	3,230	100,000	6,750	1,710	31,200
15...	4,210	9,840	s128,000	10,500	3,000	85,000	6,330	530	9,060
16...	6,240	18,000	303,000	10,200	2,400	66,100	6,200	980	16,400
17...	8,000	15,800	341,000	10,800	2,380	69,400	6,140	870	14,400
18...	9,540	17,600	453,000	11,000	3,050	90,600	6,140	990	16,400
19...	12,300	17,200	571,000	12,100	3,700	121,000	5,830	1,140	17,900
20...	13,300	15,400	553,000	12,800	3,700	128,000	5,830	800	12,600
21...	13,400	12,200	441,000	14,000	3,410	129,000	5,950	850	13,700
22...	13,300	10,400	373,000	13,700	3,540	131,000	6,010	940	15,300
23...	13,000	8,250	290,000	13,200	2,800	99,800	5,680	222	3,400
24...	11,700	7,000	221,000	13,700	3,960	146,000	5,090	221	3,040
25...	9,380	4,150	105,000	15,000	4,140	168,000	4,610	521	6,480
26...	8,530	5,000	115,000	15,200	4,030	165,000	4,230	656	7,490
27...	8,280	4,300	96,100	15,600	3,800	160,000	3,850	138	1,430
28...	9,080	5,450	134,000	16,000	4,200	181,000	3,480	500	a4,700
29...	8,930	4,800	116,000	17,200	4,300	200,000	3,250	725	6,360
30...	8,280	3,500	78,200	16,100	3,150	137,000	2,680	980	7,090
31...	--	--	--	15,600	2,900	122,000	--	--	--
Total	200,090	--	4,951,200	373,080	--	3,508,300	250,280	--	1,286,950

Day	July			August			September		
	Mean discharge (cfs)	Suspended sediment concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment concentration (ppm)	Tons per day
1...	2,650	1,160	8,300	468	44	54	483	210	a270
2...	2,500	940	6,340	438			402	116	114
3...	2,370	1,150	7,360	431	64	74	343		
4...	2,260	1,010	6,160	395	55	59	300	108	87
5...	1,960	560	2,960	349	47	44	276		
6...	1,690	500	2,280	324	130	114	265	77	56
7...	1,630	318	1,400	330	380	339	382	1,000	1,030
8...	1,380	92	343	491	650	862	499	10,300	s15,000
9...	1,200			460	460	571	424	6,600	7,560
10...	1,070	408	1,250	460	1,420	1,760	438	2,500	2,960
11...	1,080	195	569	531	870	1,250	431	800	a930
12...	1,310	606	2,140	475	1,820	2,330	417	200	225
13...	1,190	85	242	395	2,400	a2,600	694	4,740	s10,600
14...	920			402	2,300	2,500	2,820	23,300	s195,000
15...	737	149	296	356	1,400	1,350	3,250	9,100	79,900
16...	667			409	1,500	1,660	2,270	4,000	24,500
17...	645	186	329	539	3,200	4,660	1,740	2,400	11,300
18...	652	221	389	564	8,600	13,100	1,460	2,250	8,870
19...	667	134	240	685	3,400	6,290	1,230	1,500	4,980
20...	660			564	1,020	1,550	1,100	880	a2,600
21...	729	132	260	667	1,030	1,850	1,020	269	741
22...	649	135	237	2,340	28,200	s224,000	950	631	1,620
23...	515	117	163	2,280	30,600	188,000	830	395	885
24...	460	278	345	1,690	8,200	37,400	830	540	a1,200
25...	515	75	104	1,310	4,000	14,100	900	678	1,650
26...	598	5,180	s11,100	1,010	2,250	6,140	1,020	690	1,900
27...	572	4,800	7,410	820	1,380	3,060	1,150	560	a1,700
28...	606	510	834	712	1,000	1,920	1,030	433	1,200
29...	598	150	242	589	780	1,240	960	560	a1,500
30...	547	91	134	531	480	688	920	678	1,680
31...	475	43	55	507	390	a530	--	--	--
Total	33,502	--	63,543	21,522	--	519,149	28,834	--	380,228

Total discharge for year (cfs-days)..... 1,204,861

Total load for year (tons)..... 16,750,619

s Computed by subdividing day.

a Computed from estimated-concentration graph.

SAN JUAN RIVER BASIN--Continued

9-3680. SAN JUAN RIVER AT SHIPROCK, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Samp- ling point	Water temp- er- ature (°F)	Discharge (cfs)	Sediment concent- ration (ppm)	Suspended sediment										Method of analysis	
						Percent finer than size indicated, in millimeters											
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500		1.000
Oct. 8, 1957.....	1855		52	910	932	--	--	--	--	--	--	14	22	48	95	100	V
Oct. 21.....	0845		--	4,210	33,900	--	--	48	--	70	--	87	96	99	100	100	VPWC
Nov. 19.....	1200		36	1,950	1,530	--	--	--	--	--	--	18	42	89	99	100	V
Jan. 9, 1958.....	1130		35	896	873	--	--	--	--	--	--	13	33	89	99	100	V
Feb. 12.....	1510		43	1,290	4,360	--	--	54	--	67	--	71	76	96	100	--	VPWC
Feb. 20.....	1920		48	2,430	19,200	--	--	50	--	69	--	82	89	98	100	--	VPWC
Mar. 19.....	1855		45	4,020	14,500	--	--	38	--	52	--	75	87	98	100	--	VPWC
Mar. 23.....	1325		47	5,830	23,000	24	32	32	37	42	59	79	89	98	100	--	SPWC
Mar. 23.....	1325		47	5,830	23,000	03	14	33	44	59	79	89	98	100	--	SPN	
Apr. 16.....	1815		50	7,420	19,400	--	--	19	--	32	--	69	85	94	100	--	VPWC
Apr. 22.....	1840		50	13,700	10,700	--	--	11	--	19	--	44	66	86	99	100	VPWC
May 13.....	1820		56	12,400	3,640	07	--	13	--	25	42	76	100	--	--	VPWC	
May 17.....	1315		64	10,400	2,320	--	--	--	--	22	37	76	100	--	--	V	
May 30.....	1715		64	15,200	2,900	--	--	--	--	24	40	81	100	--	--	V	
June 5.....	1840		60	11,700	1,680	--	--	--	--	28	42	76	100	--	--	V	
Aug. 23.....	1040		72	2,560	41,700	--	--	72	--	87	--	94	98	100	--	--	VPWC
Sept. 8.....	1630		73	460	11,200	--	--	78	--	95	--	99	99	100	--	--	SPWC

SAN JUAN RIVER BASIN--Continued
9-3795. SAN JUAN RIVER NEAR BLUFF, UTAH

LOCATION --At bridge on State Highway 47, 1,800 feet downstream from gaging station and 20 miles southwest of Bluff, San Juan County.

DRAINAGE AREA --23,000 square miles, approximately.

RECORDS AVAILABLE --Chemical analyses: February to June 1927, October 1929 to September 1958.

Water temperatures: May 1944 to September 1958.

Sediment records: August to September 1928, July 1929 to September 1958.

EXTREMES, 1957-58.--Dissolved solids: Maximum, 1,090 ppm Sept. 12, 15; minimum, 172 ppm June 1-15.

Hardness: Maximum, 393 ppm Jan. 1-31; minimum, 104 ppm June 1-15.

Specific conductance: Maximum daily, 1,520 micromhos Sept. 15; minimum daily, 239 micromhos June 11.

Water temperatures: Maximum, 88°F July 9; minimum, freezing point on several days during December and January.

Sediment concentrations: Maximum daily, 68,000 ppm Aug. 24; minimum daily, 150 ppm Aug. 6.

Sediment loads: Maximum daily, 919,000 tons Oct. 21; minimum daily, 148 tons Aug. 7.

EXTREMES, 1929-58.--Dissolved solids: Maximum, 1,860 ppm July 21-31, 1934; minimum, 152 ppm June 11-20, 1952.

Hardness: Maximum, 874 ppm July 21-31, 1934; minimum, 102 ppm July 1-6, 8-10, 1957.

Specific conductance (1941-58): Maximum daily, 2,310 micromhos Aug. 3, 1956; minimum daily, 208 micromhos June 17, 1952.

Water temperatures (1944-48): Maximum, 88°F July 11, 1957; July 9, 1956; minimum, freezing point on many days during winter months.

Sediment concentrations: Maximum daily, 12,400,000 tons Oct. 24, 1954; minimum daily, 0 tons July 1-13, 1954; Aug. 24-27, 29, 1939.

Sediment loads: Maximum daily, 12,400,000 tons Oct. 24, 1954; minimum daily, 0 tons July 1-13, 1954; Aug. 24-27, 29, 1939.

REMARKS--Records of specific conductance daily available in district office at Salt Lake City, Utah. Records of discharge for water year October 1957 to September 1958 given in RSP 1563.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180° C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 1-31, 1957...	2,443	13		89	22	75	3.6	177	0	296	20		3.7	0.09	633	0.86	4,180	312	167	1.9	897	7.8
Nov. 1-30	2,375	12		81	21	54	2.6	159	0	247	18		3.8	.06	532	.72	3,410	290	160	1.4	770	7.8
Dec. 1-31	1,427	10		88	25	62	2.6	168	0	284	22		5.1	.06	597	.81	2,300	321	183	1.5	861	7.8
Jan. 1-31, 1958...	860	10		106	31	83	3.6	193	0	370	30		5.8	.06	760	1.03	1,760	393	235	1.8	1,060	8.3
Feb. 1-28	2,135	10		92	26	78	4.1	180	0	326	21		7.0	.06	677	.92	3,900	338	180	1.8	956	8.0
Mar. 1-31	2,591	11		92	26	68	3.6	175	0	303	24		5.3	.06	641	.87	4,460	338	194	1.6	920	8.0
Apr. 1-17	3,732	12		79	24	46	3.0	174	0	223	18		3.2	.06	520	.71	5,240	296	153	1.2	747	7.9
Apr. 18-30	15,140	12		53	11	21	2.1	140	0	97	4.8		2.3	.05	280	.38	8,420	173	58	.7	423	8.0
May 1-31	12,680	11		38	6	13	2.0	108	0	56	4.8		1.6	.03	193	.26	6,280	122	33	.5	303	7.8
June 1-15	12,150	12		35	3.5	11	1.4	97	0	48	3.5		1.8	.01	172	.23	5,640	104	24	.5	287	7.7
June 16-29	5,043	11		40	5.5	18	1.9	93	0	80	7.0		2.2	.00	220	.30	3,000	124	47	.7	343	7.7
June 30, July 1-17.	1,687	9.9		64	12	41	2.4	119	0	180	13		3.3	.07	398	.54	1,810	208	110	1.2	595	7.5

SAN JUAN RIVER BASIN--Continued

9-3795. SAN JUAN RIVER NEAR BLUFF, UTAH--Continued

Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Cal- cium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Po- tas- sium (K)	Bi- car- bon- ate (HCO ₃)	Car- bon- ate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (residue at 180° C)			Hardness as CaCO ₃		So- dium ad- sorp- tion (micro- mhos at 25°C)	pH	
															Parts per million	Tons per acre- foot	Tons per day	Cal- cium, Mag- ne- sium	Non- car- bon- ate			
July 18-26	752	8.3		81	21	73	3.5	143	0	290	26		5.5	.05	594	.81	1,210	288	171	1.9	864	7.6
July 27-31	587	12		99	24	101	4.6	170	0	378	33		6.8	.12	765	1.04	1,210	348	209	2.3	1,080	7.7
Aug. 1-31	690	12		96	26	105	4.6	187	0	373	31		5.7	.13	749	1.02	1,400	348	195	2.4	1,070	7.7
Sept. 1-11, 13-14, 16, 21-30	890	11		92	26	94	3.3	186	0	323	28		4.6	.13	700	.95	1,680	334	181	2.2	1,000	7.5
Sept. 12, 15	1,748	14		146	39	136	4.8	230	0	578	28		2.2	.22	1,090	1.48	5,140	524	335	2.6	1,420	7.5
Sept. 17-20	1,518	13		69	15	45	2.5	154	0	172	14		3.9	.09	448	.61	1,840	232	106	1.3	665	7.5
Weighted average	3,523	11		59	13	36	2.4	134	0	153	11		3.0	.04	368	0.50	3,500	200	90	1.1	541	--

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																Average															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October....	69	63	65	62	62	62	63	61	60	60	60	--	54	54	55	55	57	57	56	56	52	50	48	48	50	--	50	49	49	51	53	56
November....	51	52	--	50	47	47	46	43	44	43	45	46	46	45	44	43	42	39	38	38	39	33	34	35	36	35	36	33	33	33	--	41
December...	32	32	32	32	32	35	36	37	38	37	35	36	34	35	35	38	40	39	39	36	35	38	35	39	35	35	36	36	33	32	32	35
January....	34	34	34	35	34	35	35	34	36	34	34	35	33	36	36	38	37	35	35	34	34	--	33	33	36	32	35	35	35	36	36	35
February....	--	40	37	38	40	40	40	39	40	42	40	42	40	38	42	41	41	43	44	45	44	46	47	48	48	41	38	35	--	--	41	41
March....	--	--	39	39	44	39	43	47	42	42	38	40	38	39	41	44	46	46	46	47	46	49	48	47	47	47	48	45	47	47	48	44
April....	46	52	45	43	43	45	48	46	47	48	49	48	56	49	51	54	54	57	56	54	56	60	50	49	51	51	53	53	52	53	--	51
May....	53	55	56	57	60	59	60	58	57	58	59	56	57	65	58	60	64	63	64	65	63	66	65	66	65	66	65	66	67	67	61	61
June....	63	63	65	65	65	66	71	66	63	64	65	65	64	61	65	68	68	71	70	71	71	72	72	72	74	70	72	71	72	75	70	--
July....	68	70	74	76	74	74	76	85	88	82	80	80	73	79	78	76	75	74	78	74	78	72	76	69	74	70	76	75	76	77	73	76
August....	77	82	77	77	77	77	76	77	75	79	77	78	78	80	79	76	75	76	77	76	74	73	71	72	70	69	73	74	71	75	75	--
September...	70	71	69	69	70	72	73	71	68	69	70	71	70	66	63	64	63	64	63	64	64	64	68	62	59	58	62	64	63	67	--	66

SAN JUAN RIVER BASIN--Continued

9-3795. SAN JUAN RIVER NEAR BLUFF, UTAH--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	930	1,000	2,510	2,320	9,000	56,400	1,280	2,080	7,190
2...	981	1,850	4,900	2,320	17,100	107,000	1,220	2,360	7,770
3...	937	1,980	5,010	4,320	26,000	sa320,000	1,140	2,600	8,000
4...	937	920	2,330	2,860	12,800	98,000	1,380	1,140	4,250
5...	937	900	2,280	3,410	10,300	s95,500	1,550	1,670	6,990
6...	986	920	2,400	3,210	10,000	86,700	1,520	1,930	7,920
7...	1,060	1,150	3,290	3,810	12,800	132,000	1,680	2,040	9,250
8...	1,070	1,390	4,020	3,530	9,650	92,000	1,660	2,020	9,050
9...	1,030	1,640	4,560	2,950	9,250	73,700	1,600	2,060	8,900
10...	1,010	900	2,450	2,710	5,500	40,200	1,580	1,740	7,420
11...	1,040	920	2,580	2,500	7,100	47,900	1,570	2,100	8,900
12...	3,460	19,000	sa180,000	2,330	6,150	38,700	1,560	1,820	7,670
13...	4,340	24,100	s299,000	2,300	6,000	37,300	1,500	2,190	8,870
14...	3,970	40,400	s440,000	2,290	4,750	29,400	1,460	1,480	5,830
15...	2,860	25,000	193,000	2,200	3,030	18,000	1,470	1,440	5,720
16...	2,130	12,300	70,700	2,180	2,970	17,500	1,790	2,270	11,000
17...	1,890	8,000	40,800	2,270	3,060	18,800	1,740	3,130	14,700
18...	1,820	6,600	32,400	2,330	3,200	20,100	2,050	4,300	23,800
19...	1,760	6,300	29,900	2,190	2,600	15,400	2,000	2,900	15,700
20...	4,650	29,300	s503,000	2,060	2,300	12,800	1,660	2,700	12,100
21...	7,520	42,600	s919,000	1,890	2,200	11,200	1,410	1,980	7,540
22...	7,040	38,600	s799,000	1,760	2,090	9,930	1,260	1,470	5,000
23...	6,170	26,700	445,000	1,690	1,880	8,580	1,210	1,500	4,900
24...	3,830	21,700	224,000	1,690	1,810	8,260	1,160	1,330	4,170
25...	2,540	17,300	119,000	1,540	1,530	6,360	1,170	1,380	4,360
26...	2,010	5,300	28,600	1,710	2,020	9,330	1,210	1,370	4,480
27...	1,900	6,900	35,400	1,780	1,940	9,320	1,210	1,030	3,370
28...	1,780	8,250	39,600	1,800	2,010	9,770	1,190	1,270	3,770
29...	1,690	3,850	17,800	1,810	2,350	11,500	1,060	1,260	3,610
30...	1,720	2,600	13,000	1,480	1,690	6,750	1,070	1,320	3,810
31...	1,740	2,600	12,200	--	--	--	974	1,240	3,260
Total	75,716	--	4,477,730	71,240	--	1,449,200	44,244	--	239,300
Day	January			February			March		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	989	1,130	3,020	900	1,600	a3,900	1,870	7,900	a40,000
2...	915	1,020	2,520	900	1,400	3,400	1,430	5,300	20,500
3...	900	900	2,190	844	1,600	3,650	1,280	5,700	19,700
4...	851	1,000	2,300	810	7,000	15,300	1,300	3,300	12,300
5...	823	1,280	2,840	1,550	9,000	37,700	1,270	3,150	10,800
6...	959	1,950	5,050	1,490	7,700	31,000	1,290	2,720	9,470
7...	900	1,480	3,600	1,980	8,100	43,300	1,300	2,460	8,630
8...	830	1,300	2,910	1,990	7,600	40,800	1,350	2,470	9,000
9...	823	1,280	2,840	1,610	5,400	23,500	1,400	2,550	9,640
10...	886	1,400	3,350	1,400	4,700	17,800	1,400	3,150	11,900
11...	858	1,470	3,410	1,540	5,500	22,900	1,440	3,320	12,900
12...	830	1,310	2,940	1,650	5,300	23,600	1,310	3,310	11,700
13...	790	1,070	2,280	1,510	4,500	18,300	1,260	3,000	10,200
14...	750	1,100	2,230	1,330	10,600	38,100	1,290	3,200	11,100
15...	796	1,190	2,560	1,120	4,400	13,300	1,250	2,650	8,940
16...	810	1,130	2,470	966	3,200	8,350	1,260	3,030	10,300
17...	823	1,160	2,580	1,090	3,800	11,200	1,670	5,700	25,700
18...	810	1,170	2,560	2,000	10,800	58,300	2,640	10,700	76,300
19...	865	1,240	2,900	2,790	12,500	94,200	3,360	12,700	115,000
20...	944	1,330	3,390	2,880	18,700	145,000	3,580	17,700	171,000
21...	900	2,480	6,030	3,160	21,600	184,000	3,580	17,600	170,000
22...	830	1,800	a4,000	3,420	24,000	222,000	3,650	17,200	170,000
23...	803	980	2,120	4,030	24,700	s278,000	4,510	17,600	214,000
24...	756	980	2,000	4,050	24,100	264,000	6,520	23,400	s416,000
25...	756	950	1,940	4,090	23,100	255,000	5,400	20,700	302,000
26...	823	1,250	2,780	4,760	25,600	s334,000	5,120	18,500	256,000
27...	865	1,820	4,250	3,410	14,700	135,000	4,390	15,400	183,000
28...	989	1,800	4,810	2,510	9,800	66,400	4,130	12,000	134,000
29...	966	2,630	6,860	--	--	--	3,850	10,500	109,000
30...	900	1,820	4,420	--	--	--	3,390	7,800	71,400
31...	930	1,720	4,320	--	--	--	2,820	6,300	48,000
Total	26,670	--	101,470	59,780	--	2,392,000	80,310	--	2,678,480

s Computed by subdividing day.

a Computed from estimated-concentration graph.

SAN JUAN RIVER BASIN--Continued

9-3795, SAN JUAN RIVER NEAR BLUFF, UTAH--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	2,940	7,200	57,200	8,310	5,400	121,000	14,800	3,950	158,000
2...	3,210	6,300	54,600	7,920	4,600	98,400	12,900	4,000	139,000
3...	3,230	6,900	60,200	7,500	4,750	96,200	12,600	3,950	134,000
4...	3,200	6,000	51,800	7,150	3,910	75,500	13,000	4,220	148,000
5...	2,790	4,500	33,900	7,350	4,150	82,400	12,900	3,720	130,000
6...	2,830	4,250	32,500	8,480	5,400	124,000	12,600	3,560	121,000
7...	2,390	3,650	23,600	10,100	6,200	169,000	13,600	3,940	145,000
8...	2,610	4,350	30,700	11,400	6,130	189,000	16,000	4,760	206,000
9...	3,130	5,350	45,200	12,300	6,400	213,000	15,800	4,430	189,000
10...	3,750	8,250	83,500	12,500	6,040	204,000	13,700	3,680	136,000
11...	4,170	8,800	99,100	12,500	5,800	196,000	11,900	3,100	99,600
12...	4,480	10,800	131,000	12,600	5,870	200,000	9,880	2,870	76,600
13...	4,210	9,350	106,000	12,300	5,320	177,000	8,710	2,680	63,000
14...	3,780	6,650	67,900	12,900	5,030	175,000	7,500	2,280	46,200
15...	3,920	7,400	78,300	11,600	4,620	145,000	6,430	3,000	52,100
16...	5,570	13,000	196,000	10,700	4,540	131,000	6,160	2,020	33,600
17...	7,230	18,400	359,000	10,600	5,000	143,000	6,050	1,930	31,500
18...	8,580	18,200	422,000	11,000	5,680	169,000	5,930	1,920	30,700
19...	10,800	19,100	557,000	11,700	4,760	150,000	5,720	1,850	28,600
20...	12,800	18,300	632,000	12,700	5,200	178,000	5,560	1,600	24,000
21...	13,800	16,200	604,000	13,300	5,940	213,000	5,460	1,750	25,800
22...	14,200	15,600	598,000	14,000	5,970	226,000	5,590	1,510	22,800
23...	14,200	12,600	483,000	13,600	4,800	176,000	5,450	1,850	27,300
24...	13,900	11,700	439,000	13,500	4,400	160,000	5,120	1,670	23,100
25...	11,600	11,100	348,000	14,300	4,600	178,000	4,640	1,480	18,500
26...	9,790	9,000	238,000	15,300	5,300	219,000	4,210	1,460	16,600
27...	8,470	7,350	168,000	15,400	5,110	212,000	3,990	1,310	14,100
28...	8,450	7,300	167,000	15,700	5,280	224,000	3,510	1,310	12,400
29...	9,370	7,800	197,000	16,000	5,120	221,000	3,210	1,270	11,000
30...	8,890	6,750	162,000	16,100	5,290	230,000	2,840	1,320	10,100
31...	--	--	--	15,600	4,200	177,000	--	--	--
Total	208,290	--	6,525,500	374,410	--	5,272,500	255,760	--	2,173,500
Day	July			August			September		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	2,590	2,000	14,000	513	1,100	1,520	534	2,000	2,880
2...	2,480	7,440	49,800	452	365	445	502	1,380	1,370
3...	2,440	1,500	9,880	414	235	263	452	1,750	2,140
4...	2,310	3,800	23,700	414	215	240	396	1,480	1,580
5...	2,110	5,340	30,400	383	175	181	342	1,110	1,020
6...	1,950	2,280	12,000	387	150	157	304	810	665
7...	1,760	5,400	25,700	342	160	148	283	630	481
8...	1,580	8,700	37,100	362	300	293	270	700	510
9...	1,450	5,850	22,900	323	200	174	575	11,100	s46,600
10...	1,370	2,000	7,400	452	6,200	7,570	1,060	37,800	112,000
11...	1,210	590	1,930	423	2,560	2,920	568	32,500	51,700
12...	1,120	550	1,660	414	1,100	1,230	466	14,600	18,400
13...	1,120	800	2,420	461	1,380	1,720	1,940	40,600	s247,000
14...	1,190	870	2,800	437	1,200	1,420	1,580	43,300	192,000
15...	1,080	800	2,330	392	800	847	3,030	44,300	s395,000
16...	922	450	1,120	392	1,200	1,270	2,750	23,300	173,000
17...	844	310	706	346	1,600	1,490	1,950	9,900	52,100
18...	810	480	a1,000	491	3,000	3,980	1,600	6,020	26,000
19...	790	360	768	771	22,000	45,800	1,340	4,370	15,800
20...	769	240	498	631	35,000	61,800	1,180	3,900	12,400
21...	769	630	1,310	649	16,000	28,000	1,060	3,600	10,300
22...	756	360	735	562	11,600	17,600	1,010	2,640	7,200
23...	823	400	889	2,320	45,500	s336,000	930	2,000	5,020
24...	730	325	641	2,350	68,000	447,000	865	1,620	3,780
25...	637	200	344	1,460	41,500	170,000	893	2,760	6,650
26...	680	640	1,180	1,220	22,000	72,500	886	3,620	8,660
27...	568	665	1,020	1,110	9,400	28,200	959	2,480	6,420
28...	596	575	925	886	5,640	13,500	1,080	2,550	7,440
29...	619	700	1,170	769	4,050	8,410	1,080	2,550	7,440
30...	590	1,600	2,550	655	3,300	5,840	1,050	5,500	15,600
31...	562	1,430	2,170	596	2,650	4,100	--	--	--
Total	37,225	--	261,046	21,377	--	1,264,618	30,935	--	1,431,656
Total discharge for year (cfs-days).....									1,285,959
Total load for year (tons).....									28,267,000

s Computed by subdividing day.

a Computed from estimated-concentration graph.

SAN JUAN RIVER BASIN--Continued

9-3795. SAN JUAN RIVER NEAR BLUFF, UTAH--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Sampling point	Water temp- er- ature (°F)	Discharge (cfs)	Sediment concen- tration (ppm)	Suspended sediment											Method of analysis
						Percent finer than size indicated, in millimeters											
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
	1745		56	2,040	9,360			59		69	74	80	92	98	100		SPWC
	0915		52	6,010	31,900			44		55	64	78	91	98	100		SPWC
	0915		52	6,010	31,900			4		56	65	78	91	98	100		SPN
	0950		49	1,650	2,480			28		34	41	56	81	98	100		SPWC
	0910		47	4,070	16,500			38		49	59	77	93	99	100		VPWC
	0855		42	1,080	3,610			52		63	66	70	85	99	100		VPWC
	0835		47	2,870	3,610			31		43	53	70	91	99	100		VPWC
	0955		47	5,670	18,500			38		52	61	80	93	99	100		VPWC
	0820		46	2,640	4,300			23		31	37	54	82	98	100		VPWC
	1810		61	9,390	15,000			25		38	52	73	88	96	100		SPWC
	0830		60	14,000	13,600			21		32	42	62	81	94	100		VPWC
	1840		58	8,850	7,490			13		19	26	47	72	92	100		VPWC
	0815		58	12,000	5,160			12		19	27	44	70	93	100		VPWC
	0755		65	11,900	3,140		06	10		15	21	35	60	89	99	100	SPWC
	0745		52	3,620	1,100			09	10	13	16	25	54	96	100		VPWC
	1425		75	830	249			--		--	--	19	38	76	100		S
	1820		75	1,780	51,900			64		77	81	86	98	100	--		VPWC
	0855		75	614	2,490			44		50	54	66	96	100	--		VPWC
	1745		74	915	35,400			68		86	89	94	99	100	--		VPWC
	0945		64	1,110	2,830			30		37	43	55	86	98	100		VPWC

COLORADO RIVER MAIN STEM

9-3800. COLORADO RIVER AT LEES FERRY, ARIZ.

LOCATION.--At gaging station at head of Marble Gorge at Lees Ferry, Coconino County, just upstream from Paria River, 16 miles downstream from site of Glen Canyon dam, 28 miles downstream from Utah-Arizona State line, 61.5 miles upstream from Little Colorado River, and 79 miles downstream from San Juan River.

DRAINAGE AREA.--107,900 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: January to July 1926, October 1926 to June 1927, October 1928 to September 1930, November 1942 to October 1945, October 1947 to September 1958.

Water temperatures: July 1948 to September 1958.

Sediment loads: October 1928 to December 1953: Maximum, 1,530 ppm Oct. 15-16; minimum, 266 ppm June 1-11.

EXTREMES: 1957-58: Maximum, 840 ppm Oct. 15-16; minimum, 182 ppm June 1-11.

Hardness: Maximum, 846 ppm Oct. 15-16; minimum, 132 ppm June 11-20, 1944.

Specific conductance: Maximum, 2,080 micromhos Oct. 16; minimum daily, 372 micromhos June 7.

Water temperatures: Maximum, 84°F Aug. 19; minimum, 33°F Jan. 5, 7, 9.

Sediment concentrations: Maximum daily, 29,400 ppm Oct. 23; minimum daily, 134 ppm Aug. 12.

Sediment loads: Maximum daily, 2,600,000 tons Oct. 23; minimum daily, 1,490 tons Aug. 12.

EXTREMES: 1928-45, 1947-58.--Dissolved solids (1928-30, 1942-45, 1947-58): Maximum, 1,530 ppm Oct. 15-16, 1957; minimum, 209 ppm June 11-20, 1929.

Hardness (1928-30, 1942-45, 1947-58): Maximum, 846 ppm Oct. 15-16, 1958; minimum, 132 ppm June 11-20, 1944.

Specific conductance (1942-45, 1947-58): Maximum daily, 2,280 micromhos Oct. 15, 1945; minimum daily, 318 micromhos June 9, 1948.

Water temperatures (1949-58): Maximum, 84°F Aug. 3, 1952, Aug. 19, 1958; minimum, freezing point on many days during winter months.

Sediment concentrations: (1928-33, 1942-44, 1947-58): Maximum daily, 83,300 ppm Aug. 11, 1930; minimum daily, 134 ppm Aug. 12, 1958.

Sediment loads (1928-33, 1942-44, 1947-58): Maximum daily, 9,450,000 tons Aug. 7, 1929; minimum daily, 1,220 tons Jan. 8, 1949.

REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1957 to September 1958 given in WSP 1563. Flow affected by ice Jan. 6-8.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)		Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)
														Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate		
Oct. 1-14, 1957..	7,456	14	0.00	137	33	130	6.3	240	392	112	0.7	6.8	0.10	950	1.29	19,120	478	2.6	1,400
Oct. 15-20.....	12,820	20	0.01	202	36	157	10.8	223	498	117	0.5	8.2	0.11	1,530	2.06	30,600	846	2.3	1,890
Oct. 21-22.....	12,820	19	0.01	166	28	129	7.8	224	459	117	0.7	12	0.09	1,530	1.32	58,580	562	2.9	1,840
Oct. 23-24.....	21,800	21	0.03	252	33	156	7.6	264	459	58	0.7	12	0.10	1,490	2.03	122,900	772	2.3	1,890
Oct. 25-31.....	13,170	17	0.00	162	30	116	7.1	210	520	58	0.6	8.5	0.09	1,020	1.39	36,270	528	2.2	1,410
Nov. 1-4.....	15,950	16	0.00	131	32	110	6.2	227	417	62	0.7	7.5	0.19	895	1.22	38,540	458	2.2	1,280
Nov. 5-6.....	31,600	--	--	238	40	--	--	255	--	70	--	--	--	1,390	1.89	118,600	758	550	--
Nov. 7-30.....	12,520	18	0.01	138	34	126	6.1	230	450	78	0.7	6.6	0.11	971	1.32	32,820	484	2.5	1,380
Dec. 1-31.....	8,401	17	0.00	118	35	132	6.4	233	386	102	0.5	7.0	0.20	919	1.25	20,850	438	2.48	1,350
Jan. 1-31, 1958..	6,457	18	0.00	114	37	140	6.2	232	384	114	0.6	8.8	0.15	937	1.27	16,340	436	2.9	1,410

a Residue on evaporation.

Feb. 1-25, 1958..	8,891	15	0.00	116	32	132	5.8	234	368	101	0.4	6.9	7.11	892	1.21	21,410	421	259	2.8	1,320	7.8
Feb. 26-28.....	15,970	12	.01	102	28	110	6.1	224	325	79	.7	7.1	.19	769	1.05	33,160	370	186	2.5	1,160	7.8
Mar. 1-31.....	11,320	14	.00	106	30	117	5.7	232	340	68	.5	5.8	.12	812	1.10	24,820	388	198	2.6	1,210	7.8
Apr. 1-14.....	13,650	13	.00	97	30	102	5.6	223	305	66	.6	5.0	.25	735	1.00	27,030	366	183	2.3	1,110	7.7
Apr. 15, 17.....	15,650	14	.00	108	14	76	6.0	226	217	59	.83	4.7	.13	609	.83	25,730	327	142	1.8	930	7.6
Apr. 16.....	15,000	13	.00	64	15	--	--	178	--	23	--	--	--	a413	.56	16,730	221	75	--	587	7.7
Apr. 18-30.....	42,780	--	.00	76	10	34	4.5	192	116	22	.7	3.4	.13	374	.51	43,200	230	73	1.0	611	7.8
May 1-14.....	45,920	23	.00	59	28	34	3.8	236	115	22	.5	2.8	.10	404	.55	50,090	264	70	.9	642	7.7
May 15-31.....	80,560	22	.00	60	11	23	2.5	184	76	14	.5	2.4	.12	302	.36	65,690	195	44	.7	474	8.0
June 1-11.....	84,820	17	.00	58	9.1	18	2.9	172	94	11	.5	1.8	.09	266	.36	67,810	182	41	.6	484	7.7
June 12-17.....	92,630	16	.00	62	9.1	22	2.7	175	105	14	.7	1.7	.08	293	.40	49,230	192	48	.7	484	7.8
June 18-30.....	17,260	21	.00	67	16	52	3.7	163	135	40	.4	1.8	.13	437	.59	22,370	213	75	1.0	591	7.9
July 1-19.....	9,740	18	.00	77	21	72	4.3	166	210	61	.5	1.5	.11	547	.74	14,390	278	142	1.3	864	7.8
July 10-17.....																					
July 18-27.....	6,229	16	.00	90	26	99	5.3	176	83	83	.8	2.1	.15	692	.94	11,640	330	186	2.4	1,080	7.8
July 28-31.....	5,288	20	.00	110	40	128	6.8	187	390	114	.5	4.8	.13	906	1.23	12,940	440	287	2.7	1,360	8.0
Aug. 1-26.....	4,472	19	.00	120	41	141	7.1	195	449	116	.8	5.8	.19	996	1.35	12,030	470	310	2.8	1,480	7.8
Aug. 27-31.....	5,602	20	.00	175	40	179	8.7	244	584	128	.9	11	.22	1,270	1.73	19,210	600	400	3.2	1,780	7.6
Sept. 1-27.....	5,299	19	.00	165	50	169	8.1	220	621	120	.4	9.8	.20	1,270	1.73	18,170	616	436	3.0	1,780	7.8
Sept. 28-30.....	5,993	21	.00	145	36	136	6.5	233	482	93	.3	9.0	.21	1,040	1.41	16,830	510	319	2.6	1,490	7.8
Weighted average	19,640	18	0.00	86	20	62	4.1	201	199	43	0.6	4.0	0.12	536	0.73	28,420	296	132	1.6	822	--

a Residue on evaporation.

Temperature (°F) of water, water year October 1957 to September 1958
(Once-daily measurement, generally between 8 a.m. and 5 p.m.)

Month	Day																				Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
October.....	67	67	65	--	--	64	63	64	64	62	64	62	61	58	62	60	62	61	61	60	59
November....	54	53	52	52	50	--	50	48	48	48	47	48	--	--	--	--	45	43	42	42	44
December....	36	37	35	--	--	37	38	40	37	39	39	37	38	37	37	--	40	39	39	38	38
January.....	36	34	34	34	33	--	33	--	33	35	36	35	35	36	34	36	36	35	36	37	36
February....	39	39	38	--	--	42	43	--	43	44	44	45	45	45	45	46	47	47	47	50	48
March.....	44	44	48	--	--	46	45	47	47	44	43	44	45	46	47	48	50	48	51	--	45
April.....	52	52	52	--	--	50	52	52	52	54	55	55	55	56	56	56	57	57	57	57	55
May.....	57	56	56	--	--	62	62	62	62	62	62	62	62	62	62	60	61	61	61	62	63
June.....	64	64	64	--	--	--	66	66	66	66	66	65	65	65	65	66	67	69	71	72	69
July.....	72	73	74	74	--	75	76	78	77	77	77	77	77	76	76	76	76	76	77	77	76
August.....	80	80	82	--	--	80	--	81	81	80	81	82	83	82	81	82	80	80	82	81	80
September...	77	77	72	74	74	75	--	78	76	77	77	75	71	71	71	72	70	70	70	70	71

COLORADO RIVER MAIN STEM--Continued

9-3800. COLORADO RIVER AT LEES FERRY, ARIZ.--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	7,180	1,000	19,400	11,100	4,590	138,000	9,040	2,080	50,800
2...	7,010	1,040	19,700	11,100	4,200	126,000	8,610	1,830	42,500
3...	6,800	1,060	19,500	14,700	7,200	286,000	8,250	1,700	37,900
4...	6,700	1,000	a18,000	26,900	16,600	1,210,000	7,900	1,700	a38,000
5...	6,610	1,000	a18,000	34,800	22,000	2,070,000	7,580	1,600	a33,000
6...	6,440	997	17,300	28,400	16,000	a1,200,000	7,210	1,580	30,800
7...	6,220	948	15,900	25,100	14,900	1,010,000	7,380	1,880	37,500
8...	6,100	985	16,200	20,900	13,800	779,000	7,580	1,660	34,000
9...	6,060	802	13,100	18,400	12,200	606,000	7,760	1,690	35,400
10...	6,100	855	14,100	16,300	9,080	400,000	8,110	1,880	41,200
11...	6,190	918	15,300	14,400	6,040	235,000	8,430	1,850	42,100
12...	9,080	14,100	s349,000	13,400	5,800	210,000	8,680	2,050	48,000
13...	10,500	7,200	204,000	12,500	5,500	a190,000	8,900	1,920	46,100
14...	13,400	12,000	434,000	11,800	5,000	a160,000	8,930	2,330	56,200
15...	13,200	20,600	734,000	11,600	4,200	a130,000	8,720	2,100	49,400
16...	11,300	21,300	650,000	11,600	3,500	a110,000	8,720	1,900	a45,000
17...	15,000	15,700	636,000	11,800	3,120	99,400	8,570	1,730	40,000
18...	13,200	8,500	303,000	12,000	3,020	97,800	8,680	1,700	39,800
19...	11,800	10,900	347,000	11,800	2,810	89,500	8,900	1,580	38,000
20...	11,300	10,000	305,000	11,300	3,120	95,200	9,160	2,260	55,900
21...	13,700	12,000	a440,000	11,100	2,530	75,800	9,380	2,430	61,500
22...	29,900	20,200	1,630,000	10,900	2,400	70,600	9,380	2,490	63,100
23...	32,700	29,400	2,600,000	10,500	2,500	70,900	9,300	1,990	50,000
24...	28,400	23,100	1,770,000	10,300	2,200	61,200	8,900	1,830	44,000
25...	19,600	15,800	836,000	9,990	1,960	52,900	8,680	1,760	41,200
26...	15,000	12,700	514,000	9,570	1,860	48,100	8,430	1,600	36,400
27...	12,900	12,500	435,000	8,900	1,750	42,100	8,140	1,640	36,000
28...	11,800	12,100	356,000	8,680	1,700	39,800	8,000	1,840	39,700
29...	11,300	8,000	244,000	8,750	1,670	39,500	7,900	1,920	41,000
30...	10,900	5,120	151,000	8,900	2,020	48,500	7,720	1,860	34,600
31...	10,700	3,470	100,000	--	--	--	7,480	1,440	29,100
Total	377,090	--	13,254,500	427,490	--	9,791,300	260,420	--	1,316,200
Day	January			February			March		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	7,310	1,700	33,600	7,550	1,820	37,100	15,200	6,900	283,000
2...	6,940	1,370	25,700	7,580	1,630	33,400	13,900	5,480	206,000
3...	6,870	1,200	22,300	7,450	1,720	34,600	12,900	4,680	163,000
4...	7,010	1,320	25,000	7,350	1,600	a32,000	11,600	4,200	a130,000
5...	6,670	1,120	20,200	7,350	1,600	a32,000	10,900	3,800	a110,000
6...	5,940	1,000	a16,000	7,450	1,520	30,600	10,300	3,650	102,000
7...	5,610	1,010	15,300	7,860	2,790	59,200	9,870	2,990	79,700
8...	5,530	1,000	a15,000	8,140	2,800	a62,000	9,380	2,940	74,500
9...	5,500	1,130	16,800	8,540	2,850	65,700	9,040	2,850	69,600
10...	5,850	1,310	20,700	8,750	2,710	64,000	9,010	2,680	65,200
11...	5,940	1,320	21,200	8,570	2,590	59,900	9,230	2,460	61,300
12...	6,060	1,430	23,400	8,250	2,210	49,200	9,160	1,910	47,200
13...	6,130	1,260	20,900	8,390	2,120	48,000	9,420	2,080	52,900
14...	6,280	1,380	23,400	9,160	2,810	69,500	9,380	1,920	48,600
15...	6,840	1,520	28,100	9,160	2,460	60,800	9,080	1,570	38,500
16...	7,040	1,860	35,400	8,500	2,020	46,400	8,930	1,590	38,300
17...	6,870	1,440	26,700	8,140	2,240	49,200	8,790	2,410	57,200
18...	6,670	1,490	26,800	8,000	1,990	43,000	8,570	1,650	38,200
19...	6,640	1,430	25,600	8,080	1,880	41,000	9,270	1,880	47,100
20...	6,740	1,260	22,900	8,900	2,230	53,600	10,300	2,500	a70,000
21...	6,770	1,340	24,500	10,000	3,780	102,000	10,900	3,100	91,200
22...	6,940	1,340	25,100	11,100	4,450	133,000	11,800	4,250	135,000
23...	6,640	1,300	a23,000	11,800	5,510	176,000	12,000	4,540	147,000
24...	6,440	1,200	a21,000	12,500	6,000	a200,000	11,800	4,570	146,000
25...	6,190	1,160	19,400	13,700	6,650	253,000	13,900	6,060	227,000
26...	5,940	997	16,000	15,000	8,320	337,000	14,700	7,060	280,000
27...	5,940	1,200	19,200	16,300	8,170	360,000	13,900	7,170	269,000
28...	6,160	1,340	22,300	16,600	7,360	330,000	14,400	7,000	272,000
29...	6,350	1,400	a24,000	--	--	--	14,700	6,400	254,000
30...	6,940	1,440	27,000	--	--	--	14,700	5,230	208,000
31...	7,410	1,740	34,800	--	--	--	13,900	4,260	160,000
Total	200,160	--	721,300	270,170	--	2,862,200	350,930	--	3,971,500

s Computed by subdividing day.

a Computed from estimated-concentration graph.

COLORADO RIVER MAIN STEM--Continued

9-3800. COLORADO RIVER AT LEES FERRY, ARIZ.--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	13,700	3,880	144,000	35,200	5,760	547,000	104,000	6,440	1,810,000
2...	13,900	3,900	146,000	32,300	5,990	522,000	104,000	6,180	1,740,000
3...	13,900	4,030	151,000	29,900	5,400	436,000	97,800	6,470	1,710,000
4...	13,900	4,000	a150,000	28,800	5,000	a390,000	93,800	6,700	a1,700,000
5...	13,900	3,700	a140,000	29,600	4,500	a360,000	93,800	7,000	a1,800,000
6...	13,400	3,240	117,000	31,100	4,210	354,000	91,800	7,270	1,800,000
7...	12,900	3,020	105,000	36,600	6,090	602,000	87,600	4,480	1,060,000
8...	12,700	2,810	96,400	44,500	6,770	813,000	88,600	6,350	1,520,000
9...	12,900	3,000	104,000	53,300	6,940	999,000	94,800	4,530	1,160,000
10...	12,900	2,960	103,000	59,700	7,620	1,230,000	94,800	4,510	1,150,000
11...	13,200	2,610	93,000	64,100	7,580	1,310,000	87,600	4,100	970,000
12...	13,900	2,850	107,000	65,200	7,700	a1,400,000	79,200	4,120	881,000
13...	14,700	3,190	127,000	65,200	7,800	a1,400,000	70,700	4,000	764,000
14...	15,200	3,490	143,000	67,400	7,800	1,420,000	64,100	4,390	760,000
15...	14,700	3,430	136,000	70,700	6,860	1,310,000	58,600	3,790	600,000
16...	15,000	3,480	141,000	69,600	7,250	1,360,000	52,200	3,590	506,000
17...	16,600	8,800	394,000	68,500	6,260	1,160,000	48,600	3,550	466,000
18...	20,900	12,200	688,000	66,300	6,120	1,100,000	45,500	2,870	353,000
19...	28,000	12,000	a910,000	65,200	5,840	1,030,000	43,000	3,090	359,000
20...	35,600	11,400	1,100,000	65,200	5,050	889,000	40,200	2,650	288,000
21...	44,000	10,800	1,280,000	67,400	5,010	912,000	37,900	2,500	a260,000
22...	51,200	11,000	a1,500,000	72,900	9,100	1,790,000	36,100	2,390	233,000
23...	55,400	10,800	1,620,000	77,100	7,330	1,530,000	35,200	2,250	214,000
24...	56,400	10,700	1,630,000	80,200	6,000	1,300,000	34,000	2,140	196,000
25...	57,500	9,300	1,440,000	85,500	6,650	1,540,000	32,700	1,860	164,000
26...	51,200	8,900	1,230,000	89,700	7,220	1,750,000	30,700	2,030	168,000
27...	44,000	8,400	998,000	92,800	8,010	2,010,000	29,600	1,900	152,000
28...	39,200	7,340	777,000	96,800	6,970	1,820,000	27,600	1,630	121,000
29...	36,600	6,580	650,000	97,800	6,880	1,820,000	26,200	1,470	104,000
30...	36,100	6,410	625,000	99,800	4,950	1,330,000	23,600	1,410	89,800
31...	--	--	--	104,000	5,340	1,500,000	--	--	--
Total	793,500	--	16,845,400	2,012,400	--	35,934,000	1,854,300	--	23,098,800
	July			August			September		
1...	21,900	1,270	75,100	4,900	520	6,880	4,550	2,350	28,900
2...	20,300	1,090	59,700	4,850	386	5,050	4,320	1,750	20,400
3...	19,300	1,150	59,900	4,800	277	3,590	4,300	1,600	18,600
4...	18,400	1,050	52,200	4,720	270	a3,400	4,060	1,590	17,400
5...	17,500	1,000	a47,000	4,650	280	a3,500	3,940	598	6,360
6...	16,300	986	43,400	4,580	293	3,620	3,850	442	4,590
7...	15,000	860	34,800	4,500	245	2,980	3,830	700	a7,200
8...	13,900	861	32,300	4,380	194	2,290	3,680	1,200	a12,000
9...	12,700	759	26,000	4,250	260	2,980	3,650	573	5,650
10...	12,000	810	26,200	4,080	470	5,180	3,570	361	3,480
11...	11,300	750	22,900	3,990	220	2,370	3,480	250	2,350
12...	10,500	665	18,900	4,130	134	1,490	3,970	4,130	s56,000
13...	9,910	635	17,000	4,580	182	2,250	5,610	14,600	221,000
14...	9,230	490	12,200	4,520	159	1,940	5,220	8,800	124,000
15...	8,720	489	11,500	4,010	220	2,380	6,220	11,800	198,000
16...	8,320	389	8,740	3,810	480	4,940	6,190	10,400	174,000
17...	7,940	426	9,130	3,830	510	5,270	7,410	12,200	244,000
18...	7,410	405	8,100	3,700	890	a8,900	8,040	15,700	341,000
19...	6,940	364	6,820	3,610	1,460	14,200	7,940	10,000	214,000
20...	6,540	325	5,740	3,500	520	4,910	7,280	6,110	120,000
21...	6,220	264	4,430	3,480	400	3,760	6,840	4,400	81,300
22...	5,910	240	a3,800	4,300	7,940	92,200	6,440	4,260	74,100
23...	5,610	214	3,240	4,720	7,100	90,500	6,030	3,890	63,300
24...	5,730	2,000	30,900	4,700	7,500	95,200	5,790	3,860	60,300
25...	5,760	2,200	34,200	5,330	7,420	107,000	5,700	3,290	50,600
26...	5,820	6,800	107,000	8,360	8,040	181,000	5,760	2,860	44,500
27...	6,350	1,290	22,100	7,310	10,700	211,000	5,390	2,870	41,800
28...	5,820	2,120	33,300	6,130	11,200	185,000	6,280	5,020	85,100
29...	5,390	1,080	15,700	5,170	8,150	114,000	5,880	3,720	59,100
30...	5,060	1,130	15,400	4,780	5,400	69,700	5,820	3,130	49,200
31...	4,880	500	6,590	4,620	3,960	49,400	--	--	--
Total	316,660	--	854,290	144,290	--	1,286,880	161,040	--	2,428,230
Total discharge for year (cfs-days)..... 7,168,450									
Total load for year (tons)..... 112,364,600									

s Computed by subdividing day.

a Computed from estimated-concentration graph.

COLORADO RIVER MAIN STEM--Continued
9-3800. COLORADO ROVER AT LEES FERRY, ARIZ.--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Sampling point	Water tem- per- ature (°F)	Discharge (cfs)	Sediment concent- ration (ppm)	Suspended sediment										Method of analysis
						Percent finer than size indicated, in millimeters										
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500		1.000
Oct. 13, 1957.....	1150		61	11,500	6,450	36	43	49	59	76	89	98	100		VPWC	
Oct. 13.....	1150		51	11,500	6,450	04	07	11	60	80	89	98	100		VPN	
Oct. 23.....	1000		53	32,500	30,900				73		92	97	100		VPWC	
Oct. 26.....	1610		53	12,200	12,900		54		75		88	95	100		VPWC	
Nov. 5.....	0950		50	37,900	22,800		42		59		86	93	100		VPWC	
Nov. 7.....	1400		50	24,100	13,900	38	52	56	65	78	89	96	100		VPWC	
Nov. 7.....	1400		50	24,100	13,900	03	05	13	65	76	89	96	100		VPN	
Dec. 17.....	1130		40	8,570	1,720				18		51	82	99	100	VPWC	
Jan. 25, 1958.....	1220		37	6,160	1,070				18		44	76	100		VPWC	
Feb. 19.....	1130		47	8,000	1,820			23	30		56	80	99	100	VPWC	
Mar. 10.....	1330		44	9,080	2,560	24	30	34	40	46	61	86	99	100	VPWC	
Mar. 10.....	1330		44	9,080	2,560	02	04	07	37	45	61	86	99	100	VPN	
Mar. 27.....	1340		53	13,600	7,150		53		70		88	95	100		VPWC	
Apr. 11.....	1600		55	13,500	2,470		27		38		66	87	99	100	VPWC	
Apr. 26.....	0950		55	52,700	8,360		25		38		76	92	98	100	VPWC	
Apr. 29.....	1040		55	35,700	7,060		20		30		62	89	99	100	VPWC	
May 17.....	1030		61	67,100	5,970	13	16	21	28	35	54	79	95	100	VPWC	
May 17.....	1030		61	67,100	5,970	07	12	17	23	32	54	79	95	100	VPN	
May 30.....	1630		66	101,000	4,890		12		21		45	79	95	100	VPW	
June 13.....	1130		65	71,800	3,860		10		18		49	80	96	100	VPWC	
June 25.....	1048		74	33,100	1,810		12		17		54	88	100		VPWC	
July 27.....	1110		78	6,410	1,160		44		64		94	100			SPWC	
Aug. 19.....	1520		84	3,530	1,820		85		93		100				PWC	
Aug. 22.....	1330		82	4,280	9,070		52		84		100				PWC	
Aug. 27.....	0950		77	7,480	10,700		74		90		98	100			VPWC	
Sept. 16.....	1350		72	6,100	9,020			64	88		96	100			VPWC	

PARIA RIVER BASIN

9-3820, PARIA RIVER AT LEES FERRY, ARIZ.

LOCATION.--At gaging station, 0.5 mile upstream from mouth and 1 mile northwest of Lees Ferry, Coconino County.
DRAINAGE AREA.--1,570 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: October 1947 to February 1950.

Water temperatures: October 1947 to September 1958.

Sediment records: October 1947 to September 1958.

EXTREMES, 1937-58.--Water temperatures: Maximum, 96°F Aug. 11; minimum, 33°F Jan. 5.

Sediment load: Maximum daily, 5,100,000 ppm Sept. 16; minimum daily, 13 ppm July 17-23.

Sediment load: Maximum daily, 5,100,000 tons Sept. 12; minimum daily, 0.1 ton July 17-23.

EXTREMES, 1947-58.--Water temperatures (1956-58): Maximum, 96°F Aug. 11, 1958; minimum, 33°F on several days during winter months.

Sediment concentrations: Maximum daily, 411,000 ppm Aug. 27, 1942; minimum daily, 1 ppm June 1-10, 1950.

Sediment loads: Maximum daily, 5,100,000 tons Sept. 12, 1958; minimum daily, less than 0.05 ton on many days.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1563.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																												Average				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		29	30	31	
October....	79	74	66	64	71	66	77	70	73	67	64	57	57	63	66	62	55	62	58	55	--	52	66	60	58	58	55	58	65	61	54	63	
November....	52	52	49	48	--	--	--	52	52	47	53	49	--	--	--	--	48	47	50	48	48	37	42	35	43	37	41	34	36	35	--	--	
December....	35	39	36	34	43	46	40	45	43	45	38	43	37	45	39	--	45	45	45	43	37	36	42	43	34	39	41	44	37	43	42	41	
January....	36	35	39	35	33	--	38	--	--	34	37	35	39	41	34	41	35	34	37	35	40	36	--	--	--	43	40	40	50	--	49	42	38
February....	45	34	44	40	45	50	44	42	49	--	42	41	52	41	41	52	45	47	54	58	56	50	46	--	52	47	40	38	--	--	46	46	
March.....	45	47	--	--	--	45	45	45	47	41	47	46	49	48	48	50	52	56	49	43	58	50	55	57	53	53	48	51	52	56	50	50	
April.....	49	--	53	42	51	--	53	55	53	--	55	51	55	65	49	66	64	50	--	66	53	54	54	51	47	65	54	62	63	68	--	56	
May.....	72	66	63	--	--	75	80	76	79	75	63	60	62	61	73	82	63	78	68	79	78	83	62	73	75	85	78	--	81	67	76	73	
June.....	75	78	--	--	--	78	80	71	72	75	82	72	75	80	82	83	81	86	81	66	--	83	91	75	70	93	80	82	77	86	--	79	
July.....	83	86	82	71	--	91	89	83	84	78	95	80	77	82	79	76	79	91	81	72	66	73	70	76	72	85	90	79	80	79	88	81	
August....	88	76	78	--	--	--	89	94	77	83	96	87	78	84	84	80	73	--	82	78	79	76	77	77	86	86	83	73	76	77	85	82	
September..	82	71	71	75	74	77	69	--	76	81	80	73	70	60	70	69	64	72	80	78	--	78	78	68	62	62	69	--	77	76	--	73	

PARIA RIVER BASIN--Continued

9-3820. PARIA RIVER AT LEES FERRY, ARIZ.--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	5.2			781	109,000	247,000	2.8	180	1.4
2...	5.2			127	58,500	20,800	2.8	230	1.7
3...	5.2	32	0.5	1,380	106,000	509,000	2.5	120	.8
4...	5.2			692	75,900	182,000	4.6	80	1.0
5...	9.4			90	23,000	5,600	5.8	50	.8
6...	6.4			81	18,000	3,900	13	390	14
7...	4.6			57	11,500	1,770	14	630	24
8...	4.6	20	.3	31	6,500	544	16	600	26
9...	4.6			43	6,000	697	28	910	69
10...	4.6			31	2,800	234	30	1,220	99
11...	19	10,900	s3,540	26	7,500	526	19	620	32
12...	1,160	166,000	578,000	25	8,500	574	17	320	15
13...	150	101,000	43,900	30	7,000	a570	14	280	11
14...	27	52,000	3,930	25	5,500	a370	17	180	8.3
15...	46	44,500	s8,600	22	4,000	a240	20	220	12
16...	316	93,500	s126,000	26	2,500	a180	39	640	a67
17...	111	56,000	17,400	30	730	59	45	1,160	141
18...	48	45,000	6,050	24	560	36	78	6,900	s1,650
19...	30	40,500	3,400	16	400	17	42	9,300	1,050
20...	98	51,900	s17,800	20	340	18	20	5,550	300
21...	365	110,000	s120,000	19	470	24	16	3,850	166
22...	106	62,000	18,400	16	460	20	19	1,730	89
23...	68	42,000	8,000	8.8	420	10	18	810	39
24...	46	33,000	4,250	9.4	320	8.1	11	380	11
25...	26	21,000	1,470	25	980	66	12	290	9.4
26...	17	14,000	643	20	860	46	13	330	12
27...	17	4,000	184	18	900	44	13	320	11
28...	15	2,000	81	14	580	22	11	370	11
29...	21	1,500	85	8.8	350	8.3	13	370	13
30...	52	14,600	s2,150	7.6	230	4.7	14	290	11
31...	47	20,000	s6,160	--	--	--	16	310	13
Total	2,840.0	--	970,047.0	3,704.6	--	974,388.1	586.5	--	3,909.4
	January			February			March		
1...	8.8	330	7.8	19	370	19	15	7,900	320
2...	7.6	370	7.6	14	540	20	16	4,000	173
3...	8.8	250	5.9	16	300	13	17	2,400	110
4...	9.4	140	3.6	25	210	14	16	1,100	a48
5...	10	85	2.3	64	5,780	s1,550	13	900	a32
6...	14	75	a2.8	57	11,800	1,820	12	660	21
7...	14	240	9.1	37	11,300	1,130	17	610	28
8...	14	160	a6.0	26	3,000	211	20	730	39
9...	16	130	a5.6	30	1,100	89	17	620	28
10...	14	100	3.8	67	11,100	s2,700	15	530	21
11...	16	180	7.8	42	14,300	1,620	17	550	25
12...	16	230	9.9	32	12,300	1,060	20	1,560	84
13...	15	160	6.5	24	6,100	395	25	1,800	122
14...	15	130	5.3	28	3,400	257	27	1,420	104
15...	8.2	75	1.7	24	2,000	130	21	1,600	91
16...	7.6	105	2.2	21	5,400	306	21	1,040	59
17...	7.6	95	1.9	60	5,510	s1,730	197	38,900	s30,200
18...	9.4	110	2.8	60	30,700	4,970	142	37,600	s16,600
19...	12	100	3.2	67	24,900	s5,170	109	35,700	10,900
20...	13	130	4.6	74	31,200	6,230	124	36,800	s14,400
21...	6.4	140	2.4	82	33,600	7,710	116	49,600	16,100
22...	4.6	135	1.7	74	34,300	7,110	321	60,700	s60,000
23...	5.8	90	a1.4	65	23,200	4,070	253	33,200	s26,900
24...	3.7	70	a.7	69	21,000	a3,900	150	28,900	11,700
25...	8.8	50	1.2	58	20,600	3,230	134	36,300	13,600
26...	20	110	5.9	210	63,000	s45,800	94	42,300	11,100
27...	26	240	17	44	23,800	s3,400	60	25,300	4,100
28...	25	385	26	21	14,300	811	40	14,900	1,610
29...	22	600	a36	--	--	--	45	10,700	1,300
30...	22	1,030	61	--	--	--	30	7,200	583
31...	26	450	32	--	--	--	27	4,000	292
Total	406.7	--	285.7	1,410.0	--	105,465.0	2,131.0	--	220,690

s Computed by subdividing day.

a Computed from estimated-concentration graph.

PARIA RIVER BASIN--Continued

9-3820. PARIA RIVER AT LEES FERRY, ARIZ.--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	33	6,600	588	28	2,800	212	7.6	213	4.4
2...	45	7,700	936	35	3,800	359	14	2,100	79
3...	66	9,800	1,750	27	9,100	663	18	10,400	505
4...	98	13,200	3,490	20	7,200	a390	9.4	7,900	a200
5...	74	8,400	1,680	16	5,100	a220	5.8	3,600	a56
6...	40	13,600	1,470	11	2,800	83	11	1,200	36
7...	37	10,600	1,060	9.4	2,500	63	5.2	1,600	22
8...	37	16,000	1,600	7.0	2,900	55	4.0	1,000	11
9...	26	15,700	1,100	4.6	2,400	30	3.7	302	3.0
10...	25	16,400	1,110	4.0	2,000	22	3.4		
11...	27	19,000	1,390	4.6	1,700	21	3.1		
12...	38	26,300	2,700	112	36,500	s14,500	3.1		
13...	27	24,600	1,790	80	31,800	6,870	2.8		
14...	22	15,000	891	46	10,400	1,290	3.1		
15...	37	35,200	3,650	30	5,200	421	3.4	39	.3
16...	57	25,800	3,970	19	4,800	246	3.1		
17...	63	20,600	3,500	13	2,500	88	3.4		
18...	54	21,000	3,060	13	2,100	74	3.4		
19...	63	24,000	a4,100	11	1,400	42	3.1		
20...	60	18,400	2,980	8.2	1,300	29	2.8		
21...	51	14,800	2,040	5.2	700	9.8	2.8		
22...	41	13,800	1,530	5.2	450	6.3	2.8		
23...	25	14,600	986	4.6	207	2.6	3.1		
24...	17	14,900	684	4.0	100	1.1	2.5		
25...	13	13,000	456	4.0	69	.7	2.5		
26...	11	6,300	187	4.0	44	.5	3.1	31	.2
27...	10	4,200	113	3.7	57	.6	3.4		
28...	10	3,000	81	3.7	53	.5	2.5		
29...	12	2,100	68	3.7			2.0		
30...	18	2,800	136	5.2	43	.6	2.0		
31...	--	--	--	5.8			--	--	--
Total	1,137.0	--	49,096.0	547.9	--	25,700.7	140.1	--	921.7

Day	July			August			September		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	2.5			3.7	2,000	20	5.8	25,000	392
2...	3.4			4.0	1,950	21	2.8	14,000	106
3...	3.4	34	0.3	4.0	1,100	12	117	45,800	s28,000
4...	3.4			4.0	1,100	a12	87	42,000	10,200
5...	3.4			4.6	1,100	a14	28	25,000	1,890
6...	3.4			5.2	3,550	50	132	286,000	s184,000
7...	3.4			2.8	1,600	12	100	232,000	s77,900
8...	3.4			7.6	90,000	1,980	50	68,000	s9,500
9...	3.1			4.6	82,500	1,090	27	15,000	1,090
10...	3.1			3.1	43,500	378	27	8,500	620
11...	3.1	29	.2	2.5	18,000	122	22	5,500	327
12...	3.1			2.8	12,000	91	2,160	104,000	s510,000
13...	2.8			3.4	6,900	63	966	286,000	s1,210,000
14...	2.8			3.7	5,800	58	85	116,000	28,600
15...	2.8			4.0	9,100	98	28	72,500	5,680
16...	2.8			3.4	41,000	390	21	41,000	2,410
17...	3.1			2.2	16,000	95	18	13,000	637
18...	3.4			14	38,000	sa2,900	18	2,000	92
19...	3.4			11	57,200	1,760	18	419	20
20...	3.7	14		4.0	51,500	577	15	331	13
21...	3.7		.1	2.8	48,500	380	15	266	11
22...	3.4			355	270,000	s415,000	13	185	6.5
23...	3.7			853	211,000	s979,000	11	174	5.2
24...	61	30,800	s16,800	76	68,000	14,500	635	96,000	s590,000
25...	170	91,500	s47,400	33	53,000	4,900	163	98,400	s59,500
26...	30	39,000	3,280	17	36,000	1,710	18	52,300	2,640
27...	9.4	24,000	609	9.4	41,000	1,080	9.4	34,000	895
28...	5.8	9,800	153	45	44,600	s9,010	39	24,500	2,580
29...	3.7	3,550	35	73	146,000	s37,000	38	16,000	1,640
30...	2.8	2,500	19	35	157,000	16,500	32	15,000	a1,300
31...	3.7	2,000	20	16	99,000	4,590	--	--	--
Total	360.7	--	68,320.4	1,609.8	--	1,493,413.0	4,901.0	--	7,320,045.7

Total discharge for year (cfs-days)..... 19,775.3
 Total load for year (tons)..... 11,232,291.7

s Computed by subdividing day.

b Computed from partly estimated-concentration graph.

a Computed from estimated-concentration graph.

PARIA RIVER BASIN--Continued

9-3820. PARIA RIVER AT LEES FERRY, ARIZ.--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Samp- ling per- ature point (°F)	Water temp- er- ature (°F)	Discharge (cfs)	Sediment con- cen- tration (ppm)	Suspended sediment										Method of analysis
						Percent finer than size indicated, in millimeters										
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500		1.000
Oct. 12, 1957.....	0930	55	1,120	120,000				34		48		75	96	100		SPWC
Nov. 3,.....	1710	49	2,290	143,000				25		35		62	87	100		SPWC
June 26,.....	1565	93	3	32				--		--		58	82	100		S

Particle-size analyses of bed material, water year October 1957 to September 1958

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Samp- ling point	Water temp- per- ature (°F)	Discharge (cfs)	Sediment concent- ration (ppm)	Bed material										Method of analysis
						Percent finer than size indicated, in millimeters										
						0.062	0.125	0.250	0.500	1.00	2.00	4.00	8.00	16.0	32.0	
June 26, 1958.....	1520	50	93	3	50	25	54	88	97	98	99	99	99	99	100	S

LITTLE COLORADO RIVER BASIN

9-4012. LITTLE COLORADO RIVER AT CAMERON, ARIZ.

LOCATION --At bridge on U.S. Highway 89, at Cameron, Coconino County, 12 miles upstream from gaging station, which is 3 miles downstream from Coconino damsite, 9.5 miles downstream from Moenkopi Wash, 9.5 miles northwest of Cameron, and 45.5 miles upstream from mouth.

DRAINAGE AREA --26,500 square miles, approximately upstream from gaging station.

RECORDS AVAILABLE --Chemical analyses, October 1950 to September 1958 (discontinued).

Water temperatures: October 1951 to September 1958.

Sediment records: October 1947 to September 1956 (monthly), October 1956 to September 1958.

EXTREMES, 1957-58. --Sediment concentrations: Maximum daily, 162,000 ppm Aug. 22; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 992,000 tons Aug. 24; minimum daily, 0 tons on many days.

EXTREMES, 1947-58. --Sediment concentrations: Maximum daily, 162,000 ppm Aug. 22, 1958; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 2,480,000 tons Sept. 21, 1952; minimum daily, 0 tons on many days.

REMARKS. --Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Sediment loads are computed at station with allowances made for inflow between sampling point and gaging station. Records of discharge for station near Cameron (below Moenkopi Wash.) for water year October 1957 to September 1958 given in WSP 1563. Appreciable inflow between sampling site and gaging station during periods of storm runoff. Most of this inflow is from Moenkopi Wash, but other arrows may at times become sizeable contributors. Flow affected by ice Nov. 25, Jan. 1-3, 7-13.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180° C)		Hardness as CaCO ₃	Sodium adsorption ratio	Specific conductance (microhmhos at 25° C)
														Parts per million	Tons per acre-foot	Calcium Magnesium	Non-carbonate	
Oct. 8-12, 1957..	20	0.11	42	8.7	5.2	181	3.4	302	0	116	0.2	1.3	0.26	642	0.87	126	0	1,060
Oct. 13.....	---	---	---	---	5.5	120	---	244	8	---	---	---	---	382	.52	24	0	586
Oct. 14-20.....	---	---	48	5.7	160	---	---	330	0	---	---	---	---	638	.87	144	0	1,050
Oct. 21-22.....	---	---	32	2.8	164	---	---	306	0	---	---	---	---	560	.76	92	0	950
Oct. 23-24.....	---	---	161	28	120	---	---	346	0	---	---	---	---	970	1.32	516	233	1,451
Oct. 25-31.....	---	---	75	9.0	148	---	---	252	0	---	---	---	---	702	.95	224	18	1,150
Nov. 1.....	---	---	21	1.9	166	---	---	310	0	---	---	---	---	544	.74	60	0	884
Nov. 2.....	---	---	102	15	170	---	---	394	0	---	---	---	---	878	1.19	316	0	1,460
Nov. 3-6.....	---	---	52	6.2	150	---	---	285	0	---	---	---	---	626	.85	155	0	1,020
Nov. 7.....	---	---	64	8.5	240	---	---	288	0	---	---	---	---	900	1.22	194	0	1,500
Nov. 8-19.....	---	---	44	3.3	90	---	---	202	0	---	---	---	---	396	.54	124	0	663
Nov. 20-23.....	---	---	57	7.1	122	---	---	166	0	---	---	---	---	548	.75	171	35	915
Nov. 24-30.....	---	---	61	7.1	200	---	---	148	0	---	---	---	---	775	1.05	181	60	1,290
Dec. 1-21.....	---	---	52	6.2	178	---	---	146	0	---	---	---	---	680	.92	155	36	1,130
Dec. 26-31.....	---	---	39	3.3	116	---	---	114	0	---	---	---	---	447	.61	111	18	746
Jan. 1-9, 1958..	10	.00	47	5.2	140	4.6	118	0	98	181	1.3	1.0	.06	564	.77	139	42	932
Jan. 10-17.....	---	---	57	8.5	190	---	---	130	0	---	---	---	---	740	1.01	177	70	1,230
Jan. 18-19.....	---	---	44	6.2	136	---	---	124	0	---	---	---	---	538	.73	136	34	898
Jan. 20-23.....	---	---	53	10	186	---	---	160	0	---	---	---	---	726	.99	173	42	1,200
Feb. 5-10.....	---	---	8.7	.0	138	---	---	218	6	---	---	---	---	404	.55	22	0	663

LITTLE COLORADO RIVER--Continued

9-4012. LITTLE COLORADO RIVER AT CAMERON, ARIZ.--Continued

Temperature (°F) of water, water year October 1937 to September 1938

/Once-daily measurement, generally between 6 a.m. and 6 p.m./

Month	Day																															Aver- age	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October....	--	--	--	--	--	--	--	63	64	69	63	56	58	54	58	58	57	57	60	54	56	53	52	55	56	54	59	58	59	57	56	58	
November....	57	52	55	54	49	47	45	46	45	48	47	47	47	48	48	44	41	45	44	39	35	37	40	41	41	40	37	39	40	--	45	--	
December....	41	42	42	43	41	43	38	40	42	40	38	39	39	40	42	45	47	45	43	43	42	--	--	--	--	40	43	41	43	42	40	42	
January....	39	42	40	42	40	42	42	40	39	40	41	39	39	40	42	40	40	39	38	35	33	35	--	--	--	--	--	--	--	--	--	--	
February....	--	--	--	--	--	47	50	42	45	50	55	--	--	--	49	50	47	48	49	50	51	54	56	56	51	46	39	39	--	--	--		
March....	47	40	42	52	54	47	45	43	58	50	49	50	52	52	52	55	56	60	59	60	59	58	55	56	56	57	52	50	50	55	53	52	
April....	52	50	50	47	50	55	51	53	56	62	56	57	63	65	67	65	64	67	68	50	68	62	59	59	62	63	61	61	62	63	--	59	
May....	62	63	69	52	79	76	54	51	52	54	62	74	52	52	53	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
June....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	80	84	--	--	--	--	--	--	--
July....	--	--	--	--	--	--	--	61	82	84	80	67	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
August....	--	--	--	--	--	--	--	--	--	--	--	81	84	81	81	82	70	74	78	74	74	76	66	77	79	80	72	64	65	65	72	--	--
September..	76	63	64	63	63	63	67	70	68	78	76	75	70	73	71	--	70	70	75	--	70	74	66	61	61	64	72	70	62	61	--	68	--

LITTLE COLORADO RIVER BASIN--Continued

9-4012. LITTLE COLORADO RIVER AT CAMERON, ARIZ.--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1...	0	--	0	495	60,800	s103,000	2.5	117	1
2...	0	--	0	1,380	98,900	s419,000	1.4		
3...	0	--	0	735	53,000	109,000	.7		
4...	0	--	0	346	42,500	41,200	.7		
5...	0	--	0	303	39,500	33,500	1.5		
6...	0	--	0	156	34,000	14,900	2.0	27	(t)
7...	0	--	0	734	46,900	s99,300	1.4		
8...	136	46,000	s34,000	465	19,000	24,900	2.2		
9...	125	63,000	22,000	307	14,000	11,600	2.5		
10...	61	56,000	9,560	228	8,410	5,180	1.4		
11...	40	46,000	5,150	182	8,360	4,110	1.7		
12...	68	36,100	s7,850	132	6,600	2,350	.7		
13...	252	48,000	s34,500	111	5,520	1,650	.5	20	(t)
14...	2,860	94,000	s981,000	89	4,260	1,020	.6		
15...	1,200	66,600	s234,000	84	3,110	705	1.2		
16...	408	54,000	61,700	95	4,020	1,030	2.5		
17...	207	54,000	31,300	76	3,230	663	3.0		
18...	163	52,500	24,000	58	2,450	384	2.5		
19...	401	73,600	s120,000	50	1,720	232	1.7	15	(t)
20...	90	49,000	12,300	45	1,250	152	1.5		
21...	112	47,000	14,700	42	1,270	144	1.1		
22...	89	38,000	9,470	26	948	67	1.0	--	(et)
23...	80	59,000	13,200	12	764	25	.28	--	e70
24...	54	62,500	9,450	21	287	16	.128	--	e1,500
25...	27	42,000	3,180	18	239	12	102	--	e850
26...	19	28,000	1,440	16	196	8	85		
27...	14	20,000	756	15	101	4	71		
28...	8.5	12,000	275	13	117	4	61	260	44
29...	7.3	6,000	118	6.9	56	1	50		
30...	11	6,000	178	2.2	51	(t)	43		
31...	34	10,600	s2,130	--	--	--	35	566	53
Total	6,466.8	--	1,632,257	6,263.1	--	874,157	637.3	--	2,696
Day	January			February			March		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1...	34	556	51	1.7			598	8,500	a14,000
2...	26	548	38	1.9			574	8,250	12,800
3...	19	690	35	2.0	--	(et)	387	7,700	8,050
4...	14	670	25	4.0			259	7,300	a5,100
5...	8.5	215	5	50	2,460	s487	214	6,700	3,870
6...	5.3	114	2	25	1,310	88	197	6,200	3,300
7...	3.9	102	1	15	--	e50	115	9,500	2,950
8...	2.1	115	1	8.1	--	e25	97	4,750	1,240
9...	1.9	110	1	5.3	867	12	108	6,900	2,010
10...	1.9	6	(t)	4.2	848	10	87	7,300	a1,700
11...	2.0			4.2			84	3,600	816
12...	2.1			3.5			68	2,100	386
13...	2.2			3.0	--	e3	61	2,200	362
14...	1.3			2.8			54	2,200	321
15...	.8	11	(t)	1.6	114	(t)	43	2,000	232
16...	.8			16	139	6	33	2,250	200
17...	1.6			21	166	9	32	1,750	151
18...	1.5			24	--	e12	25	1,000	68
19...	2.0			29	213	17	79	13,100	s3,610
20...	.9			30	224	18	82	16,000	3,540
21...	.6			30	219	18	61	16,500	2,720
22...	.5			29	243	19	362	25,700	s42,900
23...	.2			27	238	17	459	48,700	s63,100
24...	.5			66	2,690	s2,840	1,930	37,500	s257,000
25...	1.9	--	(et)	610	14,800	24,400	3,160	33,800	s310,000
26...	3.2			582	9,700	15,200	1,960	19,500	103,000
27...	3.8			480	9,250	12,000	1,310	14,000	49,500
28...	3.5			396	9,200	9,840	891	11,700	28,100
29...	3.8			--	--	--	800	12,300	26,600
30...	3.0			--	--	--	800	10,500	22,700
31...	2.2	27	(t)	--	--	--	828	9,000	a20,000
Total	155.0	--	161	2,472.3	--	65,081	15,758.0	--	990,326

e Estimated.

s Computed by subdividing day.

t Less than 0.50 ton.

a Computed from estimated-concentration graph.

LITTLE COLORADO RIVER BASIN--Continued

9-4012. LITTLE COLORADO RIVER AT CAMERON, ARIZ.--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean dis-charge (cfs)	Mean concentration (ppm)	Tons per day	Mean dis-charge (cfs)	Mean concentration (ppm)	Tons per day	Mean dis-charge (cfs)	Mean concentration (ppm)	Tons per day
1...	582	8,000	12,600	185	6,500	3,250	0	--	0
2...	455	7,500	9,210	140	6,000	2,270	0	--	0
3...	485	7,500	9,820	106	6,500	1,860	0	--	0
4...	505	7,000	9,540	91	4,800	1,180	0	--	0
5...	460	7,300	9,070	80	3,200	691	0	--	0
6...	485	7,700	10,100	60	2,500	405	0	--	0
7...	552	8,500	12,700	40	3,600	389	0	--	0
8...	554	8,000	12,000	27	7,800	569	0	--	0
9...	465	6,500	8,160	18	6,000	292	0	--	0
10...	560	7,500	11,300	13	1,600	56	0	--	0
11...	588	6,500	10,300	13	1,500	a53	0	--	0
12...	405	6,200	6,780	24	41,000	2,760	0	--	0
13...	328	6,000	5,310	12	7,500	243	0	--	0
14...	566	6,800	10,400	5.3	1,500	21	0	--	0
15...	842	7,500	17,100	1.4	700	3	0	--	0
16...	780	8,000	16,800	.3	500	(at)	0	--	0
17...	771	8,000	16,700	0	--	0	0	--	0
18...	1,220	15,000	49,400	0	--	0	1	--	0
19...	1,820	20,000	98,300	0	--	0	0	--	0
20...	1,850	18,000	89,900	0	--	0	0	--	0
21...	1,720	19,000	88,200	0	--	0	0	--	0
22...	1,480	17,500	69,900	0	--	0	0	--	0
23...	1,120	14,500	43,800	0	--	0	0	--	0
24...	1,010	14,000	38,200	0	--	0	19	29,900	s5,580
25...	870	16,700	39,100	0	--	0	37	66,000	6,840
26...	675	16,500	30,100	0	--	0	20	57,500	3,220
27...	475	10,000	12,800	0	--	0	6.5	57,500	1,050
28...	346	15,000	14,000	0	--	0	.7	--	e20
29...	267	7,500	5,410	0	--	0	0	--	0
30...	218	5,300	3,120	0	--	0	0	--	0
31...	--	--	--	0	--	0	--	--	--
Total	22,454	--	770,220	816.0	--	14,042	83.2	--	16,710
Day	July			August			September		
	Mean dis-charge (cfs)	Mean concentration (ppm)	Tons per day	Mean dis-charge (cfs)	Mean concentration (ppm)	Tons per day	Mean dis-charge (cfs)	Mean concentration (ppm)	Tons per day
1...	0	--	0	1.4	62,000	243	20	62,000	3,470
2...	0	--	0	.3	49,000	41	250	63,600	s69,000
3...	0	--	0	.2	38,000	a21	870	64,800	s204,000
4...	0	--	0	.2	29,000	a16	72	38,000	7,660
5...	0	--	0	.1	20,000	a5	26	23,000	1,610
6...	0	--	0	.1	7,500	a2	9.7	5,000	131
7...	12	90,400	s9,600	0	--	0	16	8,440	s415
8...	20	155,000	9,300	722	86,800	s193,000	144	29,100	s25,800
9...	10	110,000	3,190	721	85,200	s215,000	310	55,200	s48,700
10...	5.7	102,000	1,690	247	76,000	s52,900	628	73,700	s170,000
11...	16	114,000	s5,610	119	60,200	s20,100	781	79,100	s194,000
12...	15	80,000	3,360	69	56,000	10,800	292	42,500	34,700
13...	12	69,000	2,320	29	55,000	4,470	218	43,200	s27,200
14...	3.0	29,000	a230	24	52,000	3,490	122	31,500	10,400
15...	.1	1,000	(t)	67	48,700	s9,470	3,060	100,000	s888,000
16...	0	--	0	172	44,800	s31,200	1,250	73,500	257,000
17...	0	--	0	234	79,900	s67,500	571	55,500	88,700
18...	0	--	0	513	73,800	s106,000	299	43,000	36,000
19...	0	--	0	212	75,500	s45,800	185	37,000	19,200
20...	0	--	0	444	71,300	s112,000	158	29,700	12,700
21...	0	--	0	457	86,500	s113,000	89	23,300	5,600
22...	0	--	0	979	162,000	s657,000	66	21,000	3,740
23...	0	--	0	1,630	136,000	s664,000	48	19,700	2,550
24...	0	--	0	3,360	98,600	s992,000	32	19,000	1,640
25...	47	30,700	s6,400	973	85,000	s243,000	19	15,000	770
26...	18	32,000	1,610	298	67,500	56,300	11	12,500	371
27...	6.9	23,000	428	140	61,000	23,900	295	15,700	s59,200
28...	.8	10,000	a22	72	61,000	12,300	2,010	55,800	s344,000
29...	30	54,500	s6,510	74	63,000	13,100	2,920	52,500	s435,000
30...	21	65,000	3,820	50	62,000	5,600	2,580	41,500	s303,000
31...	6.5	66,000	1,200	32	62,500	8,680	--	--	--
Total	224.0	--	55,290	11,640.3	--	3,660,938	17,351.7	--	3,254,557

Total discharge for year (cfs-days)..... 84,391.7
 Total load for year (tons)..... 11,538,274

e Estimated.

t Less than 0.50 ton.

s Computed by subdividing day.

a Computed from estimated-concentration graph.

9-4012. LITTLE COLORADO RIVER BASIN--Continued
 9-4012. LITTLE COLORADO RIVER AT CAMERON, ARIZ.--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Sam- pling per- ature point (°F)	Water tem- per- ature (°F)	Discharge (cfs)	Sediment con- cen- tration (ppm)	Suspended sediment											Method of analysis
						Percent finer than size indicated, in millimeters											
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Oct. 16, 1957.....	0900		55	460	54,300		--	85	--	99	--	99	100	--	--	VPWC	
Oct. 19.....	1140		49	194	41,800	66	--	79	88	93	99	99	100	--	--	VPWC	
Oct. 19.....	1140		49	194	41,800	3	--	14	91	94	99	99	100	--	--	VPN	
Nov. 7.....	1515		47	828	49,400	--	--	67	--	80	--	89	95	100	--	VPWC	
Mar. 24, 1958.....	0950		46	669	20,100	--	--	45	--	58	--	79	92	99	100	VPWC	
Mar. 24.....	1415		53	2,890	63,000	--	--	22	--	36	--	64	85	98	100	VPWC	
Mar. 29.....	1200		45	787	12,200	42	--	50	54	62	71	82	94	99	100	VPWC	
Mar. 29.....	1200		45	787	12,200	9	--	38	52	63	72	82	94	99	100	VPN	
Aug. 20.....	1525		80	560	79,100	64	--	80	87	91	92	93	98	100	--	VPWC	
Aug. 20.....	1525		80	560	79,100	2	--	06	42	91	91	93	98	100	--	VPN	
Aug. 20.....	2220		77	1,020	86,100	--	--	75	--	84	--	90	95	100	--	VPWC	
Aug. 22.....	1730		75	1,740	271,000	25	--	32	36	43	54	67	83	96	100	SPWC	
Aug. 22.....	1730		75	1,740	271,000	0	--	3	10	42	53	67	83	96	100	SPN	
Aug. 23.....	1630		79	1,440	131,000	--	--	62	--	75	--	86	93	100	--	SPWC	
Aug. 29.....	1015		69	93	56,400	--	--	96	--	100	--	--	--	--	--	PWC	
Sept. 3.....	0300		66	2,350	94,500	--	--	50	--	70	--	85	94	99	100	VPWC	
Sept. 15.....	1145		64	3,820	92,200	--	--	46	--	70	--	83	92	98	100	VPWC	

COLORADO RIVER MAIN STEM
9-4025. COLORADO RIVER NEAR GRAND CANYON, ARIZ.

LOCATION--At gaging station at Kaibab Bridge, 0.2 mile upstream from Bright Angel Creek, 11 miles by trail northeast of Grand Canyon, Coconino County, 26 miles downstream from Little Colorado River, and 267 miles upstream from Hoover Dam.

DRAINAGE AREA--137,800 square miles, approximately.

RECORDS AVAILABLE--Chemical analyses: August 1925 to November 1942, September 1943 to September 1958.

Water temperatures: October 1936 to October 1942, September 1943 to September 1958.

Sediment records: October 1925 to November 1942, September 1943 to September 1958.

EXTREMES, 1957-58.--Dissolved solids: Maximum, 1,520 ppm Nov. 6-7; minimum, 280 ppm June 1-20.

Hardness: Maximum, 744 ppm Nov. 6-7; minimum, 187 ppm June 1-20.

Specific conductance: Maximum daily, 2,110 micromhos Nov. 6; minimum, 381 micromhos June 14.

Water temperatures: Maximum, 82°F Aug. 16, 17; minimum, 36°F on several days during January.

Sediment concentrations: Maximum daily, 35,200 ppm Nov. 6; minimum daily, 117 ppm July 17.

Sediment loads: Maximum daily, 2,940,000 tons Nov. 6; minimum daily, 2,720 tons July 17.

EXTREMES, 1925-42, 43-58.--Dissolved solids: Maximum, 1,890 ppm Sept. 21-30, 1934; minimum, 225 ppm June 11-20, 1942.

Hardness: Maximum, 792 ppm Sept. 1-10, 1940; minimum, 127 ppm June 11-17, 1926.

Specific conductance (1937-42, 1943-58): Maximum daily, 2,900 micromhos Sept. 6, 1940; minimum daily, 341 micromhos June 15, 1942.

Water temperatures (1936-42, 1943-58): Maximum, 86°F July 17, 1944; minimum, freezing point on several days during winter months.

Sediment concentrations: Maximum daily, 33,000 ppm Sept. 13, 1927; minimum daily, 23 ppm Oct. 11, 1936.

Sediment loads: Maximum daily, 2,600,000 tons Sept. 13, 1927; minimum daily, 196 tons Oct. 11, 1936.

REMARKS--Rapidly changing conductance of early samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1957 to September 1958 given in WSP 1563.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonates (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Soil adsorption ratio	Specific conductance (micro-mhos at 25°C)
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate		
Oct. 1-13, 1957..	7,242	13	--	162	15	144	6.7	210		399	138	0.7	6.2	0.17	988	1.34	19,320	466	294	2.9	1,490
Oct. 14.....	12,600	12	--	141	44	146	8.4	248		443	140	--	1.1	.25	1,060	1.44	36,060	533	330	2.7	1,660
Oct. 15.....	15,650	12	0.01	113	36	130	6.5	210		379	108	.3	5.6	.16	894	1.22	36,330	430	298	2.7	1,320
Oct. 17-19.....	14,170	13	.72	159	45	167	8.6	206		615	102	.7	5.2	.23	1,720	1.66	46,860	572	312	3.1	1,850
Oct. 20-22.....	33,400	14	.01	131	39	198	8.1	198		428	180	.7	5.6	.21	1,810	1.94	93,210	474	311	2.4	1,900
Oct. 24-25.....	27,850	16	.06	191	45	150	5.1	200		690	74	.4	6.8	.23	1,280	1.74	95,560	662	468	2.5	1,890
Oct. 26-31.....	13,150	14	.01	165	39	121	6.6	210		498	100	.5	5.6	.17	1,050	1.43	37,280	572	400	2.2	1,480
Nov. 1-5.....	18,780	20	.03	143	30	130	7.0	254		425	90	.4	3.0	.11	974	1.32	49,390	480	272	2.6	1,440
Nov. 6-7.....	29,200	26	.03	242	34	169	9.1	116		831	78	.4	1.1	.12	1,520	2.07	119,800	744	649	2.7	1,920
Nov. 8-30.....	12,930	25	.02	125	36	137	5.7	213		433	99	.6	6.0	.14	1,212	1.37	33,930	460	286	2.8	1,430
Dec. 1-31.....	8,732	21	.01	111	39	145	5.8	227		412	90	.3	6.0	.08	942	1.28	22,210	438	252	3.0	1,410
Jan. 1-31, 1958..	6,745	22	.01	107	39	160	5.9	220		362	154	.5	7.8	.11	966	1.31	17,590	428	247	3.4	1,490
Feb. 1-28.....	9,648	20	.01	110	33	143	6.0	235		351	127	.3	5.0	.16	911	1.24	23,730	410	218	3.1	1,400
Mar. 1-31.....	12,180	17	.06	102	31	132	5.8	236		322	103	.4	3.3	.10	833	1.13	27,390	382	188	2.9	1,270
Apr. 1-19.....	15,010	16	.02	98	33	110	6.1	240		289	86	.4	3.4	.08	760	1.03	30,800	380	184	2.5	1,170

COLORADO RIVER MAIN STEM--Continued

9-4025. COLORADO RIVER NEAR GRAND CANYON, ARIZ.--Continued

Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-boronate			
Apr. 20-22, 1958.	42,070	18	0.07	92	23	73	6.1	244		202	54	0.4	2.9	592	0.81	67,240	324	124	1.8	926	7.5
Apr. 23-30.....	48,140	17	.07	75	15	44	4.6	204		130	31	.4	2.1	419	.57	54,460	248	82	1.2	668	7.7
May 1-11.....	39,090	17	.02	75	14	42	4.6	214		118	31	.4	2.4	409	.56	43,170	244	69	1.2	644	7.7
May 12-31.....	76,820	17	.04	60	12	27	3.7	190		79	19	.3	1.1	312	.42	64,710	199	44	.8	498	7.7
June 1-20.....	78,880	21	.05	52	14	24	2.7	160		77	18	.8	1.7	290	.39	61,760	187	56	.8	443	7.8
June 21-30.....	31,980	16	.11	61	14	40	3.4	162		117	33	.8	1.5	367	.50	31,690	210	76	1.2	584	7.7
July 1-7.....	19,360	21	.00	66	15	53	3.3	163		144	48	.3	1.2	432	.59	22,580	228	94	1.5	682	7.9
July 8-15.....	12,110	15	.05	78	18	75	4.0	180		185	72	.3	1.2	538	.73	17,590	268	120	2.0	852	7.7
July 16-31.....	7,009	15	.00	123	37	178	6.4	206		442	161	.4	4.0	1,070	1.46	20,250	466	297	3.6	1,510	8.0
Weighted average	a22,950	19	0.04	82	21	69	4.4	196		200	53	0.5	2.8	548	0.75	33,960	291	130	1.8	837	--
Weighted average	b20,100	--	--	--	--	--	--	--	--	--	--	--	--	570	0.78	30,930	--	--	--	--	--

a Average for 304 days of flow which is 95 percent of runoff for water year.

b Includes estimated data for missing periods. Represents 100 percent of runoff for water year.

COLORADO RIVER MAIN STEM--Continued
9-4025. COLORADO RIVER NEAR GRAND CANYON, ARIZ.--Continued
Temperature (°F) of water, water year October 1957 to September 1958
/Continuous-recording thermometer/

Month	Day																															Aver- age	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October	69	69	69	68	66	66	65	64	64	64	64	64	64	64	64	62	61	61	61	62	62	62	61	59	58	56	55	55	55	55	55	56	62
	69	69	68	66	66	65	64	64	64	64	64	64	64	64	62	61	60	61	61	62	61	59	58	56	55	55	55	55	55	55	55	61	
November	56	56	56	56	55	54	53	51	50	50	50	49	49	49	49	49	49	48	48	47	46	45	44	43	42	41	41	41	41	41	40	48	
	56	56	56	55	54	53	51	50	50	50	49	49	49	49	49	49	48	48	47	46	45	44	43	42	41	41	41	41	41	40	39	47	
December	39	39	38	38	37	37	38	38	39	39	39	39	39	39	39	39	39	39	40	40	41	41	40	40	40	40	39	39	38	38	38	39	
	39	38	38	37	37	37	38	38	39	39	39	39	39	39	39	39	39	39	40	40	41	41	40	40	40	40	39	39	38	38	38	39	
January	38	38	37	37	37	36	36	36	36	36	36	36	36	36	36	37	37	37	37	37	37	37	37	37	37	37	37	38	39	40	40	37	
	38	37	37	37	36	36	36	36	36	36	36	36	36	36	36	36	37	37	37	37	37	37	37	37	37	37	37	38	39	40	40	37	
February	40	40	40	40	41	41	42	42	43	44	44	44	44	44	45	45	45	45	45	46	47	48	49	49	50	51	51	51	50	48	44	45	
	40	40	40	40	40	41	41	42	42	43	44	44	44	44	45	45	45	45	45	46	47	48	49	49	50	51	50	50	48	44	45	44	
March	48	46	45	45	45	45	45	45	45	46	45	45	45	45	46	46	47	48	49	50	51	52	53	53	53	53	54	54	53	53	53	49	
	46	45	45	44	44	45	45	45	45	45	44	44	44	45	46	46	47	48	49	50	51	52	53	53	53	53	53	53	53	53	53	48	
April	53	53	53	52	52	51	51	51	51	52	53	54	55	56	56	57	58	60	62	62	62	62	61	59	57	57	57	57	57	58	58	56	
	53	53	52	52	50	50	50	50	51	51	52	53	54	55	56	57	58	60	62	62	61	59	57	56	56	56	56	56	56	56	55	55	
May	58	59	60	61	63	64	65	65	65	65	64	63	62	62	62	62	63	64	65	66	67	67	68	68	68	68	68	68	67	64	64	64	
	57	58	58	60	61	63	64	64	64	64	63	62	61	61	62	62	62	63	64	65	66	67	67	68	67	67	67	67	67	67	66	63	
June	66	66	66	66	66	67	67	67	67	67	67	67	67	67	68	69	70	72	73	74	74	75	76	76	76	76	76	76	76	76	76	70	
	66	65	65	66	66	67	67	67	67	67	67	67	67	67	68	69	70	72	73	74	74	75	76	76	75	74	75	75	75	75	75	69	
July	75	74	74	74	75	76	76	77	78	78	78	79	79	78	78	77	77	76	76	76	76	77	77	76	76	76	76	76	77	77	77	76	
	74	74	74	74	74	74	75	76	77	77	78	78	78	78	78	77	77	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	
August	78	78	76	78	79	80	80	80	80	81	81	81	81	81	81	82	82	81	81	80	80	79	78	78	78	78	77	77	77	77	77	79	
	77	78	78	78	78	78	80	80	80	80	81	81	81	81	81	81	81	81	80	80	79	78	78	78	78	77	77	77	77	77	77	79	
September	77	77	76	76	74	74	74	74	74	74	75	75	75	75	75	73	70	70	70	70	71	71	70	69	68	66	65	65	66	65	65	72	
	77	76	76	74	74	74	74	74	74	74	74	75	75	75	75	75	73	70	70	70	70	70	70	69	68	66	65	64	64	65	65	71	

COLORADO RIVER MAIN STEM--Continued

9-4025, COLORADO RIVER NEAR GRAND CANYON, ARIZ.--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December		
	Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	7,500	345	7,000	11,500	3,640	113,000	9,250	1,020	25,500
2...	7,460	318	6,410	12,400	5,320	178,000	9,250	1,010	25,200
3...	7,280	310	6,090	13,600	8,500	312,000	8,840	942	22,500
4...	7,120	331	6,360	20,000	13,400	724,000	8,480	943	21,600
5...	7,050	310	5,900	36,400	26,000	2,700,000	8,160	932	20,500
6...	6,980	297	5,600	29,800	35,200	2,940,000	7,930	921	19,700
7...	6,840	282	5,210	28,600	26,300	2,030,000	7,690	970	20,100
8...	6,620	267	4,770	23,200	22,200	1,390,000	7,840	897	19,000
9...	6,500	219	3,840	20,600	14,900	829,000	8,080	846	18,500
10...	6,560	300	5,310	18,300	11,200	553,000	8,340	924	20,800
11...	6,590	1,000	17,800	16,000	10,500	454,000	8,660	859	20,100
12...	7,240	1,400	27,400	14,700	6,060	241,000	8,980	921	22,300
13...	10,400	4,100	151,000	13,700	4,510	167,000	9,120	972	23,900
14...	12,600	17,800	606,000	12,800	4,340	150,000	9,200	956	23,700
15...	16,500	21,500	958,000	12,200	3,600	120,000	9,350	886	22,400
16...	13,600	12,300	452,000	12,200	2,880	94,900	9,240	912	22,800
17...	13,400	18,100	655,000	12,200	2,610	86,000	8,870	793	19,000
18...	15,700	20,000	848,000	12,400	1,670	55,900	8,550	758	17,500
19...	13,400	11,000	440,000	12,600	1,990	67,700	8,520	842	19,400
20...	12,000	8,600	279,000	12,200	1,760	58,000	8,580	833	19,300
21...	12,000	7,300	237,000	12,000	1,600	51,800	9,200	878	21,800
22...	19,200	8,400	435,000	11,500	1,500	46,600	9,660	1,180	30,800
23...	38,300	18,700	1,930,000	11,300	1,400	42,700	9,630	1,190	30,900
24...	30,200	30,000	2,450,000	11,000	1,420	42,200	9,490	1,010	25,900
25...	25,100	27,000	1,830,000	10,700	1,320	38,100	9,240	866	21,600
26...	17,500	14,600	690,000	10,400	1,180	33,100	9,000	789	19,200
27...	14,200	14,200	544,000	9,920	1,120	30,000	8,710	776	18,200
28...	12,800	12,400	429,000	9,270	1,020	25,500	8,470	719	16,400
29...	11,800	10,400	351,000	9,000	888	21,600	8,210	773	17,100
30...	11,400	10,000	308,000	9,130	887	21,900	8,160	667	14,700
31...	11,300	6,110	185,000	--	--	--	7,980	694	15,000
Total	395,040	--	13,783,690	449,620	--	13,617,000	270,680	--	655,400
Day	January			February			March		
	Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	7,740	512	10,700	7,520	724	14,700	16,900	8,700	397,000
2...	7,540	543	11,100	7,690	781	16,200	15,500	6,730	282,000
3...	7,280	548	10,800	7,660	730	15,100	14,100	4,850	185,000
4...	7,270	480	9,420	7,620	720	15,000	13,000	3,960	139,000
5...	7,340	449	8,900	7,560	700	14,000	12,000	3,600	120,000
6...	6,970	440	8,300	7,620	710	15,000	11,200	3,100	894,000
7...	6,200	430	7,200	7,700	746	15,500	10,800	2,600	876,000
8...	5,950	422	6,780	8,230	1,170	26,000	10,300	2,160	60,100
9...	5,990	472	7,630	8,260	1,090	24,300	9,850	1,970	52,400
10...	5,840	417	6,580	8,820	1,250	29,800	9,490	1,600	41,000
11...	5,950	446	7,160	9,080	1,680	41,200	9,560	1,570	40,500
12...	6,080	437	7,170	8,840	1,750	41,800	9,640	1,330	34,600
13...	6,350	479	8,210	8,480	1,550	35,500	9,680	1,090	28,500
14...	6,520	510	8,980	8,560	1,390	32,100	9,810	1,100	29,100
15...	6,810	473	8,700	9,390	1,480	37,500	9,510	969	24,900
16...	7,060	416	7,930	9,170	1,630	40,400	9,240	1,090	27,200
17...	7,140	414	7,980	8,550	1,330	30,700	9,250	871	21,800
18...	6,990	428	8,080	8,260	996	22,200	9,290	974	24,400
19...	6,900	362	6,740	8,120	947	20,800	9,120	2,740	67,500
20...	6,880	415	7,710	8,210	1,100	24,400	9,860	1,180	31,400
21...	6,910	349	6,510	9,290	1,220	30,600	11,200	1,800	54,400
22...	6,950	363	6,810	10,600	1,800	51,500	12,000	3,700	120,000
23...	7,060	456	8,690	11,500	3,220	100,000	13,000	5,400	190,000
24...	6,970	395	7,430	12,000	3,950	128,000	12,600	7,000	238,000
25...	6,670	392	7,060	13,200	6,100	217,000	15,500	13,900	582,000
26...	6,560	341	6,040	14,800	7,810	312,000	17,100	12,200	563,000
27...	6,410	323	5,590	15,900	7,720	331,000	16,000	8,900	380,000
28...	6,360	426	7,320	17,300	9,270	438,000	15,500	8,120	340,000
29...	6,550	342	6,050	--	--	--	15,800	6,850	289,000
30...	6,710	430	7,790	--	--	--	15,600	6,790	286,000
31...	7,160	440	8,510	--	--	--	15,300	5,550	229,000
Total	209,110	--	243,870	270,130	--	2,120,300	377,500	--	5,047,800

s Computed by subdividing day.

a Computed from estimated-concentration graph.

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9-4025. COLORADO RIVER NEAR GRAND CANYON, ARIZ.--Continued

Day	April			May			June		
	Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	14,700	4,550	181,000	36,400	6,860	674,000	106,000	8,980	2,570,000
2...	14,300	3,900	151,000	34,000	6,110	561,000	107,000	6,940	2,000,000
3...	14,400	4,210	164,000	31,700	4,900	419,000	102,000	6,340	1,750,000
4...	14,400	3,740	145,000	29,900	3,850	311,000	97,100	6,600	1,730,000
5...	14,700	3,500	144,000	29,600	3,690	295,000	96,300	8,900	2,310,000
6...	14,300	3,200	120,000	30,300	5,000	410,000	93,400	6,750	1,700,000
7...	13,700	2,990	111,000	33,200	6,300	456,000	89,800	5,890	1,430,000
8...	13,500	3,020	110,000	40,600	7,560	829,000	87,000	5,520	1,300,000
9...	13,000	2,470	86,700	48,400	9,890	1,290,000	91,900	6,850	1,700,000
10...	13,100	2,390	84,500	55,700	10,500	1,580,000	95,600	4,980	1,290,000
11...	13,400	3,150	114,000	60,200	9,820	1,600,000	91,200	6,090	1,500,000
12...	13,800	2,600	96,900	63,700	11,900	2,050,000	83,500	4,420	996,000
13...	14,200	2,800	110,000	62,500	9,890	1,670,000	74,800	4,950	1,000,000
14...	14,900	3,000	120,000	63,700	8,980	1,540,000	67,300	3,780	687,000
15...	15,200	3,240	133,000	67,300	8,630	1,570,000	61,300	3,530	584,000
16...	15,200	4,230	174,000	67,300	8,780	1,600,000	54,600	3,260	481,000
17...	15,600	4,300	181,000	65,400	8,880	1,570,000	49,400	2,780	371,000
18...	18,300	4,450	220,000	63,700	7,130	1,230,000	45,600	2,360	291,000
19...	24,400	6,600	430,000	63,100	8,580	1,460,000	43,200	2,420	282,000
20...	34,000	12,000	1,100,000	63,100	6,810	1,160,000	40,600	1,730	190,000
21...	42,800	16,300	1,880,000	65,400	7,030	1,240,000	38,400	2,080	216,000
22...	49,400	17,700	2,360,000	69,700	7,240	1,360,000	36,800	1,610	160,000
23...	54,100	18,800	2,750,000	74,800	7,240	1,460,000	35,600	1,450	139,000
24...	57,400	16,300	2,530,000	78,800	7,430	1,580,000	34,400	1,170	109,000
25...	57,400	13,700	2,120,000	83,500	7,420	1,670,000	33,200	1,150	103,000
26...	55,200	13,300	1,980,000	88,400	6,960	1,660,000	31,300	1,200	101,000
27...	46,000	12,100	1,500,000	93,400	7,980	2,010,000	30,100	1,200	97,500
28...	41,000	11,700	1,300,000	96,300	9,330	2,430,000	28,300	1,280	97,800
29...	37,600	13,900	1,410,000	99,300	7,570	2,030,000	27,000	1,100	80,200
30...	36,400	5,840	574,000	102,000	6,150	1,690,000	24,700	830	55,400
31...	--	--	--	105,000	7,230	2,050,000	--	--	--
Total	796,400	--	22,376,100	1,966,400	--	41,559,000	1,897,400	--	25,320,900
July			August			September			
1...	22,900	718	44,400	5,600		5,090			
2...	21,400	630	36,400	5,570		5,010			
3...	20,100	568	31						

e Estimated.

a Computed from estimated-concentration graph.

s Computed by subdividing day.

COLORADO RIVER MAIN STEM--Continued

9-4025. COLORADO RIVER NEAR GRAND CANYON, ARIZ.--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Samp- ling ature point	Water tem- per- ature (°F)	Discharge (cfs)	Sediment concentra- tion (ppm)	Suspended sediment											Method of analysis
						Percent finer than size indicated, in millimeters											
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Oct. 14, 1957.....	1545		62	11,700	20,000	--	63	--	91	--	99	100	--	--	--	VPWC	
Oct. 15.....	1500		62	15,600	18,500	--	65	--	84	--	97	100	--	--	--	VPWC	
Oct. 16.....	1715		61	12,600	8,990	--	60	--	87	--	98	100	--	--	--	SPWC	
Oct. 18.....	1415		61	15,600	17,000	--	70	--	90	--	99	100	--	--	--	VPWC	
Oct. 23.....	1515		58	39,600	20,300	--	49	--	72	--	93	98	100	--	--	VPWC	
Oct. 26.....	1615		56	16,600	12,900	--	40	--	77	--	96	98	100	--	--	VPWC	
Nov. 8.....	1330		56	22,500	16,500	--	50	--	71	--	93	98	100	--	--	VPWC	
Feb. 12, 1958.....	1700		44	8,680	1,340	--	56	--	72	--	98	100	--	--	--	VPWC	
Feb. 28.....	1340		49	18,000	9,260	--	39	--	53	--	84	97	100	--	--	VPWC	
Mar. 2.....	1700		46	15,100	6,300	--	54	--	70	--	92	98	100	--	--	VPWC	
Mar. 28.....	0540		54	15,000	8,470	--	49	--	65	--	88	97	100	--	--	VPWC	
Apr. 21.....	1330		62	39,800	15,500	--	19	--	31	--	66	91	99	100	--	VPWC	
May 10.....	1400		65	25,800	10,700	--	10	--	15	--	48	74	95	100	--	SPWC	
May 20.....	1410		65	63,100	6,020	--	13	--	21	--	46	69	91	100	--	VPWC	
June 8.....	1300		69	87,200	5,620	6	7	9	12	17	30	56	81	97	100	VPWC	
June 8.....	1300		69	87,200	5,620	2	4	8	11	16	30	56	81	97	100	VFC	

9-4150. VIRGIN RIVER AT LITTLEFIELD, ARIZ.

REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1957 to September 1958 given in WSP 1563.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Po- tas- sium (K)	Bi- car- bon- ate (HCO ₃)	Car- bon- ate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃) (B)	Bo- ron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		So- dium ad- sorp- tion ratio (micro-mhos at 25°C)	Specific con- ductance (micro-mhos at 25°C)	pH	
															Parts per million	Tons per acre-foot	Tons per day	Cal-cium, Mag-ne-sium	Non-car-bon-ate				
Oct. 1-31, 1957	237	19		349	85	233	20	241	0	1,060	330		4.2	0.84		2,220	3.02	1,420	1,220	1,020	2.9	2,990	7.6
Nov. 1-30	347	19		265	72	212	16	263	0	784	295		3.6	.80		1,800	2.45	1,690	955	739	3.0	2,990	7.6
Dec. 1-16, 20-31	201	232		232	79	233	24	286	0	306	330		3.2	.72		1,760	2.39	1,935	905	695	3.4	2,610	7.9
Jan. 1-11, 1958	716	18		138	31	87	9.2	208	0	734	110		2.6	.23		1,831	2.13	1,910	472	291	1.7	1,290	7.5
Jan. 1-31	350	14		148	54	236	24	260	0	676	340		2.0	.41		1,740	2.37	1,520	805	665	3.4	2,610	7.6
Feb. 1-5	413	14		126	47	146	13	282	0	480	190		2.4	.41		1,190	1.62	1,330	634	427	2.5	1,811	7.8
Feb. 6-11	231	16		214	68	198	20	298	0	622	275		2.8	.53		1,560	2.12	1,973	835	571	3.0	2,320	8.0
Feb. 12-23																							
Feb. 24-25, 27-28	344	13		186	50	182	13	263	0	562	190		2.6	.42		1,330	1.81	1,240	670	454	3.1	1,830	7.9
Feb. 26	1,280	18.3		135	25	66	7.6	166	0	313	60		1.0	—		690	.95	1,440	304	1.4	1,130	7.9	
Mar. 1-15	248	32		103	68	204	17	280	0	633	285		1.2	.58		1,580	2.15	1,060	805	575	3.1	2,320	8.0
Mar. 16	1,084	17		164	36	91	45	278	0	124	55		1.7	—		524	.71	1,110	334	106	1.1	900	8.0
Mar. 17-31	1,084	17		121	30	91	8.7	210	0	419	112		1.7	.27		953	1.30	2,790	554	382	1.7	1,410	8.0
Apr. 1-5	1,325	20		124	30	76	7.8	210	0	302	92		1.8	.23		757	1.03	2,710	432	260	1.6	1,140	8.0
Apr. 6-15	1,670	20		152	44	120	10	254	0	412	148		3.3	.36		1,030	1.40	1,860	562	354	2.2	1,540	8.0
Apr. 16-30	1,247	14		109	29	65	6.7	214	0	234	82		3.7	.20		649	.88	2,190	390	215	1.4	1,020	8.0

VIRGIN RIVER BASIN--Continued

9-4150. VIRGIN RIVER AT LITTLEFIELD, ARIZ.--Continued

Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium carbonate ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium	Non-carbonate			
May 1-11, 13-24	1,216	16		107	24	62	6.6	213	0	214	85		2.3	.24	622	.85	2,040	368	193	1.4	990	8.0
May 12	3,080	21		469	39	55	9.3	204	0	1,370	46		1.0	--	1,910	2.60	15,880	1,330	1,100	2.1	2,120	7.0
May 25-31, June 1-4	475	17		142	36	107	9.6	243	0	325	141		1.7	.35	2,899	1.22	1,150	504	923	2.1	1,800	7.8
June 5-30	92.5	24		287	87	238	25	237	0	968	323		2.6	.76	2,980	2.43	619	1,260	923	3.1	2,890	7.8
July 1-31	97.6	23		333	108	235	27	209	0	1,150	355		2.3	.92	2,370	3.23	564	1,260	1,080	3.3	3,090	7.6
Aug. 1-31	88.5	17		311	133	214	21	232	0	1,180	280		2.0	.67	2,300	3.13	2,300	1,330	1,140	2.6	2,590	7.7
Sept. 1-30	376	10		395	84	214	21	232	0	1,180	280		2.0	.67	2,300	3.13	2,300	1,330	1,140	2.6	2,590	7.7
Weighted average	407	17		199	50	135	13	232	0	547	180		2.6	0.43	1,260	1.71	1,380	702	512	2.2	1,770	--

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October.....	66	65	64	60	61	63	60	61	61	62	65	61	62	64	66	64	64	65	63	63	58	52	54	60	59	58	61	61	61	59	61	61	
November.....	60	57	53	48	54	55	51	51	54	53	55	54	54	--	57	57	51	49	49	52	51	46	48	51	51	51	50	47	47	47	45	--	52
December.....	44	47	46	46	54	54	55	51	56	55	49	55	49	49	52	55	50	47	46	47	48	48	46	47	52	47	47	47	47	47	45	49	49
January.....	44	46	46	47	47	47	47	47	47	50	48	47	48	47	47	48	49	49	52	47	46	47	47	50	51	54	50	52	52	52	50	48	48
February.....	50	49	51	53	52	49	51	54	51	50	52	51	53	50	52	52	53	54	55	55	54	62	57	56	58	46	47	48	--	--	52	52	52
March.....	48	48	50	50	50	--	51	53	46	48	51	50	52	52	52	56	46	49	53	56	56	54	47	55	51	53	53	52	51	52	55	51	51
April.....	56	50	49	45	46	50	53	59	54	55	55	54	55	56	56	58	58	58	58	57	57	56	50	48	51	54	55	56	56	--	54	54	
May.....	55	58	59	59	59	60	57	58	58	60	61	63	54	57	60	65	65	65	71	70	71	70	71	70	67	75	72	69	71	67	65	63	63
June.....	68	67	67	65	68	68	67	66	67	67	67	66	67	67	80	69	72	71	75	71	73	73	73	69	69	68	70	70	68	68	--	69	69
July.....	77	68	82	68	73	71	70	67	71	70	72	71	71	71	71	69	68	78	78	68	69	69	70	69	71	70	70	70	72	72	72	71	71
August.....	72	73	70	71	73	74	73	76	73	76	73	76	73	76	77	79	81	72	71	71	77	72	71	72	71	72	71	72	73	72	85	74	74
September.....	70	71	71	70	72	71	73	72	71	72	71	69	65	66	78	84	66	66	66	65	67	68	68	68	58	63	66	66	67	67	--	68	68

VIRGIN RIVER BASIN--Continued

9-4150. VIRGIN RIVER AT LITTLEFIELD, ARIZ.--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December		
	Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment	
		Mean concen-tration (ppm)	Tons per day		Mean concen-tration (ppm)	Tons per day		Mean concen-tration (ppm)	Tons per day
1...	62	485	81	1,040	20,500	s70,100	174	1,580	742
2...	64	450	73	500	26,300	s36,400	165	1,450	646
3...	64	595	103	2,020	42,200	s253,000	176	1,440	684
4...	64	460	79	1,250	27,400	s114,000	179	1,420	686
5...	64	495	86	352	9,390	8,920	162	1,470	643
6...	64	480	83	284	4,110	3,150	186	1,830	929
7...	67	420	76	251	3,080	2,090	185	1,490	744
8...	69	450	84	261	3,540	2,490	179	1,500	725
9...	69	575	107	241	2,890	1,880	179	1,720	831
10...	71	475	91	229	2,350	1,450	176	1,680	798
11...	211	7,790	s14,100	222	1,910	1,140	174	1,390	653
12...	504	24,800	s22,400	210	2,230	1,260	176	1,460	694
13...	268	15,800	s11,700	207	2,380	1,330	171	1,370	633
14...	143	10,500	4,050	204	2,070	e1,100	174	1,340	630
15...	137	4,300	1,590	207	1,760	984	176	1,260	599
16...	143	3,500	1,350	207	1,760	984	499	9,390	s22,700
17...	148	4,000	1,600	204	1,420	782	855	14,700	s35,300
18...	124	3,800	1,270	197	1,840	979	910	15,100	s42,000
19...	124	3,500	1,170	188	1,350	685	384	6,200	6,430
20...	231	8,480	s7,460	204	1,950	1,070	287	3,500	2,710
21...	1,150	43,900	s150,000	204	1,710	942	248	2,340	1,570
22...	1,280	30,000	s120,000	191	1,470	758	233	2,040	1,310
23...	380	13,000	s13,700	185	1,250	624	229	2,140	1,320
24...	264	5,000	3,560	197	1,520	808	216	2,240	1,310
25...	251	3,750	2,540	204	1,800	991	191	1,530	789
26...	235	3,300	2,090	204	1,660	914	182	1,420	698
27...	216	2,500	1,460	200	1,670	902	182	1,740	655
28...	207	2,400	1,340	182	1,300	639	182	1,670	821
29...	213	2,700	1,550	179	1,190	575	182	1,780	875
30...	241	3,150	2,050	176	1,340	637	182	1,410	693
31...	207	2,250	1,260	--	--	--	182	1,880	924
Total	7,335	--	367,103	10,400	--	511,584	7,783	--	130,942
Day	January			February			March		
	Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment	
		Mean concen-tration (ppm)	Tons per day		Mean concen-tration (ppm)	Tons per day		Mean concen-tration (ppm)	Tons per day
1...	176	1,560	741	154	1,440	599	258	3,420	2,380
2...	165	1,250	557	178	2,940	1,410	245	2,780	1,840
3...	176	1,450	689	171	1,560	720	245	2,640	1,750
4...	168	1,730	785	225	2,460	1,490	213	2,100	1,210
5...	171	1,350	623	891	14,800	s45,800	219	2,260	1,340
6...	168	1,530	694	591	9,780	s16,200	213	2,300	e1,300
7...	162	1,930	844	311	3,750	3,150	241	2,350	1,530
8...	162	1,660	726	268	2,760	s2,880	235	1,870	1,190
9...	165	1,950	869	561	11,800	s20,700	318	3,220	2,760
10...	156	1,230	518	459	11,600	s14,700	241	2,190	1,420
11...	182	1,810	889	287	4,300	3,330	235	1,860	1,180
12...	156	1,640	691	248	3,380	2,260	261	2,380	1,680
13...	154	1,590	661	213	2,440	1,400	277	2,650	1,980
14...	154	1,610	669	241	2,710	1,760	264	2,170	1,550
15...	151	1,380	563	219	2,350	1,390	251	2,180	1,480
16...	143	1,650	637	204	2,300	1,270	788	20,100	s86,300
17...	140	1,480	559	207	2,250	1,260	3,630	44,300	s516,000
18...	151	1,410	575	207	2,260	1,260	1,160	16,800	s54,600
19...	148	1,460	583	213	3,210	1,850	756	8,420	s17,200
20...	146	1,200	473	229	3,110	1,920	645	7,800	s13,700
21...	140	1,150	435	248	3,760	2,520	685	7,220	s14,600
22...	146	1,250	493	257	3,280	s2,290	1,540	15,100	s72,300
23...	143	1,080	417	285	4,060	s3,130	1,690	21,700	s105,000
24...	137	1,120	414	332	5,230	s4,710	958	11,000	s29,400
25...	151	4,510	1,840	327	5,020	s4,480	1,030	11,600	s34,200
26...	159	1,660	713	1,280	30,400	s127,000	633	7,000	12,000
27...	229	4,110	2,540	420	13,200	s15,200	535	5,500	7,940
28...	182	2,040	1,000	298	5,300	4,260	691	6,810	s13,300
29...	159	2,070	889	--	--	--	726	6,800	13,300
30...	154	1,380	574	--	--	--	731	7,740	s15,600
31...	159	1,370	588	--	--	--	645	5,500	9,580
Total	4,353	--	23,249	9,524	--	288,939	20,759	--	1,039,610

e Estimated.

s Computed by subdividing day.

VIRGIN RIVER BASIN--Continued

9-4150. VIRGIN RIVER AT LITTLEFIELD ARIZ.--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1...	586	7,000	11,100	932	6,800	17,100	371	1,800	a1,800
2...	2,020	31,700	s175,000	877	5,450	s13,100	329	1,610	1,430
3...	1,480	14,900	s61,500	1,030	6,160	s17,500	287	1,510	1,170
4...	1,660	14,200	s66,900	1,210	7,240	s24,200	245	1,380	913
5...	881	8,500	20,200	1,440	8,080	s32,300	212	1,000	572
6...	831	7,210	s16,500	1,620	13,400	s62,800	188	931	473
7...	701	4,800	9,080	1,660	8,970	s40,700	163	1,050	462
8...	633	4,300	7,350	1,630	8,480	s38,400	154	841	350
9...	607	4,400	7,210	1,520	7,850	s32,700	149	902	363
10...	656	6,580	s11,900	1,480	6,920	s28,100	128	749	259
11...	680	6,100	11,200	1,820	8,080	s41,700	128	779	269
12...	645	4,900	8,530	3,080	25,400	s236,000	100	561	151
13...	607	4,250	6,970	1,700	10,700	s50,400	100	494	133
14...	615	4,250	7,060	1,230	6,700	22,200	100	568	153
15...	721	6,000	11,700	1,100	6,600	19,600	85	488	112
16...	902	9,000	s22,200	1,080	5,120	s15,000	71	545	104
17...	1,060	10,600	s30,600	1,050	5,000	s14,300	65	355	62
18...	1,320	11,500	s41,300	1,060	5,220	s15,200	60	393	64
19...	1,640	13,300	s59,000	1,040	5,220	s15,000	60	400	e65
20...	1,610	13,500	58,700	980	5,110	s13,600	58	418	65
21...	1,610	14,500	63,000	938	4,420	s11,300	58	336	53
22...	1,680	13,100	s59,400	930	4,620	s12,000	60	323	52
23...	1,720	13,400	s62,300	870	5,000	11,700	58	380	60
24...	1,480	9,910	s40,100	776	4,300	9,010	58	408	64
25...	1,090	7,500	22,100	700	4,400	8,320	58	331	52
26...	906	6,000	14,700	690	3,700	6,890	58	341	53
27...	910	5,530	s13,800	638	3,300	5,680	60	394	64
28...	906	6,200	s15,200	579	2,900	4,530	58	273	43
29...	950	6,900	s18,000	524	2,200	3,110	58	375	59
30...	927	6,500	16,300	450	2,100	a2,600	58	258	40
31...	--	--	--	415	1,900	a2,100	--	--	--
Total	32,034	--	968,900	35,049	--	827,140	3,637	--	9,510
Day	July			August			September		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1...	62	286	48	67	425	77	71	365	70
2...	62	417	70	64	410	71	65	420	74
3...	64	247	43	64	365	63	502	23,800	s150,000
4...	64	296	51	65	395	69	1,590	70,400	s346,000
5...	64	270	47	65	355	62	1,590	46,300	s238,000
6...	65	334	59	65	355	62	294	12,600	s10,300
7...	62	774	130	136	25,800	s15,400	174	5,620	s2,970
8...	60	224	36	104	13,300	3,730	300	26,700	s24,600
9...	60	280	45	72	1,500	292	296	22,500	18,000
10...	60	294	48	67	476	86	190	7,000	3,590
11...	60	286	46	102	18,700	5,150	124	2,400	804
12...	60	218	35	91	31,500	7,740	1,370	31,400	s537,000
13...	60	222	36	83	5,440	1,220	1,900	67,300	s482,000
14...	60	287	46	69	562	105	420	23,000	s27,400
15...	60	255	41	67	388	70	237	14,000	8,960
16...	58	329	52	69	314	58	143	11,600	s4,580
17...	58	206	32	67	310	56	108	1,780	519
18...	58	212	33	67	360	65	100	1,200	324
19...	58	219	34	67	428	77	96	840	218
20...	62	306	51	71	368	71	93	650	163
21...	60	215	35	72	4,970	966	93	625	157
22...	58	219	34	69	337	63	89	630	151
23...	60	271	44	239	29,300	s27,500	91	525	129
24...	773	59,700	s186,000	227	30,200	s19,800	148	8,290	s4,780
25...	288	22,500	s18,100	126	14,000	4,760	307	28,200	s24,800
26...	158	27,500	11,700	100	3,000	810	152	12,400	5,090
27...	110	7,500	2,230	87	1,250	294	112	3,500	1,060
28...	85	1,490	342	81	625	137	156	12,600	s6,240
29...	76	400	82	76	365	75	319	27,100	s31,900
30...	72	310	60	74	465	93	156	5,800	2,440
31...	69	300	56	72	565	110	--	--	--
Total	3,026	--	219,666	2,745	--	89,132	11,286	--	1,932,319
Total discharge for year (cfs-days).....									148,531
Total load for year (tons).....									6,408,094

e Estimated.

a Computed from estimated-concentration graph.

s Computed by subdividing day.

VIRGIN RIVER BASIN--Continued

9-4150. VIRGIN RIVER AT LITTLEFIELD, ARIZ.--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Samp- ling point	Water tem- per- ature (°F)	Discharge (cfs)	Sediment concentra- tion (ppm)	Suspended sediment											Method of analysis
						Percent finer than size indicated, in millimeters											
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Oct. 12, 1957.....	0700		61	457	26,500			40		68	81	90	94	99	100	SPWC	
Oct. 21.....	0730		58	146	5,170			32		58	70	81	90	98	100	SPWC	
Oct. 21.....	0730		58	1,460	51,700			05		58	71	81	90	98	100	SPN	
Oct. 22.....	0800		52	1,780	31,800			22		36	45	59	75	96	100	SPWC	
Oct. 31.....	0740		61	200	2,090			31		47	55	72	85	99	100	SPWC	
Nov. 1.....	0950		57	2,040	43,100			09		17	30	55	78	95	100	VPWC	
Nov. 3.....	0845		53	1,790	41,000			29		49	61	72	86	98	100	VPWC	
Nov. 4.....	0730		48	1,540	34,500			32		49	57	71	85	98	100	VPWC	
Nov. 30.....	0900		45	1,559	1,360			11		18	26	46	75	98	100	VPWC	
Dec. 16.....	1630		51	1,000	25,000			09		16	32	75	91	98	100	VPWC	
Dec. 17.....	0800		50	836	13,000			26		42	51	67	87	98	100	VPWC	
Dec. 18.....	0745		47	107	1,990			23		36	44	58	82	98	100	VPWC	
Dec. 31.....	0815		45	191	1,870			11		19	30	52	75	100	--	VPWC	
Jan. 31, 1958.....	0900		50	148	1,270		9	12	14	17	20	35	77	98	100	VPWC	
Feb. 5.....	1000		49	1,480	25,200			17		30	39	60	85	97	100	VPWC	
Feb. 5.....	1000		49	1,480	25,200			--		--	--	57	81	97	100	S	
Feb. 6.....	0800		49	600	9,160			24		33	38	52	78	98	100	VPWC	
Feb. 9.....	1930		55	813	17,100			16		25	31	50	84	99	100	VPWC	
Feb. 26.....	0736		46	1,630	36,900			18		29	35	47	71	96	100	VPWC	
Feb. 28.....	0745		48	318	4,770			37		49	56	64	80	98	100	VPWC	
Mar. 18.....	0700		49	1,250	20,100			23		37	45	57	72	91	100	VPWC	
Mar. 22.....	1330		53	1,540	13,800			12		21	29	51	78	96	100	VPWC	
Mar. 23.....	0730		47	2,210	27,100			20		32	42	57	76	96	100	VPWC	
Mar. 31.....	0700		55	542	4,700			14		20	25	38	64	91	100	VPWC	
Apr. 1.....	1120		--	618	5,410			22		28	37	53	69	91	100	SPWC	

VIRGIN RIVER BASIN--Continued
9-4150. VIRGIN RIVER AT LITTLEFIELD, ARIZ.--Continued
Particle-size analyses of suspended sediment, water year October 1957 to September 1958--Continued
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Sam- pling point	Water tem- per- ature (°F)	Discharge (cfs)	Sediment concentra- tion (ppm)	Suspended sediment											Method of analysis
						Percent finer than size indicated, in millimeters											
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Apr. 1, 1958.....	1120		--	618	5,410			01		27	37	52	68	90	100	SPN	
Apr. 2.....	2400		50	4,190	29,100			14		22	32	54	80	96	100	VPWC	
Apr. 3.....	0730		49	5,710	15,000			18		28	34	50	74	97	100	VPWC	
Apr. 4.....	0730		45	2,450	18,300			15		24	32	48	74	97	100	VPWC	
Apr. 4.....	0900		47	2,290	19,000			13		24	30	44	63	92	100	VPWC	
Apr. 4.....	0900		47	2,290	19,000			0		23	31	44	63	92	100	VPN	
Apr. 30.....	0730		53	820	6,520			15		21	26	38	65	94	100	VPWC	
May 12.....	0645		53	4,330	37,600			21		35	45	57	72	94	100	VPWC	
May 30.....	0700		67	456	2,080			8		12	15	26	61	95	100	VPWC	
July 24.....	1000		69	2,050	107,000			40		63	--	85	92	98	100	VPWC	
Sept. 12.....	2010		76	6,240	83,700			26		46	63	80	89	97	100	VPWC	
Sept. 25.....	0800		58	358	31,700			56		80	92	95	96	99	100	VPWC	
Sept. 30.....	0700		67	156	5,580			54		76	81	90	94	99	100	VPWC	

COLORADO RIVER MAIN STEM

9-4210. LAKE MEAD NEAR BOULDER CITY, NEV.

REMARKS.--Samples were collected near the intake towers which are 354.7 miles downstream from the gaging station at Lees Ferry. A resistance thermometer was used in measuring the temperature of the water. Samples collected at Lake Mead were analyzed by the Metropolitan Water District of Southern California, LaVerne, Calif.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Depth (feet)	Elevation (feet)	Silica (SiO ₂)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Nitrate (NO ₃)	Dissolved solids (calculated)	Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	Temperature (°F)
													Calcium, magnesium	Non-carbonate		
Nov. 1, 1957.....	5	1,178	9.8	59	19	53	3	121	174	44	1.7	424	226	127	688	71
Nov. 1.....	25	1,158	--	--	--	--	--	120	--	44	--	--	--	--	685	71
Nov. 1.....	50	1,133	--	--	--	--	--	98	--	44	--	--	224	--	689	71
Nov. 1.....	75	1,108	--	--	--	--	--	120	--	44	--	--	--	--	688	71
Nov. 1.....	100	1,083	--	--	--	--	--	98	--	44	--	--	224	--	688	71
Nov. 1.....	125	1,058	10	64	20	61	4	131	190	51	2.5	469	244	137	754	70
Nov. 1.....	150	1,033	--	--	--	--	--	113	--	61	--	--	269	--	845	68
Nov. 1.....	175	1,008	11	77	24	78	4	143	244	69	2.6	582	293	176	917	67
Nov. 1.....	200	983	--	--	--	--	--	121	--	81	--	--	325	--	1,020	66
Nov. 1.....	225	958	9.6	90	28	95	5	151	293	86	2.4	685	342	218	1,060	64
Nov. 1.....	250	933	--	--	--	--	--	128	--	88	--	--	354	--	1,100	60
Nov. 1.....	275	908	9.9	96	29	98	5	163	303	94	2.7	716	359	226	1,120	56
Nov. 1.....	300	883	9.7	97	30	102	5	166	307	95	2.7	731	362	230	1,120	56
Nov. 1.....	325	858	--	--	--	--	--	170	--	97	--	--	366	--	1,140	55
Nov. 1.....	350	833	--	--	--	--	--	170	--	97	--	--	368	--	1,150	55
Nov. 1.....	375	808	--	--	--	--	--	142	--	98	--	--	--	--	1,160	55
Nov. 1.....	400	783	10	98	30	104	5	168	310	96	2.6	740	376	230	1,180	54
Nov. 1.....	425	758	--	--	--	--	--	161	--	89	--	--	--	--	1,150	54
Nov. 1.....	452	731	--	--	--	--	--	216	--	75	--	--	422	--	1,090	54
Nov. 1.....	457	726	--	--	--	--	--	--	--	--	--	--	--	--	1,170	--
Dec. 2.....	5	1,177	10	68	20	65	4	132	200	55	2.6	491	252	144	782	64
Dec. 2.....	25	1,157	--	--	--	--	--	132	--	55	--	--	--	--	783	64
Dec. 2.....	50	1,132	--	--	--	--	--	108	--	55	--	--	252	--	786	64
Dec. 2.....	75	1,107	--	--	--	--	--	132	--	55	--	--	--	--	783	64
Dec. 2.....	100	1,082	--	--	--	--	--	108	--	55	--	--	253	--	785	64
Dec. 2.....	125	1,057	--	--	--	--	--	132	--	55	--	--	--	--	784	64
Dec. 2.....	150	1,032	--	--	--	--	--	132	--	55	--	--	--	--	784	64
Dec. 2.....	175	1,007	10	68	20	65	4	139	201	53	2.7	492	252	144	787	64
Dec. 2.....	200	982	--	--	--	--	--	110	--	87	--	--	258	--	797	63
Dec. 2.....	225	957	11	81	24	81	5	148	250	71	3.0	600	301	180	942	63

COLORADO RIVER MAIN STEM--Continued
9-4210. LAKE MEAD NEAR BOULDER CITY, NEV.--Continued

Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Depth (feet)	Elevation (feet)	Silica (SiO ₂)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Nitrate (NO ₃)	Dissolved solids (calculated)	Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	Temperature (°F)
													Calcium, magnesium	Non-carbonate		
Dec. 2, 1957.....	250	932	--	--	--	--	--	131	--	84	--	--	337	--	1,060	62
Dec. 2, 1957.....	275	907	9.8	93	28	98	5	162	291	89	3.0	698	347	214	1,090	57
Dec. 2, 1957.....	300	882	--	--	--	--	--	138	--	94	--	--	356	--	1,130	55
Dec. 2, 1957.....	325	857	11	96	30	104	5	168	304	95	3.0	731	361	223	1,160	55
Dec. 2, 1957.....	350	832	--	--	--	--	--	140	--	98	--	--	366	--	1,160	55
Dec. 2, 1957.....	375	807	--	--	--	--	--	172	--	98	--	--	364	--	1,150	55
Dec. 2, 1957.....	400	782	--	--	--	--	--	173	--	98	--	--	368	226	1,160	54
Dec. 2, 1957.....	425	737	11	98	30	107	5	173	313	98	3.0	751	--	--	1,170	54
Dec. 2, 1957.....	452	730	--	--	--	--	--	173	--	98	--	--	--	--	--	--
Jan. 2, 1958.....	5	1,173	9.8	70	22	68	4	132	217	58	2.3	520	265	153	820	60
Jan. 2, 1958.....	25	1,153	--	--	--	--	--	--	--	58	--	--	--	--	820	60
Jan. 2, 1958.....	50	1,128	--	--	--	--	--	111	--	58	--	--	266	--	823	60
Jan. 2, 1958.....	75	1,103	--	--	--	--	--	--	--	59	--	--	--	--	820	60
Jan. 2, 1958.....	100	1,078	--	--	--	--	--	111	--	58	--	--	266	--	824	60
Jan. 2, 1958.....	125	1,053	--	--	--	--	--	--	--	58	--	--	--	--	825	60
Jan. 2, 1958.....	150	1,028	--	--	--	--	--	111	--	58	--	--	265	--	816	60
Jan. 2, 1958.....	175	1,003	10	70	22	68	4	135	217	58	2.3	519	265	154	820	60
Jan. 2, 1958.....	200	978	--	--	--	--	--	113	--	58	--	--	272	--	839	60
Jan. 2, 1958.....	225	953	10	76	24	74	4	142	238	64	2.6	563	286	170	880	59
Jan. 2, 1958.....	250	928	--	--	--	--	--	128	--	76	--	--	336	--	1,040	59
Jan. 2, 1958.....	275	903	11	91	28	96	4	163	293	84	2.7	691	332	208	1,070	57
Jan. 2, 1958.....	300	876	--	--	--	--	--	132	--	84	--	--	344	--	1,060	57
Jan. 2, 1958.....	325	853	9.8	90	29	98	4	132	291	87	2.8	693	344	210	1,080	56
Jan. 2, 1958.....	375	808	--	--	--	--	--	132	--	84	--	--	338	--	1,060	56
Jan. 2, 1958.....	400	778	--	--	--	--	--	--	--	91	--	--	--	--	1,180	55
Jan. 2, 1958.....	425	753	10	94	30	102	4	139	--	91	--	--	355	--	1,110	54
Jan. 2, 1958.....	450	728	--	--	--	--	--	173	302	92	3.0	724	358	216	1,100	54
Jan. 2, 1958.....	450	728	--	--	--	--	--	--	--	92	--	--	--	--	1,120	54
Jan. 31, 1958.....	5	1,166	9.3	74	22	70	4	138	227	57	2.7	535	273	160	838	57
Jan. 31, 1958.....	25	1,146	--	--	--	--	--	139	--	57	--	--	--	--	846	57
Jan. 31, 1958.....	50	1,121	--	--	--	--	--	115	--	57	--	--	275	--	845	57
Jan. 31, 1958.....	75	1,096	--	--	--	--	--	a140	--	57	--	--	--	--	838	57
Jan. 31, 1958.....	100	1,071	--	--	--	--	--	115	--	57	--	--	275	--	848	57

a Includes 4 parts per million of carbonate (CO₃).

Jan. 31, 1958.....	125	1,046	--	--	--	--	--	--	57	--	276	--	840	57
Jan. 31.....	150	1,021	--	--	--	--	--	--	57	--	276	--	852	57
Jan. 31.....	175	996	9.4	74	22	69	4	138	228	535	275	162	847	57
Jan. 31.....	200	971	--	--	--	--	--	115	--	--	280	--	864	57
Jan. 31.....	225	946	9.5	76	22	77	4	143	245	568	282	165	892	57
Jan. 31.....	250	921	--	--	--	--	--	130	--	--	330	--	1,010	57
Jan. 31.....	275	896	9.8	93	27	94	5	165	295	690	343	208	1,070	56
Jan. 31.....	300	871	--	--	--	--	--	134	--	--	341	--	1,080	55
Jan. 31.....	325	846	10	94	28	97	5	167	295	703	332	215	1,180	55
Jan. 31.....	350	821	--	--	--	--	--	135	--	--	343	--	1,080	54
Jan. 31.....	375	796	--	--	--	--	--	167	--	--	--	--	1,110	54
Jan. 31.....	400	771	--	--	--	--	--	139	--	--	352	--	1,100	54
Jan. 31.....	425	746	10	95	30	100	5	171	306	724	363	222	1,120	54
Feb. 28.....	444	727	--	--	--	--	--	--	--	--	--	--	1,130	54
Feb. 28.....	5	1,164	10	75	22	70	4	139	231	541	280	166	864	57
Feb. 28.....	25	1,144	--	--	--	--	--	114	--	--	--	--	862	57
Feb. 28.....	50	1,119	--	--	--	--	--	114	--	--	278	--	859	57
Feb. 28.....	75	1,094	--	--	--	--	--	139	--	--	--	--	862	57
Feb. 28.....	100	1,069	--	--	--	--	--	114	--	--	278	--	858	57
Feb. 28.....	125	1,044	--	--	--	--	--	139	--	--	--	--	857	57
Feb. 28.....	150	1,019	--	--	--	--	--	114	--	--	278	--	859	57
Feb. 28.....	175	994	9.9	75	22	70	4	139	230	540	280	166	862	57
Feb. 28.....	200	969	--	--	--	--	--	118	--	--	293	--	863	56
Feb. 28.....	225	944	9.9	89	27	89	4	157	281	655	333	204	1,000	55
Feb. 28.....	250	919	--	--	--	--	--	135	--	--	347	--	1,080	55
Feb. 28.....	275	894	10	92	28	95	5	165	295	693	347	213	1,080	55
Feb. 28.....	300	869	--	--	--	--	--	135	--	--	352	--	1,110	55
Feb. 28.....	325	844	10	95	29	99	5	167	297	711	356	220	1,120	55
Feb. 28.....	350	818	--	--	--	--	--	141	--	--	359	--	1,140	55
Feb. 28.....	375	794	10	95	30	100	5	170	300	718	361	222	1,120	55
Feb. 28.....	400	769	--	--	--	--	--	142	--	--	364	--	1,140	55
Feb. 28.....	425	744	--	--	--	--	--	166	--	--	--	--	1,100	57
Feb. 28.....	442	727	--	--	--	--	--	173	--	--	--	--	1,120	54

a Includes 4 parts per million of carbonate (CO₃).
b Includes 2 parts per million of carbonate (CO₃).

COLORADO RIVER MAIN STEM--Continued

9-4210. LAKE MEAD NEAR BOULDER CITY, NEV.--Continued

Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Depth (feet)	Elevation (feet)	Silica (SiO ₂)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Nitrate (NO ₃)	Dissolved solids (calculated)	Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	Temperature (°F)
													Calcium magnesium	Non-carbonate		
Mar. 31, 1958.....	5	1,159	10	75	24	70	4	140	227	60	2.3	542	284	169	861	56
Mar. 31.....	25	1,139	---	---	---	---	---	140	---	60	---	---	---	---	875	56
Mar. 31.....	50	1,114	---	---	---	---	---	115	---	60	---	---	281	---	868	56
Mar. 31.....	75	1,089	---	---	---	---	---	140	---	60	---	---	---	---	861	56
Mar. 31.....	100	1,064	---	---	---	---	---	115	---	60	---	---	285	---	879	56
Mar. 31.....	125	1,039	---	---	---	---	---	140	---	60	---	---	---	---	876	56
Mar. 31.....	150	1,014	---	---	---	---	---	115	---	60	---	---	285	---	880	56
Mar. 31.....	175	989	10	76	24	71	4	140	231	60	2.8	549	286	171	882	56
Mar. 31.....	200	964	---	---	---	---	---	116	---	60	---	---	287	---	884	56
Mar. 31.....	225	939	11	78	24	74	4	142	243	63	3.4	572	286	180	914	56
Mar. 31.....	250	914	---	---	---	---	---	136	---	83	---	---	341	---	1,070	55
Mar. 31.....	275	884	11	91	29	96	4	167	290	86	3.3	696	346	209	1,060	55
Mar. 31.....	300	854	---	---	---	---	---	171	---	88	---	---	347	---	1,060	55
Mar. 31.....	325	839	11	91	30	98	4	171	294	90	3.2	704	349	209	1,120	55
Mar. 31.....	350	814	---	---	---	---	---	140	---	90	---	---	354	---	1,120	55
Mar. 31.....	375	789	---	---	---	---	---	173	---	90	---	---	---	---	1,120	55
Mar. 31.....	400	764	---	---	---	---	---	144	---	95	---	---	364	---	1,120	54
Mar. 31.....	425	739	11	97	31	105	5	178	309	97	2.6	746	370	224	1,160	54
Mar. 31.....	437	727	---	---	---	---	---	177	---	93	---	---	---	---	1,140	54
Apr. 30.....	5	1,160	11	78	22	72	4	cl39	239	59	2.4	557	288	173	875	67
Apr. 30.....	25	1,140	---	---	---	---	---	cl39	---	59	---	---	288	---	880	67
Apr. 30.....	50	1,115	---	---	---	---	---	114	---	59	---	---	285	---	868	66
Apr. 30.....	75	1,090	---	---	---	---	---	bl38	---	59	---	---	288	---	875	58
Apr. 30.....	100	1,065	---	---	---	---	---	114	---	59	---	---	286	---	872	58
Apr. 30.....	125	1,040	---	---	---	---	---	bl38	---	59	---	---	288	---	877	57
Apr. 30.....	150	1,015	---	---	---	---	---	114	---	59	---	---	289	---	878	57
Apr. 30.....	175	990	11	79	22	72	4	cl39	249	59	2.0	559	289	176	885	56
Apr. 30.....	200	965	---	---	---	---	---	115	---	61	---	---	287	---	904	56
Apr. 30.....	225	940	11	84	24	77	4	145	256	64	2.2	594	306	187	928	56

b Includes 2 parts per million of carbonate (CO₃).c Includes 1 part per million of carbonate (CO₃).

Apr. 30, 1958	250	915	--	12	--	89	26	86	--	4	124	--	273	69	--	646	318	--	964	55
Apr. 30	275	865	--	--	--	--	--	--	--	--	139	--	--	74	--	1,020	328	199	1,020	55
Apr. 30	300	865	--	--	--	--	--	--	--	--	131	--	--	77	--	1,020	335	--	1,020	54
Apr. 30	325	840	12	--	--	89	28	90	--	4	130	--	281	77	--	663	335	204	1,040	54
Apr. 30	350	815	--	--	--	--	--	--	--	--	134	--	--	80	--	--	340	--	1,060	54
Apr. 30	375	790	--	--	--	--	--	--	--	--	163	--	--	81	--	--	342	--	1,070	54
Apr. 30	400	765	--	--	--	--	--	--	--	--	137	--	--	84	--	--	348	--	1,080	54
Apr. 30	425	740	11	--	93	--	28	96	--	5	167	--	292	84	--	696	348	210	1,090	54
Apr. 30	438	727	--	--	--	--	--	--	--	--	170	--	--	84	--	--	352	--	1,090	54
Apr. 30	440	725	--	--	--	--	--	--	--	--	163	--	--	86	--	--	372	--	1,100	54
June 3	5	1,183	10	--	75	--	23	70	--	4	129	--	245	57	--	551	282	176	875	71
June 3	25	1,163	--	--	--	--	--	--	--	--	135	--	--	57	--	--	--	--	876	67
June 3	50	1,138	--	--	--	--	--	--	--	--	114	--	--	56	--	--	287	--	883	64
June 3	75	1,113	--	--	--	--	--	--	--	--	138	--	--	58	--	--	--	--	885	62
June 3	100	1,088	--	--	--	--	--	--	--	--	114	--	--	56	--	--	286	--	883	59
June 3	125	1,063	11	--	78	--	23	71	--	4	138	--	239	56	--	555	176	--	881	57
June 3	150	1,038	--	--	--	--	--	--	--	--	113	--	--	57	--	--	289	--	884	56
June 3	175	1,013	--	--	--	--	--	--	--	--	135	--	--	57	--	--	286	--	884	56
June 3	200	988	--	--	--	--	--	--	--	--	118	--	--	57	--	--	288	--	886	56
June 3	225	963	11	--	87	--	26	86	--	4	157	--	269	72	--	637	326	197	1,020	56
June 3	250	938	--	--	--	--	--	--	--	--	134	--	--	75	--	--	334	--	1,040	55
June 3	275	913	11	--	85	--	26	82	--	4	154	--	263	67	--	618	319	183	987	54
June 3	300	888	--	--	--	--	--	--	--	--	130	--	--	72	--	--	325	--	1,020	54
June 3	325	863	11	--	79	--	24	70	--	4	140	--	241	74	--	558	294	180	888	54
June 3	350	838	--	--	--	--	--	--	--	--	132	--	--	74	--	--	333	--	1,040	54
June 3	375	813	--	--	--	--	--	--	--	--	160	--	--	75	--	--	--	--	1,040	54
June 3	400	788	--	--	--	--	--	--	--	--	112	--	--	56	--	--	286	--	881	54
June 3	425	763	11	--	89	--	27	86	--	5	161	--	280	75	--	657	333	201	1,040	54
June 3	450	738	--	--	--	--	--	--	--	--	134	--	--	77	--	--	--	--	1,060	54
June 3	460	728	--	--	--	--	--	--	--	--	163	--	--	76	--	--	--	--	1,050	54

a Includes 4 parts per million of carbonate (CO₂).

COLORADO RIVER MAIN STEM--Continued
9-4210. LAKE MEAD NEAR BOULDER CITY, NEV.--Continued

Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Depth (feet)	Elevation (feet)	Silica (SiO ₂)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Nitrate (NO ₃)	Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	Temperature (°F)
												Calcium-magnesium	Non-carbonate		
June 30, 1958.....	5	1,200	11	68	22	63	4	126	217	50	1.1	258	155	800	77
June 30.....	25	1,180	--	--	--	--	--	140	--	48	--	263	--	792	76
June 30.....	75	1,130	--	--	--	--	--	137	--	48	--	273	--	800	68
June 30.....	100	1,105	11	74	22	64	4	137	221	51	2.0	281	161	828	66
June 30.....	125	1,080	10	78	22	68	4	138	237	55	--	287	--	859	63
June 30.....	150	1,055	--	--	--	--	--	114	--	57	2.0	288	174	876	62
June 30.....	175	1,030	--	--	--	--	--	118	--	57	--	--	--	882	60
June 30.....	200	1,005	--	--	--	--	--	139	--	60	--	292	--	874	57
June 30.....	225	980	--	--	--	--	--	--	--	58	--	--	--	883	56
June 30.....	250	955	--	--	--	--	--	116	--	58	--	294	--	900	56
June 30.....	275	930	11	82	24	73	4	115	249	61	2.4	301	182	917	55
June 30.....	300	905	--	--	--	--	--	124	--	67	--	314	--	973	54
June 30.....	325	880	11	86	25	80	4	133	261	68	2.7	318	193	976	54
June 30.....	350	855	--	--	--	--	--	130	--	73	--	325	--	1,020	54
June 30.....	375	830	10	87	26	85	4	137	271	72	2.8	334	195	1,010	54
June 30.....	400	805	--	--	--	--	--	131	--	74	--	329	--	1,020	54
June 30.....	425	780	--	--	--	--	--	160	--	74	--	--	--	1,040	54
June 30.....	450	755	--	--	--	--	--	134	--	77	--	335	--	1,040	54
June 30.....	477	728	--	--	--	--	--	182	--	75	--	--	--	1,030	54
July 31.....	5	1,198	11	66	20	58	3	120	203	46	1.0	249	150	752	78
July 31.....	25	1,178	--	--	--	--	--	--	--	48	--	--	--	735	76
July 31.....	50	1,153	--	--	--	--	--	102	--	41	--	230	--	695	73
July 31.....	75	1,128	11	65	18	53	3	128	181	42	2.0	238	133	720	70
July 31.....	100	1,103	--	--	--	--	--	111	--	49	--	261	--	789	67
July 31.....	125	1,078	--	--	--	--	--	--	--	--	--	--	--	--	--
July 31.....	150	1,053	--	--	--	--	--	113	--	58	--	289	--	875	60
July 31.....	175	1,028	--	--	--	--	--	--	--	58	--	--	--	880	59
July 31.....	200	1,003	--	--	--	--	--	114	--	60	--	288	--	885	57
July 31.....	225	978	11	80	22	70	3	139	239	59	2.8	290	176	884	57

b Includes 2 parts per million of carbonate (CO₃).

d Includes 5 parts per million of carbonate (CO₃).

July 31, 1958.....	250	953	--	84	--	--	73	--	3	114	--	250	61	--	292	--	894	56
July 31.....	275	926	11	--	--	--	--	--	--	146	250	583	186	306	186	927	55	
July 31.....	300	903	--	--	--	--	--	--	--	127	267	634	196	319	196	985	54	
July 31.....	325	878	11	88	--	--	26	--	4	157	287	70	--	325	--	1,000	54	
July 31.....	350	853	--	--	--	--	89	--	--	131	273	75	--	327	--	1,020	54	
July 31.....	375	826	11	--	--	--	66	--	4	161	273	75	3.0	329	197	1,020	54	
July 31.....	400	803	--	--	--	--	--	--	--	134	273	78	--	333	--	1,030	54	
July 31.....	425	778	--	--	--	--	--	--	--	134	273	78	--	333	--	1,020	54	
July 31.....	450	753	--	--	--	--	--	--	--	134	273	77	--	335	--	1,040	54	
July 31.....	476	727	--	--	--	--	--	--	--	--	200	488	1.0	240	140	1,030	54	
Aug. 29.....	5	1,194	11	63	20	62	4	122	4	122	200	46	1.0	240	140	732	80	
Aug. 29.....	25	1,174	--	--	--	--	--	120	--	120	--	48	--	236	--	726	79	
Aug. 29.....	50	1,149	--	--	--	--	--	100	--	100	--	42	--	231	--	714	76	
Aug. 29.....	75	1,124	11	62	18	52	4	128	4	128	173	42	1.0	280	126	803	69	
Aug. 29.....	100	1,098	--	--	--	--	--	112	--	112	232	56	--	280	--	858	65	
Aug. 29.....	125	1,074	11	77	22	69	--	137	4	137	232	56	1.3	289	171	868	63	
Aug. 29.....	150	1,049	--	--	--	--	--	113	--	113	241	56	--	292	--	884	59	
Aug. 29.....	175	1,024	11	80	22	72	4	138	4	138	241	60	2.1	292	179	884	59	
Aug. 29.....	200	999	--	--	--	--	--	114	--	114	--	64	--	292	--	893	57	
Aug. 29.....	225	974	--	--	--	--	--	139	--	139	--	80	--	--	--	891	56	
Aug. 29.....	250	949	--	--	--	--	--	115	--	115	--	62	--	297	--	900	56	
Aug. 29.....	275	924	12	86	23	76	4	148	4	148	251	64	2.3	309	188	942	55	
Aug. 29.....	300	899	--	--	--	--	--	115	--	115	264	66	--	316	--	971	55	
Aug. 29.....	325	874	12	87	26	63	4	155	4	155	264	74	2.4	324	197	1,000	55	
Aug. 29.....	350	849	--	--	--	--	--	132	--	132	74	74	--	326	--	1,010	54	
Aug. 29.....	375	824	--	--	--	--	--	162	--	162	--	74	--	--	--	1,010	54	
Aug. 29.....	400	799	--	--	--	--	--	135	--	135	--	74	--	332	--	1,020	54	
Aug. 29.....	425	774	12	88	26	90	4	165	4	165	274	76	2.4	329	194	1,020	54	
Aug. 29.....	450	749	--	--	--	--	--	134	--	134	--	76	--	331	--	1,020	54	
Aug. 29.....	475	726	--	--	--	--	--	165	--	165	--	78	--	--	--	1,020	54	
Sept. 30.....	5	1,191	10	64	19	55	3	121	3	121	193	44	1.1	236	139	716	77	
Sept. 30.....	25	1,171	--	--	--	--	--	121	--	121	44	44	--	236	--	723	76	
Sept. 30.....	50	1,146	--	--	--	--	--	100	--	100	42	44	--	238	--	725	76	
Sept. 30.....	75	1,121	10	63	16	52	3	124	3	124	179	42	1.8	233	131	701	73	
Sept. 30.....	100	1,096	--	--	--	--	--	110	--	110	--	44	--	244	--	732	68	

COLORADO RIVER MAIN STEM--Continued
9-4210. LAKE MEAD NEAR BOULDER CITY, NEV.--Continued

Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Depth (feet)	Elevation (feet)	Silica (SiO ₂)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Nitrate (NO ₃)	Dissolved solids (calculated)	Hardness as CaCO ₃		Specific conductance (Micro-mhos at 25°C)	Temperature (°F)
													Calcium, magnesium	Non-carbonate		
Sept. 30, 1958	125	1,071	10	74	20	63	4	135	220	52	2.3	514	269	158	810	65
Sept. 30	130	1,046	--	--	--	--	--	115	--	39	--	--	288	--	875	60
Sept. 30	150	1,021	12	79	22	71	4	139	238	60	2.6	558	288	174	882	59
Sept. 30	200	1,004	--	--	--	--	--	144	--	61	--	--	292	--	886	57
Sept. 30	225	971	--	--	--	--	--	140	--	60	--	--	--	--	890	56
Sept. 30	250	946	--	--	--	--	--	115	--	59	--	--	292	--	887	56
Sept. 30	275	921	11	82	22	72	4	143	242	60	2.7	567	295	178	891	56
Sept. 30	300	896	--	--	--	--	--	123	--	65	--	--	309	--	944	56
Sept. 30	325	871	11	85	24	80	--	153	258	67	3.1	609	311	186	956	55
Sept. 30	350	846	--	--	--	--	--	137	--	71	--	--	317	--	963	55
Sept. 30	375	821	--	--	--	--	--	157	--	73	--	--	--	--	997	54
Sept. 30	400	796	--	--	--	--	--	131	--	75	--	--	326	--	1,020	54
Sept. 30	425	771	12	89	26	89	4	162	272	76	3.1	652	329	196	1,020	54
Sept. 30	450	746	--	--	--	--	--	137	--	78	--	--	334	--	1,040	54
Sept. 30	470	726	--	--	--	--	--	170	--	77	--	--	--	--	1,030	54

COLORADO RIVER MAIN STEM--Continued

9-4215, COLORADO RIVER BELOW HOOVER DAM, ARIZ.-NEV.

LOCATION.--At Hoover Dam, state line between Mohave County, Ariz. and Clark County, Nev., about 1 mile upstream from gaging station.

DRAINAGE AREA.--167,800 square miles approximately.

RECORDS AVAILABLE.--Chemical analyses: October 1939 to September 1958.

Water temperatures: October 1941 to September 1958.

EXTREMES, 1939-57.--Dissolved solids: Maximum, 884 ppm July 21-31, 1956; minimum, 477 ppm Nov. 21, 24-26, 28, 1952.

Hardness (1939-44, 1950-57): Maximum, 426 ppm Jan. 21-31, 1941; minimum, 241 ppm Nov. 21, 24-26, 28, 1952.

Specific conductance: Maximum daily, 1,580 micromhos June 20, 1955; minimum daily, 712 micromhos Nov. 25-26, 1952.

Water temperatures (1941-50): Maximum, 69°F Sept. 27, 1945 and on several days in 1947 and 1948; minimum, 50°F Mar. 23, 28, 30, 1949.

REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1957 to September 1958 given in WSP 1563.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 1, 15, 1957..	12,450	11	0.01	96	28	101	4.5	166	0	298	90	0.4	2.5	0.15	753	1.02	25,310	354	218	2.3	1,120	8.2
Nov. 1, 15	18,600	11	.01	95	28	101	4.5	165	0	308	85	.3	2.8	.15	750	1.02	37,660	350	215	2.3	1,110	8.0
Dec. 3, 16	18,200	11	.01	91	25	95	4.1	160	0	290	78	.3	2.7	.14	700	.95	34,400	332	201	2.3	1,050	7.9
Jan. 2, 15, 1958 ..	21,750	11	.02	87	24	87	4.1	155	0	274	73	.4	2.7	.12	656	.89	38,520	316	189	2.1	982	7.9
Feb. 3, 14	17,450	12	.00	89	25	92	5.2	162	0	284	76	.4	3.2	.14	689	.94	32,460	325	192	2.2	1,020	7.7
Mar. 4, 17	24,150	13	.01	86	24	84	3.7	156	0	264	68	.4	2.8	.12	656	.89	42,770	314	186	2.1	971	7.7
Apr. 1, 14	24,850	11	.01	86	24	86	3.9	158	0	269	70	.4	2.8	.13	656	.89	44,010	314	184	2.1	971	7.7
May 2, 15	24,100	12	.01	82	23	77	4.6	152	0	229	68	.3	3.4	.09	611	.83	39,760	298	173	1.9	918	8.0
June 2, 17	15,850	9.4	.01	84	22	78	3.7	154	0	258	60	.2	3.4	.12	624	.85	26,700	302	176	2.0	928	7.8
July 1, 15	15,600	11	.00	85	23	83	3.7	156	0	258	68	.2	3.3	.12	629	.86	26,490	305	177	2.0	935	7.8
Aug. 1, 15	16,150	10	.00	84	22	79	3.9	154	0	253	65	.3	2.9	.15	611	.83	26,640	301	175	2.0	922	7.6
Sept. 3, 17	16,000	10	.01	83	23	78	5.0	156	0	252	60	.4	3.5	.14	611	.84	26,520	300	172	2.0	930	7.6
Weighted average	16,940	11	0.01	87	24	86	4.2	158	0	269	71	0.3	2.9	0.16	661	0.90	30,230	316	186	2.1	985	--

a Includes estimated data for missing periods. Represents 100 percent of runoff for water year.

COLORADO RIVER MAIN STEM--Continued
9-4240. COLORADO RIVER NEAR TOPOCK, ARIZ.

LOCATION --Temperature recorder at gaging station, in Mohave Canyon, 2.7 miles downstream from Topock, Mohave County, 39.5 miles upstream from Pinedale, 40 miles downstream from Davis Dam.
DRAINAGE AREA --172 300 square miles approximately.
RECORDS AVAILABLE --Water temperatures: July 1952 to September 1958.
EXTREMES, 1957-58 --Water temperatures: Maximum, 76°F Aug. 8, 9, 12; minimum, 51°F Jan. 22.
EXTREMES, 1952-58 --Water temperatures: Maximum, 78°F July 25, 1956; minimum, 46°F Feb. 3, 4, 1956.
REMARKS --Records of discharge for water year October 1957 to September 1958 given in WSP 1563.

Temperature (°F) of water, water year October 1957 to September 1958
Continuous-recording thermometer

Month	Day																															Aver- age		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
October	72	71	69	68	68	68	68	68	69	70	69	67	66	65	66	66	67	68	68	67	66	63	64	64	64	64	64	64	65	64	65	64	67	
	71	69	66	67	67	68	68	68	69	67	68	65	64	65	66	66	67	67	67	66	63	63	63	64	64	64	64	64	64	64	64	64	66	
November	64	65	64	63	62	61	62	62	62	62	62	62	62	62	61	60	58	59	60	59	56	56	57	58	58	58	55	56	53	--	--	--	60	
	64	64	62	61	61	62	62	62	62	62	62	62	62	62	61	60	60	58	58	58	59	56	54	55	57	57	57	55	55	53	--	59	59	
December	54	55	54	55	55	55	55	55	55	55	55	55	55	54	54	54	55	55	55	55	55	54	53	53	53	53	53	54	54	53	54	53	54	
	53	54	54	54	54	55	54	54	55	54	54	54	54	54	54	54	54	54	54	54	54	54	53	53	53	53	53	53	53	53	52	54	54	
January	53	53	53	52	52	52	53	53	53	53	54	54	54	54	53	53	53	53	53	52	52	52	52	52	52	52	53	54	54	53	53	53	53	53
	52	52	52	52	52	52	52	52	52	52	53	53	53	53	53	52	52	52	52	52	52	51	52	52	52	52	53	54	54	53	53	53	52	52
February	54	53	54	55	55	55	56	57	57	57	57	56	56	57	56	57	56	58	58	57	58	60	60	60	60	60	57	57	56	--	--	--	57	
	53	53	54	54	55	55	55	56	57	56	56	55	55	56	56	56	57	57	57	57	57	58	59	59	59	57	56	56	--	--	--	56	56	
March	56	57	58	58	58	59	58	57	58	57	58	57	57	58	58	57	58	59	59	60	60	60	60	60	60	60	60	59	60	60	60	59	59	
	55	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	57	57	58	58	58	58	58	57	57	57	58	58	58	58	58	58	
April	59	59	59	59	60	60	60	61	61	61	61	62	61	62	61	64	64	64	63	64	65	65	64	63	64	64	65	64	66	64	--	--	62	
	57	57	57	56	57	58	58	58	59	59	60	60	60	61	61	62	62	62	62	61	62	64	63	61	61	62	63	62	62	63	--	--	60	
May	66	66	66	65	65	65	65	64	64	64	64	63	66	67	69	69	69	69	69	68	66	67	67	67	68	68	68	68	67	65	67	65	67	
	64	64	64	63	63	64	63	62	63	62	61	63	64	66	68	68	68	68	67	66	65	66	66	66	66	66	66	66	66	65	65	65	65	
June	64	65	66	66	66	67	66	65	66	66	66	66	66	66	66	68	69	69	69	69	69	69	71	71	71	72	73	73	72	70	--	--	68	
	65	64	65	65	65	64	64	64	65	65	65	65	65	65	66	68	68	68	68	68	68	70	69	69	69	70	70	70	69	68	--	67	67	
July	70	70	70	70	71	72	72	72	73	73	73	73	73	72	71	70	70	70	70	71	72	72	71	71	72	73	74	74	73	74	73	74	72	
	68	68	69	69	70	70	70	70	69	70	70	71	71	69	68	68	68	68	69	69	70	70	70	70	70	71	72	72	72	70	70	70	70	
August	74	75	74	73	73	73	72	76	76	74	75	76	73	73	73	73	73	73	73	72	73	72	73	73	73	73	73	73	72	72	73	72	73	
	70	71	71	70	70	69	70	71	70	72	71	70	72	71	70	72	71	71	7	70	71	71	70	71	70	71	71	71	70	70	70	70	70	
September	74	74	73	72	73	73	76	74	75	75	73	72	72	70	72	74	74	73	71	72	71	71	71	68	64	65	68	68	67	68	71	--	72	
	71	72	70	70	70	70	72	72	72	73	73	72	70	69	68	69	71	73	71	70	69	70	69	64	63	63	65	67	67	68	--	69	69	

COLORADO RIVER MAIN STEM--Continued

9-4291. COLORADO RIVER BELOW PALO VERDE DAM, ARIZ.-CALIF.

LOCATION.--Temperature recorder at gaging station, 1.4 miles downstream from Palo Verde Canal intake structure, 9.5 miles northeast of Blythe, Calif., and 11.0 miles upstream from Ehrenberg, Yuma County, Ariz.

DRAINAGE AREA.--182,200 square miles, approximately.

RECORDS AVAILABLE.--Water temperatures: April 1956 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 88°F Aug. 7, 11; minimum, 51°F on several days in January.

EXTREMES, 1956-58.--Water temperatures: Maximum, 88°F Aug. 7, 11, 1958; minimum, 51°F on several days in January 1958.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1563.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																															Average		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
October	80	80	78	78	77	77	77	77	78	77	78	77	77	77	77	76	76	76	76	77	76	75	74	72	71	71	70	68	71	71	70	69	70	75
	Maximum.....	80	80	78	78	77	77	77	78	77	78	77	77	77	77	76	76	76	76	77	76	75	74	72	71	71	70	68	71	71	70	69	70	75
	Minimum.....	79	79	77	77	77	76	76	76	77	76	76	76	76	76	75	75	75	75	76	75	74	73	71	70	70	69	68	70	69	68	69	70	70
November	71	70	69	68	68	67	66	66	66	67	66	66	65	65	64	63	63	62	60	61	62	61	59	60	60	59	58	57	58	57	58	58	64	64
	Maximum.....	71	70	69	68	68	67	66	66	67	66	66	65	65	64	63	63	62	60	61	62	61	59	60	60	59	58	57	58	57	58	58	64	64
	Minimum.....	69	69	67	67	67	66	66	66	66	66	65	64	64	63	62	62	59	59	61	61	58	57	60	59	58	57	55	56	56	56	62	62	
December	59	57	57	57	56	56	56	56	56	56	56	56	55	55	55	55	55	55	55	55	55	55	54	54	54	54	54	54	54	54	54	54	55	55
	Maximum.....	59	57	57	57	56	56	56	56	56	56	56	55	55	55	55	55	55	55	55	55	55	54	54	54	54	54	54	54	54	54	54	55	55
	Minimum.....	58	57	57	56	55	55	55	56	56	55	55	55	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	55	55
January	53	53	52	52	52	52	53	53	53	54	53	53	54	54	54	54	54	54	54	54	54	53	53	52	52	52	52	52	53	53	53	53	53	53
	Maximum.....	53	53	52	52	52	53	53	53	54	53	53	54	54	54	54	54	54	54	54	54	53	53	52	52	52	52	52	53	53	53	53	53	53
	Minimum.....	53	51	51	51	51	52	52	52	52	52	52	51	53	53	53	53	54	53	53	53	53	52	51	52	51	52	51	52	52	51	52	51	52
February	52	52	53	54	54	54	54	54	54	54	54	54	54	54	54	54	56	56	57	57	58	58	58	58	58	58	57	57	57	57	57	57	55	55
	Maximum.....	52	52	53	54	54	54	54	54	54	54	54	54	54	54	54	56	56	57	57	58	58	58	58	58	58	57	57	57	57	57	57	55	55
	Minimum.....	52	52	53	54	54	53	53	54	54	53	54	54	54	54	54	56	57	57	58	58	58	58	58	58	58	57	57	57	57	57	57	55	55
March	57	58	58	58	58	58	58	59	60	60	60	60	60	60	60	60	60	61	62	61	62	63	63	63	63	63	63	63	63	63	64	64	61	61
	Maximum.....	57	58	58	58	58	58	59	60	60	60	60	60	60	60	60	60	61	62	61	62	63	63	63	63	63	63	63	63	63	64	64	61	61
	Minimum.....	56	57	58	56	57	58	57	58	59	58	58	58	59	58	60	60	60	60	61	60	60	62	61	62	63	62	61	63	63	63	63	60	60
April	63	64	63	64	65	66	67	68	67	68	70	69	69	69	69	69	69	69	70	68	70	71	70	71	71	71	71	71	71	70	72	72	68	68
	Maximum.....	63	64	63	64	65	66	67	68	67	68	70	69	69	69	69	69	69	70	68	70	71	70	71	71	71	71	71	71	70	72	72	68	68
	Minimum.....	63	63	62	63	64	66	66	67	67	67	68	67	68	69	68	68	68	68	69	69	69	69	69	69	69	70	69	70	69	70	67	67	
May	72	72	72	72	73	73	74	73	74	73	74	75	76	77	76	76	76	76	76	77	76	74	75	74	74	74	74	75	75	76	75	76	75	75
	Maximum.....	72	72	72	72	73	74	73	74	73	74	75	76	77	76	76	76	76	76	77	76	74	75	74	74	74	74	75	75	76	75	76	75	75
	Minimum.....	70	70	72	71	72	72	72	72	72	72	73	74	74	76	76	76	76	76	74	74	74	74	74	74	74	74	75	75	74	74	74	74	74
June	77	78	78	78	78	78	78	78	79	79	81	81	81	81	80	82	82	83	84	84	84	84	85	84	84	84	83	81	81	82	81	80	81	81
	Maximum.....	77	78	78	78	78	78	78	79	79	81	81	81	81	80	82	82	83	84	84	84	84	85	84	84	84	83	81	81	82	81	80	81	81
	Minimum.....	75	77	77	78	78	77	78	77	79	78	80	81	79	80	81	80	82	84	83	84	83	84	83	84	83	84	81	81	80	81	80	80	80
July	83	83	84	84	85	84	84	84	85	85	85	85	84	84	85	85	86	85	85	85	85	84	84	85	86	86	86	86	86	86	86	86	85	85
	Maximum.....	83	83	84	84	85	84	84	85	85	85	85	84	84	85	85	86	85	85	85	85	84	84	85	86	86	86	86	86	86	86	86	85	85
	Minimum.....	81	82	82	83	84	83	84	84	85	85	84	84	84	84	84	85	85	85	85	85	84	84	85	86	86	86	86	86	86	86	86	85	85
August	86	86	86	85	87	87	88	87	88	87	88	86	87	86	86	86	87	86	86	87	86	85	84	85	86	86	86	86	86	86	86	86	86	86
	Maximum.....	86	86	86	85	87	87	88	87	88	87	88	86	87	86	86	87	86	86	87	86	85	84	85	86	86	86	86	86	86	86	86	86	86
	Minimum.....	84	85	86	83	85	86	86	86	84	86	87	84	85	86	85	84	86	84	84	84	82	85	86	85	85	84	85	84	84	84	84	84	85
September	86	84	82	82	82	83	83	84	84	84	84	83	81	80	79	81	81	81	80	80	80	78	77	78	77	78	77	78	76	76	75	75	75	75
	Maximum.....	86	84	82	82	82	83	83	84	84	84	83	81	80	79	81	81	81	80	80	80	78	77	78	77	78	77	78	76	76	75	75	75	75
	Minimum.....	85	82	82	81	82	81	82	82	81	83	80	78	79	77	79	80	77	78	77	76	76	76	76	76	77	78	76	76	75	75	75	75	79

Continuous-recording thermometer

COLORADO RIVER MAIN STEM--Continued
9-4293. COLORADO RIVER BELOW CIBOLA VALLEY, ARIZ.

LOCATION.--Temperature recorder at gaging station, 6.7 miles south of Cibola, 38 miles upstream from Imperial Dam, 39.7 miles downstream from Ehrenberg, Yuma County, and 52.1 miles from Palo Verde diversion dam near Blythe, Calif.

DRAINAGE AREA.--182,800 square miles, approximately.

RECORDS AVAILABLE.--Water temperatures: March 1956 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 87°F on several days in August and September 1958; minimum, 51°F Jan. 23, 24, 1958.

EXTREMES, 1956-58.--Water temperatures: Maximum, 87°F on several days in August and September 1958; minimum, 51°F Jan. 23, 24, 1958.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1563. Recorder inoperative June 1 to July 15.

Temperature (°F) of water, water year October 1957 to September 1958
/Continuous-recording thermometer/

	Month		Day																													Average		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	31		
October	79	78	76	73	72	72	72	72	72	73	73	71	69	69	70	71	72	72	72	72	72	69	65	65	66	68	68	68	68	68	68	67	71	
	Maximum.....	77	76	73	71	71	71	71	71	72	73	71	69	68	68	69	70	71	71	71	71	69	65	63	63	65	67	67	67	66	68	68	69	
	Minimum.....	69	69	66	63	63	63	62	61	61	62	62	62	61	60	60	60	59	57	58	58	56	54	55	56	56	56	56	54	53	52	53	53	
November	69	69	66	63	63	62	61	61	61	61	62	62	62	61	60	60	60	59	57	57	56	53	53	54	55	56	56	54	53	52	53	53	53	
	Maximum.....	68	69	66	63	63	62	61	61	61	62	62	62	61	60	60	60	59	57	57	56	53	53	54	55	56	56	54	53	52	53	53	53	
	Minimum.....	52	52	52	52	52	52	52	52	52	53	53	53	53	53	54	55	56	56	55	54	54	54	54	54	53	53	53	53	53	53	53	53	
December	52	52	52	52	52	52	52	52	52	52	52	53	53	53	53	53	54	55	56	56	55	54	54	54	54	53	53	53	53	53	53	53	53	
	Maximum.....	52	52	52	52	52	52	52	52	52	52	53	53	53	53	53	54	55	56	56	55	54	54	54	54	53	53	53	53	53	53	53	53	
	Minimum.....	53	53	52	52	52	53	53	53	53	53	53	53	53	52	52	52	52	53	53	52	52	52	52	52	52	53	54	54	54	54	53	53	53
January	53	53	52	52	52	52	53	53	53	53	53	53	53	53	52	52	52	52	53	53	52	52	52	51	51	52	53	54	54	54	53	53	53	53
	Maximum.....	53	52	52	52	52	52	53	53	53	53	53	53	53	52	52	52	52	53	53	52	52	52	51	51	52	53	54	54	54	53	53	53	53
	Minimum.....	54	54	54	56	57	60	60	61	60	62	62	60	61	61	61	61	61	60	60	62	63	64	65	63	60	59	58	57	57	57	57	57	57
February	54	54	54	54	55	56	57	58	58	58	58	58	58	58	58	58	59	58	58	58	58	60	60	60	62	60	59	57	57	57	57	57	57	57
	Maximum.....	54	54	54	54	55	56	57	58	58	58	58	58	58	58	58	59	58	58	58	58	60	60	60	62	60	59	57	57	57	57	57	57	57
	Minimum.....	54	54	54	54	55	56	57	58	58	58	58	58	58	58	58	59	58	58	58	58	60	60	60	62	60	59	57	57	57	57	57	57	57
March	58	58	58	59	60	60	58	57	58	60	60	60	60	60	61	60	60	60	62	62	62	62	63	64	64	64	64	64	65	65	65	65	65	65
	Maximum.....	58	58	58	59	60	58	57	58	60	60	60	60	60	61	60	60	60	62	62	62	62	63	64	64	64	64	64	65	65	65	65	65	65
	Minimum.....	58	58	58	59	60	58	57	58	60	60	60	60	60	61	60	60	60	62	62	62	62	63	64	64	64	64	64	65	65	65	65	65	65
April	63	61	60	59	61	64	64	64	65	66	66	66	66	67	67	67	67	67	67	67	71	73	73	72	71	72	72	72	73	72	72	72	72	72
	Maximum.....	61	59	58	58	61	63	63	64	65	66	65	65	66	65	67	69	68	70	70	71	72	71	70	70	71	71	71	71	71	71	71	71	71
	Minimum.....	61	59	58	58	61	63	63	64	65	66	65	65	66	65	67	69	68	70	70	71	72	71	70	70	71	71	71	71	71	71	71	71	71
May	73	73	74	75	75	76	76	75	75	74	74	74	74	75	75	77	79	81	82	83	80	81	81	82	83	80	83	84	81	81	80	80	80	80
	Maximum.....	71	72	72	73	74	74	74	74	74	73	72	72	73	74	75	77	79	81	82	80	81	81	82	83	80	83	84	81	81	80	80	80	80
	Minimum.....	71	72	72	73	74	74	74	74	74	73	72	72	73	74	75	77	79	81	82	80	81	81	82	83	80	83	84	81	81	80	80	80	80
June	73	73	74	75	76	76	75	75	74	74	73	72	72	73	74	75	77	77	77	78	78	78	78	79	81	78	79	79	79	80	80	80	80	80
	Maximum.....	71	72	72	73	74	74	74	74	74	73	72	72	73	74	75	77	77	77	78	78	78	78	79	81	78	79	79	79	80	80	80	80	80
	Minimum.....	71	72	72	73	74	74	74	74	74	73	72	72	73	74	75	77	77	77	78	78	78	78	79	81	78	79	79	79	80	80	80	80	80
July	73	73	74	75	76	76	75	75	74	74	73	72	72	73	74	75	77	77	77	78	78	78	78	79	81	78	79	79	79	80	80	80	80	80
	Maximum.....	71	72	72	73	74	74	74	74	74	73	72	72	73	74	75	77	77	77	78	78	78	78	79	81	78	79	79	79	80	80	80	80	80
	Minimum.....	71	72	72	73	74	74	74	74	74	73	72	72	73	74	75	77	77	77	78	78	78	78	79	81	78	79	79	79	80	80	80	80	80
August	73	73	74	75	76	76	75	75	74	74	73	72	72	73	74	75	77	77	77	78	78	78	78	79	81	78	79	79	79	80	80	80	80	80
	Maximum.....	71	72	72	73	74	74	74	74	74	73	72	72	73	74	75	77	77	77	78	78	78	78	79	81	78	79	79	79	80	80	80	80	80
	Minimum.....	71	72	72	73	74	74	74	74	74	73	72	72	73	74	75	77	77	77	78	78	78	78	79	81	78	79	79	79	80	80	80	80	80
September	73	73	74	75	76	76	75	75	74	74	73	72	72	73	74	75	77	77	77	78	78	78	78	79	81	78	79	79	79	80	80	80	80	80
	Maximum.....	71	72	72	73	74	74	74	74	74	73	72	72	73	74	75	77	77	77	78	78	78	78	79	81	78	79	79	79	80	80	80	80	80
	Minimum.....	71	72	72	73	74	74	74	74	74	73	72	72	73	74	75	77	77	77	78	78	78	78	79	81	78	79	79	79	80	80	80	80	80
October	73	73	74	75	76	76	75	75	74	74	73	72	72	73	74	75	77	77	77	78	78	78	78	79	81	78	79	79	79	80	80	80	80	80
	Maximum.....	71	72	72	73	74	74	74	74	74	73	72	72	73	74	75	77	77	77	78	78	78	78	79	81	78	79	79	79	80	80	80	80	80
	Minimum.....	71	72	72	73	74	74	74	74	74	73	72	72	73	74	75	77	77	77	78	78	78	78	79	81	78	79	79	79	80	80	80	80	80

GILA RIVER BASIN--Continued

9-4740. GILA RIVER AT KELVIN, ARIZ.

LOCATION--Just above mouth of Mineral Creek, 1,200 feet upstream from gaging station at Kelvin, Pinal County, 17 miles downstream from San Pedro River, and 19.5 miles upstream from Ashurst-Hayden Dam.

DRAINAGE AREA--18,011 square miles upstream from gaging station of which 5,125 square miles is below Coolidge Dam.

RECORDS AVAILABLE--Chemical analyses: December 1950 to September 1958.

Water temperatures: January 1950 to September 1958.

Extremes at Gila River: Maximum, 98°F July 25, Aug. 20, 1953; minimum, 41°F Dec. 15, 25, 1950, Jan. 25, Feb. 23, 1955.

Extremes at Coolidge Dam: Maximum, 98°F July 25, Aug. 20, 1953; minimum, 41°F Dec. 15, 25, 1950, Jan. 25, Feb. 23, 1955.

Specific conductance: Maximum, 98°F July 25, Aug. 20, 1953; minimum, 41°F Dec. 15, 25, 1950, Jan. 25, Feb. 23, 1955.

Hardness: Maximum, 892 ppm Nov. 5-15; minimum, 407 ppm Nov. 1.

Hardness: Maximum, 892 ppm Nov. 5-15; minimum, 407 ppm Nov. 1.

Specific conductance: Maximum daily, 2,390 micromhos Nov. 16; minimum daily, 509 micromhos June 25.

Water temperatures: Maximum, 88°F Sept. 16.

Sediment concentrations (January to September 1958): Maximum daily, 65,300 ppm Sept. 2; minimum daily, 82 ppm Jan. 29.

Sediment loads (January to September 1958): Maximum daily, 559,000 tons Aug. 6; minimum daily, 65 tons Jan. 10-31.

EXTREMES, 1950-58.--Dissolved solids: Maximum, 3,080 ppm July 1-8, 1957; minimum, 294 ppm Sept. 24, 1954.

Hardness: Maximum, 1,940 ppm July 11-18, 1956, July 1-8, 1957; minimum, 152 ppm Sept. 1-30, 1957.

Specific conductance: Maximum, 3,860 micromhos July 15, 1955; minimum, 407 micromhos Jan. 20, 1952.

Water temperatures: Maximum, 98°F July 25, Aug. 20, 1953; minimum, 41°F Dec. 15, 25, 1950, Jan. 25, Feb. 23, 1955.

REMARKS--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1957 to September 1958 given in WSP 1563. No appreciable inflow from Mineral Creek between sampling point and gaging station except during periods of heavy local rains.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carb- onate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		So- dium ad- sorp- tion ratio	Specific con- duct- ph (micro- mhos at 25°C)	
															Parts per million	Tons per acre- foot	Tons per day	Cal- cium Mag- nes- ium	Non- car- bon- ate			
Oct. 1-11, 1957...	163	27	0.11	66	11	67	7.1	224		98	55	0.9	1.3	0.19	458	0.62	202	210	26	2.0	714	7.8
Oct. 12-13.....	648	---	---	107	13	46	---	207		---	---	---	---	---	545	.74	954	320	151	1.1	796	7.3
Oct. 14.....	87	---	---	110	13	78	---	202		---	---	---	---	---	660	.90	155	328	162	1.9	977	7.4
Oct. 15.....	240	---	---	87	8.0	32	---	205		---	---	---	---	---	410	.56	266	250	82	.9	611	7.5
Oct. 16.....	62	---	---	110	14	75	---	178		---	---	---	---	---	666	.91	111	332	186	1.8	971	7.4
Oct. 17.....	64	---	---	116	15	81	---	214		---	---	---	---	---	703	.96	121	351	176	1.9	1,040	7.4
Oct. 18-22.....	20.4	---	---	148	28	120	---	204		---	---	---	---	---	1,000	1.36	55.1	484	318	2.4	1,400	7.3
Oct. 23-30.....	12.4	---	---	258	39	204	---	243		---	---	---	---	---	1,710	2.33	57.3	804	605	3.1	2,230	7.8
Oct. 31.....	552	---	---	126	15	36	---	224		---	---	---	---	---	595	.81	887	376	192	.8	825	7.1
Nov. 1.....	268	---	---	85	6.1	37	---	195		---	---	---	---	---	407	.55	295	237	77	1.1	617	7.4
Nov. 2-4.....	41.0	---	---	161	23	126	---	251		---	---	---	---	---	1,030	1.40	114	496	290	2.5	1,440	8.0
Nov. 5-15.....	16.6	---	---	298	36	177	---	238		---	---	---	---	---	1,760	2.39	78.9	892	596	2.6	2,230	7.7
Nov. 16-19.....	131	---	---	130	26	132	---	263		---	---	---	---	---	1,050	1.43	371	506	289	2.6	1,500	7.9
Nov. 20-26.....	23.0	---	---	238	34	182	---	266		---	---	---	---	---	1,520	2.07	144.4	734	518	2.9	2,030	7.9
Nov. 27-30.....	101	---	---	68	12	90	---	211		---	---	---	---	---	517	.70	141	219	46	2.6	823	7.7
Dec. 1-31.....	268	---	---	66	13	86	---	209		---	---	---	---	---	508	.69	368	216	46	2.5	800	7.9
Jan. 1-31, 1958..	90.8	16	.05	107	19	128	7.0	229		232	149	1.1	.9	.18	800	1.09	196	345	158	3.0	1,240	8.1

Feb. 1-4, 7	223	94	18	134	238	---	---	---	---	760	1.03	458	308	113	3.3	1,120.7.6
Feb. 10-28, 1958....	684	104	10	40	276	---	---	---	---	508	1.89	936	302	16	2.0	1,568.7.7
Feb. 5-8.....	73.2	147	25	190	257	---	---	---	---	1,070	1.46	211	470	260	3.8	1,510.7.8
Feb. 9-17, 1-12.....	386	85	17	135	235	---	---	---	---	720	.98	750	282	90	3.5	1,050.7.8
Mar. 15-17, 20-31.....																
Mar. 8-10, 13-14.....																
Mar. 16-19, 21.....	695	72	10	75	219	---	---	---	---	540	.73	1,010	222	42	2.2	763.8.1
Mar. 22-31.....	655	74	13	97	220	---	---	---	---	590	.80	1,040	240	60	2.7	895.7.6
Apr. 1-18.....	513	66	16	90	203	---	---	---	---	581	.79	805	230	64	2.6	837.8.2
Apr. 19-30.....	500	59	12	62	173	117	99	0.9	1.4	460	.63	621	196	54	2.6	697.7.4
May 1-31.....	498	55	11	66	169	---	---	---	---	445	.61	598	184	46	2.1	656.7.6
June 1-30.....	646	46	11	65	158	---	---	---	---	437	.59	762	160	30	2.2	630.8.1
June 1-15, 17.....	782	69	11	72	5.2	63	88	9	3.0	492	.67	1,040	219	29	2.1	748.7.9
July 1-15, 17.....	1,080	281	37	78	293	---	---	---	---	1,360	1.85	3,970	852	612	1.2	1,700.7.1
July 18.....	1,200	129	27	70	350	---	---	---	---	852	.68	2,110	434	40	1.5	1,070.7.1
July 19.....	890	68	13	75	219	---	---	---	---	498	.68	1,200	221	42	2.2	774.7.7
July 20-28.....	890	107	18	67	334	---	---	---	---	590	.60	1,770	341	68	1.6	912.7.7
July 16, 28-31.....	1,111	79	15	76	261	---	---	---	---	460	.73	1,710	258	44	2.1	832.7.7
Aug. 1-7.....	1,171	86	15	73	278	---	---	---	---	546	.74	1,170	276	48	1.9	836.7.7
Aug. 8-31.....	791	102	17	76	297	---	---	---	---	610	.83	1,230	323	80	1.8	938.7.6
Sept. 1-7.....	748	102	17	76	297	---	---	---	---	610	.83	1,230	323	80	1.8	938.7.6
Sept. 8-16, 24-25.....	630	86	15	75	244	---	---	---	---	565	.77	961	275	75	2.0	850.7.8
Sept. 17-23, 26-30	168	108	19	101	219	---	---	---	---	753	1.02	342	346	166	2.4	1,080.7.7
Weighted average	433	76	14	80	224	---	---	---	---	549	0.75	642	247	64	2.2	818

Temperature (°F) of water, water year October 1957 to September 1958
/Once-daily measurement, generally in the afternoon/

Month		Day																Average													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October.....	--	--	--	75	77	77	77	77	78	74	65	64	63	71	74	78	--	72	--	--	--	--	--	--	--	--	--	65	72	73	65
November.....	68	--	69	68	62	61	62	--	--	--	--	--	--	--	60	--	62	60	60	54	56	57	62	63	61	54	51	50	51	--	
December.....	50	51	47	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
January.....	--	--	--	--	--	--	--	--	34	--	--	--	--	--	--	--	--	--	--	--	46	52	50	52	55	60	59	58	58	59	--
February.....	55	54	54	52	51	--	55	59	62	59	58	61	59	61	69	62	62	64	58	60	64	64	58	64	58	58	58	--	--	59	--
March.....	56	56	56	56	60	52	54	52	56	58	56	60	60	60	58	62	62	64	66	64	66	58	62	64	64	64	62	62	64	64	60
April.....	64	62	60	62	66	64	60	64	66	68	68	70	70	68	70	72	72	70	74	74	70	70	72	72	72	72	72	72	72	--	68
May.....	72	72	72	74	74	76	74	74	74	70	72	74	74	72	72	76	74	76	76	76	76	76	76	76	76	76	76	76	76	74	74
June.....	70	72	76	76	78	74	70	70	76	76	76	76	72	74	78	80	80	76	76	76	76	76	76	79	79	81	81	79	78	--	76
July.....	75	78	79	79	77	79	75	80	80	80	80	80	79	32	80	81	71	80	78	78	80	80	82	85	84	80	79	79	82	84	80
August.....	86	84	85	84	84	82	84	83	85	84	85	85	85	84	84	80	83	82	85	83	83	85	85	83	85	84	84	86	85	86	84
September.....	86	82	85	84	85	82	83	86	87	85	--	80	--	80	77	88	80	83	81	78	78	76	79	72	71	72	75	72	75	--	80

QUALITY OF SURFACE WATERS, 1958

GILA RIVER BASIN--Continued

9-4740. GILA RIVER AT KELVIN, ARIZ.--Continued

Suspended sediment, January to September 1958

Day	January			February			March		
	Mean dis-charge (cfs)	Mean concentration (ppm)	Tons per day	Mean dis-charge (cfs)	Mean concentration (ppm)	Tons per day	Mean dis-charge (cfs)	Mean concentration (ppm)	Tons per day
1...	--	--	--	152	--	--	292	--	--
2...	--	--	--	183	--	166	289	--	--
3...	--	--	--	185	356	--	292	574	--
4...	--	--	--	240	2,400	sa2,400	307	--	508
5...	--	--	--	1,060	10,700	s36,800	317	672	--
6...	--	--	--	308	3,490	s3,300	317	--	--
7...	--	--	--	131	966	342	688	4,270	s9,560
8...	--	--	--	68	--	--	896	4,500	s11,200
9...	--	--	--	54	--	--	746	3,950	s8,010
10...	57	266	--	78	594	--	505	3,920	5,340
11...	55	--	--	84	--	--	381	3,000	a3,100
12...	62	308	--	80	432	--	498	1,200	1,610
13...	88	--	--	70	--	79	895	2,500	6,040
14...	96	--	--	80	183	--	635	2,920	5,010
15...	102	258	--	78	--	--	429	2,200	s2,500
16...	106	278	--	77	--	--	359	1,400	sa1,400
17...	108	188	--	71	398	--	566	1,600	2,450
18...	108	--	--	65	--	--	674	3,280	5,970
19...	111	--	--	113	1,680	s650	514	4,200	5,830
20...	113	272	--	194	--	--	343	2,800	a2,600
21...	113	--	65	198	390	--	326	4,200	3,700
22...	114	--	--	206	--	303	1,040	17,000	sa64,000
23...	120	--	--	223	--	--	1,290	17,000	s61,000
24...	116	476	--	252	711	--	661	7,800	13,900
25...	111	--	--	271	--	--	480	--	--
26...	110	--	--	390	3,160	3,540	472	1,910	--
27...	111	112	--	307	--	--	468	--	--
28...	111	--	--	298	712	580	501	788	1,530
29...	113	82	--	--	--	--	544	--	--
30...	113	--	--	--	--	--	548	--	--
31...	111	103	--	--	--	--	548	631	--
Total	2,249	--	1,430	5,516	--	51,377	16,821	--	226,978
Day	April			May			June		
	Mean dis-charge (cfs)	Mean concentration (ppm)	Tons per day	Mean dis-charge (cfs)	Mean concentration (ppm)	Tons per day	Mean dis-charge (cfs)	Mean concentration (ppm)	Tons per day
1...	526	--	--	543	--	--	607	--	--
2...	635	334	--	535	436	--	607	286	--
3...	621	--	--	509	--	--	602	--	--
4...	654	392	--	468	--	624	611	219	--
5...	593	--	--	476	345	--	616	--	--
6...	526	--	708	456	--	--	611	290	--
7...	513	424	--	425	636	--	611	--	--
8...	593	--	--	425	--	--	611	--	--
9...	635	799	--	410	446	--	640	234	--
10...	566	--	--	433	--	--	664	--	--
11...	518	312	--	440	--	--	694	254	--
12...	414	--	--	440	460	498	699	--	--
13...	363	--	--	433	--	--	694	247	--
14...	356	282	370	433	236	--	689	--	--
15...	353	--	--	440	--	--	694	--	431
16...	425	436	--	440	350	--	694	241	--
17...	492	920	1,220	440	--	--	689	--	--
18...	452	318	--	468	--	--	689	240	--
19...	440	--	327	472	224	--	684	--	--
20...	425	--	--	488	--	--	664	181	--
21...	425	238	--	513	544	--	635	--	--
22...	476	--	--	530	--	--	616	--	--
23...	501	412	--	543	299	--	621	164	--
24...	505	--	--	544	--	500	607	--	--
25...	497	608	--	561	--	--	616	259	--
26...	526	--	625	575	382	--	611	--	--
27...	552	--	--	593	--	--	616	427	--
28...	552	345	--	593	309	--	650	--	--
29...	552	--	--	598	--	--	669	--	--
30...	552	402	--	598	262	--	664	165	--
31...	--	--	--	607	--	--	--	--	--
Total	15,238	--	17,791	15,429	--	15,622	19,375	--	12,930

s Computed by subdividing day.

a Computed from estimated-concentration graph.

GILA RIVER BASIN--Continued

9-4740. GILA RIVER AT KELVIN, ARIZ.--Continued

Suspended sediment, January to September 1958--Continued

Day	July			August			September		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	679	300	a550	607	5,860	10,300	484	3,800	4,970
2...	754	21,900	s51,100	645	--		1,440	65,300	s305,000
3...	719	10,000	19,400	593	--		880	31,800	75,600
4...	704	1,400	2,660	611	6,660		790	52,000	sa130,000
5...	724	840	a1,600	579	--		681	39,100	s86,200
6...	788	700	a1,500	2,860	52,400	s559,000	574	28,000	a43,000
7...	815	6,400	14,100	2,300	57,000	sa400,000	388	6,000	a6,300
8...	820	12,000	a27,000	701	36,400	71,400	343	2,500	2,320
9...	793	2,300	4,920	698	37,000	sa77,000	336	2,000	a1,800
10...	782	1,100	2,300	635	29,000	a50,000	346	4,700	4,390
11...	771	328	788	664	32,900	61,200	609	26,700	s53,700
12...	777	--		639	28,000	a48,000	732	25,600	s68,200
13...	826	--		718	30,500	59,100	1,090	39,500	121,000
14...	842	394		650	19,000	a33,000	1,130	53,000	s177,000
15...	826	--		726	16,200	31,800	681	47,200	90,000
16...	893	9,400	22,700	993	27,000	a72,000	345	23,400	21,800
17...	899	11,000	a27,000	2,190	45,100	s390,000	201	12,600	6,840
18...	1,080	17,900	s57,500	1,430	61,800	247,000	168	7,600	3,450
19...	1,200	33,100	s101,000	529	32,000	a47,000	144	3,200	1,240
20...	1,170	28,300	s95,100	902	31,400	s82,200	132	2,300	a820
21...	947	4,400	11,300	635	17,000	29,100	120	1,300	a420
22...	923	--	1,340	738	31,600	s71,900	114	600	185
23...	905	774		626	21,000	a35,000	118	480	a150
24...	848	--		832	24,000	sa67,000	804	56,300	s181,000
25...	793	428		1,460	52,700	215,000	514	49,000	70,500
26...	809	--		692	36,000	a70,000	270	25,500	18,600
27...	815	--	s51,200	414	21,400	23,900	189	13,400	6,840
28...	798	562		446	22,000	a26,000	168	9,600	4,350
29...	982	17,300		501	5,200	7,030	134	5,700	2,060
30...	1,570	41,800		654	11,000	a19,000	264	38,000	s29,500
31...	1,000	28,000	sa87,000	513	3,400	a4,700	--	--	--
Total	27,252	--	823,250	27,181	--	2,848,830	14,189	--	1,517,235

Total discharge for period January to September 1958 (cfs-days)..... 143,250

Total load for period January to September 1958 (tons)..... 5,515,443

s Computed by subdividing day.

a Computed from estimated-concentration graph.

GILA RIVER BASIN--Continued

9-4740. GILA RIVER AT KELVIN, ARIZ.--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Samp- ling point	Water tem- per- ature (°F)	Discharge (cfs)	Sediment concentra- tion (ppm)	Suspended sediment											Method of analysis
						Percent finer than size indicated, in millimeters											
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Jan. 10, 1958.....	1615		34	57	285			55	29	90		92	97	100	--	100	VPWC
Feb. 5.....	0800		49	2,400	21,900			16	29	54	69	86	98	100	--	100	VPWC
Feb. 6.....	1100		51	3,307	3,580			57	80	94	98	100	--	--	--	--	VPWC
July 19.....	1600		80	2,550	77,500			56	85	98	99	100	--	--	--	--	VPWC
Aug. 17.....	1600		80	4,210	81,200			43	63	91	96	99	100	100	100	--	VPWC
Sept. 24.....	0900		70	1,830	91,100			37	61	92	98	100	--	--	--	--	VPWC

GILA RIVER BASIN--Continued

9-5020. SALT RIVER BELOW STEWART MOUNTAIN DAM, ARIZ.
(Formerly published as Salt River at Stewart Mountain Dam, Ariz.)

LOCATION.--Just below dam, 3.5 miles upstream from gaging station below Stewart Mountain Dam, which is 6 miles upstream from Verde River, Maricopa County.

DRAINAGE AREA.--6,211 square miles.

RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1958.

Water temperatures: December 1950 to September 1958.

EXTREMES, 1957-58.--Dissolved solids: Maximum, 844 ppm July 1-31; minimum, 550 ppm Sept. 10-30.

Hardness: Maximum, 208 ppm July 1-31; minimum, 151 ppm Sept. 10-30.

Specific conductance: Maximum daily, 1,580 micromhos July 7; minimum daily, 980 micromhos Sept. 17.

Water temperatures: Maximum, 71°F on several days during September.

EXTREMES, 1950-58.--Dissolved solids: Maximum, 1,300 ppm Aug. 21-28, 1951; minimum, 361 ppm Mar. 21-31, 1953.

Hardness: Maximum, 270 ppm Nov. 1-30, 1956; minimum, 138 ppm Apr. 1-10, 1953.

Specific conductance: Maximum daily, 2,490 micromhos Aug. 20, 1951; minimum daily, 620 micromhos Mar. 28, 1953.

Water temperatures: Maximum, 84°F Aug. 24, 26, 27, 1951; minimum, 49°F Feb. 14, 1951.

REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1957 to September 1958 given in WS-1588. No information between sampling point and gaging station except during periods of heavy local rains.

No flow Nov. 13 to Feb. 17, Mar. 2-6, Mar. 27 to Apr. 7, 19-27.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 1-Nov. 12, 1957	47.4	--	--	51	15	204	--	163	--	--	--	--	--	--	784	1.07	100	188	55	6.5	1,380	7.5
Feb. 18-Mar. 1, 1958	99.1	15	0.00	52	14	205	6.0	164	55	310	0.8	0.00	--	--	770	1.05	200	187	52	6.5	1,360	7.8
Apr. 7-26, 1958	279	--	--	53	14	212	--	163	--	--	--	--	--	--	782	1.06	389	190	56	6.1	1,380	7.9
May 1-31	582	--	--	57	14	207	--	168	--	--	--	--	--	--	797	1.08	1,250	200	62	6.1	1,520	7.6
June 1-30	803	19	.00	59	14	225	6.2	171	59	355	0.5	--	.4	.27	842	1.15	2,100	208	68	6.8	1,560	7.7
July 1-31	1,913	--	--	52	13	218	--	170	--	--	--	--	--	--	825	1.12	2,700	200	60	6.7	1,510	7.7
Aug. 1-9	1,893	--	--	51	10	180	--	152	--	--	--	--	--	--	663	.90	2,910	168	44	6.8	1,240	7.8
Sept. 1-9	1,623	--	--	44	10	148	--	140	--	--	--	--	--	--	550	.75	--	151	36	5.2	1,050	7.7
Sept. 10-30	1,589	--	--	--	--	--	--	--	--	--	--	--	--	--	784	1.07	1,300	193	58	6.5	1,440	--
Weighted average	a614	--	--	56	13	209	--	165	--	--	--	--	--	--	784	1.07	1,300	193	58	6.5	1,440	--

a Mean for 235 days of flow.

GILA RIVER BASIN--Continued

9-5020. SALT RIVER BELOW STEWART MOUNTAIN DAM, ARIZ.--Continued

Temperature (°F) of water, water year October 1957 to September 1958

Once-daily measurement usually at 7 a.m.

Month			Day																												Average		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
October....	--	75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
November...	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
December...	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
January....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
February...	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
March.....	--	--	--	--	--	--	55	56	55	55	55	55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
April.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
May.....	56	56	56	55	56	56	56	--	57	58	58	58	58	58	58	--	--	--	--	--	--	--	--	61	60	60	60	61	61	62	60	--	--
June.....	60	60	--	60	61	60	63	63	63	63	64	65	63	64	64	65	65	65	65	66	65	66	66	66	66	67	66	66	66	66	66	64	--
July.....	66	66	66	67	66	67	66	66	66	66	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	
August....	67	69	69	68	69	69	69	68	68	68	68	68	68	68	68	69	69	70	70	70	70	69	70	70	69	69	69	69	70	70	69	69	
September..	70	70	71	71	71	71	71	71	71	71	71	71	71	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	--

GILA RIVER BASIN--Continued

9-5045. OAK CREEK NEAR CORNVILLE, ARIZ.

LOCATION.--Temperature recorder at gaging station on county highway bridge, 0.2 miles upstream from Page Springs, 4 miles northeast of Cornville, Yavapai County, and 15 miles upstream from mouth.

DRAINAGE AREA.--357 square miles.

RECORDS AVAILABLE.--Water temperatures: June 1954 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 90°F July 11; minimum, 41°F Mar. 18.

EXTREMES, 1954-58.--Water temperatures: Maximum, 90°F July 28, 1954, July 11, 1958; minimum, 37°F Feb. 21, 1955.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1563.

Temperature (°F) of water, water year October 1957 to September 1958																																
Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	71	69	69	67	70	71	70	68	68	68	67	65	60	60	63	62	63	64	65	63	61	59	60	61	62	61	58	59	60	60	60	64
Maximum.....	66	65	65	63	65	66	66	63	63	64	65	60	59	59	59	61	58	61	60	61	59	56	56	57	58	58	59	58	56	58	57	61
Minimum.....	58	57	56	49	47	49	49	50	53	53	53	53	52	54	52	54	52	50	50	51	51	46	46	48	44	45	46	46	44	46	--	48
November	56	56	49	47	46	47	46	47	48	48	49	50	51	50	51	52	52	48	48	48	48	46	43	44	45	46	46	47	45	44	43	--
Maximum.....	45	45	46	46	46	48	48	50	51	51	51	50	49	50	50	51	50	50	50	48	48	48	50	50	49	49	48	47	48	49	49	49
Minimum.....	43	43	43	44	45	46	46	47	47	49	49	48	47	48	49	50	48	47	46	46	46	47	48	48	47	47	46	46	46	47	47	47
December	48	48	48	48	49	50	49	50	49	50	49	50	49	49	49	49	50	49	50	49	48	48	48	47	51	51	52	52	53	53	52	50
Maximum.....	46	46	47	47	46	47	48	47	47	47	47	48	47	46	46	46	47	47	46	45	45	44	46	47	50	49	49	50	50	49	47	47
Minimum.....	52	52	50	50	46	46	48	48	51	51	51	50	52	51	53	54	56	56	56	56	56	55	57	56	55	47	47	48	--	--	--	52
January	48	49	49	46	44	44	45	45	47	48	48	46	48	48	48	50	51	51	53	52	54	52	55	52	46	44	44	44	--	--	--	48
February	49	50	48	51	54	53	53	52	53	52	51	52	51	54	53	52	46	47	48	49	51	50	47	48	51	53	54	52	50	54	52	51
Maximum.....	46	45	46	46	47	50	48	47	47	45	47	47	47	47	49	44	43	41	44	46	48	43	43	46	46	48	49	48	48	50	46	46
Minimum.....	52	54	52	48	50	53	53	50	53	56	57	56	58	61	62	61	63	65	68	68	71	70	68	66	67	68	68	66	69	--	--	61
March	48	48	47	47	46	47	48	47	47	47	47	48	47	46	46	46	47	47	46	45	45	44	46	47	50	49	49	50	50	49	47	47
Maximum.....	48	48	47	47	46	47	48	47	47	47	47	48	47	46	46	46	47	47	46	45	45	44	46	47	50	49	49	50	50	49	47	47
Minimum.....	52	54	52	48	50	53	53	50	53	56	57	56	58	61	62	61	63	65	68	68	71	70	68	66	67	68	68	66	69	--	--	61
April	48	48	47	47	46	47	48	47	47	47	47	48	47	46	46	46	47	47	46	45	45	44	46	47	50	49	49	50	50	49	47	47
Maximum.....	71	67	71	74	76	75	73	75	76	76	76	73	72	74	76	77	78	79	79	80	78	80	81	80	80	80	79	81	78	76	78	76
Minimum.....	62	64	61	64	66	68	67	66	67	67	69	64	65	64	66	66	68	69	70	70	72	72	71	71	71	71	71	72	72	71	70	68
May	77	79	79	80	81	81	80	78	78	76	77	77	78	77	77	78	77	83	84	84	82	82	86	88	87	87	87	85	85	84	--	82
Maximum.....	69	70	70	70	72	73	71	70	69	70	70	70	69	70	71	74	75	76	76	76	76	76	75	77	76	74	73	74	76	74	--	72
Minimum.....	85	86	86	86	87	88	88	88	89	89	90	86	88	86	85	85	85	85	85	84	83	83	83	83	82	80	83	83	79	78	72	85
June	73	76	74	73	73	75	75	75	76	76	76	76	77	76	77	76	75	76	76	74	73	72	72	74	74	74	73	74	73	75	74	75
Maximum.....	84	85	86	79	82	83	83	86	87	87	87	86	85	85	87	87	89	85	84	84	78	80	82	83	84	84	82	82	84	87	87	84
Minimum.....	75	76	72	72	75	77	74	77	77	78	77	79	78	76	75	78	76	75	76	78	77	74	75	76	75	76	75	76	75	76	77	76
July	86	80	80	79	81	81	81	78	81	83	83	79	74	75	75	76	76	78	78	79	79	79	79	75	72	68	65	70	67	67	--	76
Maximum.....	77	76	74	74	74	74	73	74	73	75	76	70	69	68	67	68	69	71	71	70	70	71	70	71	70	65	63	64	61	61	--	70
Minimum.....																																

GILA RIVER BASIN--Continued

9-5100. VERDE RIVER BELOW BARTLETT DAM, ARIZ.

LOCATION--At gaging station, 2.2 miles downstream from Bartlett Dam, Maricopa County, and 3.5 miles upstream from Camp Creek.

DRAINAGE AREA--618 square miles.

RECORDS AVAILABLE--Chemical analyses: December 1950 to September 1958.

Water temperatures: December 1950 to September 1958.

EXTREMES, 1957-58.--Dissolved solids: Maximum, 524 ppm Nov. 9; minimum, 173 ppm May 1-31.

Hardness: Maximum, 302 ppm Nov. 9; minimum, 120 ppm Apr. 20 to May 31.

Specific conductance: Maximum daily, 702 micromhos Nov. 9; minimum daily, 259 micromhos Apr. 29.

Water temperatures: Maximum, 80°F Sept. 11, 12, 16; minimum, 50°F Jan. 28, 29, Mar. 8-12.

EXTREMES, 1950-58.--Dissolved solids: Maximum, 550 ppm Dec. 18-21, 1956; minimum, 158 ppm Jan. 11-20, 1952.

Hardness: Maximum, 413 ppm Dec. 18-21, 1956; minimum, 108 ppm Jan. 11-20, 1952.

Specific conductance: Maximum daily, 958 micromhos Nov. 10, 1956; minimum daily, 234 micromhos Jan. 13, 15, 1952.

Water temperatures: Maximum, 90°F July 18, Aug. 14, 1951; minimum, 41°F Jan. 30, 1952.

REMARKS--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year

October 1957 to September 1958 given in WSP 1563.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Borates (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate				
Oct. 1-31, 1957..	270	24	0.03	46	27	35	3.1	254		64	26	0.5	0.7	0.22		352	0.48	257	226	18	1.0	566	7.9
Nov. 1-8.....	47.4			48	27	35		263								370	50	47.4	231	16	1.0	578	7.9
Nov. 9-21.....	108			83	23	32		235								524	71	153	302	109	8	380	7.7
Nov. 10-21.....	119			84	16	17		173								228	31	73.3	151	9	6	380	7.7
Nov. 22-30.....	207			48	24	27		250								330	45	184	218	14	8	524	8.1
Dec. 1-31.....	276			49	25	30		258								341	46	254	226	14	9	549	8.2
Jan. 1-29, 1958..	161	22	.02	49	25	31	3.0	257		54	24	.4	.8	.20		344	47	149	226	15	9	546	8.2
Jan. 30-31.....	6.0			55	24	33		267								372	.51	6.03	236	16	9	569	8.2
Feb. 1-28.....	132			48	27	33		268								354	.48	126	231	12	9	563	8.1
Mar. 1-25.....	650			46	25	31		254								336	.46	590	218	10	9	528	8.2
Mar. 26-31.....	2,678			43	22	26		229								301	.41	2,180	198	10	8	471	8.2
Apr. 1-5.....	2,092	23	.02	39	20	23	2.7	210		35	14		.7	.00		273	.37	1,540	180	8	7	428	8.0
Apr. 6-16.....	1,412			36	14	17		177								226	.31	862	148	2	6	353	8.0
Apr. 17-19.....	1,257			32	14	13		152								220	.30	747	138	13	5	325	7.9
Apr. 20-30.....	1,365			30	11	11		140								184	.25	678	120	6	4	272	7.9
May 1-31.....	698			30	11	13		147								173	.24	326	120	0	5	288	8.1
June 1-30.....	1,027			33	11	14		159								180	.24	499	128	0	5	309	8.0
July 1-31.....	1,177	22	.00	36	14	17	2.1	181		19	13		1.0	.14		219	.30	698	148	0	6	353	8.1
Aug. 1-31.....	1,417			41	18	24		207								256	.35	288	176	7	8	428	8.2
Sept. 1-30.....	155			38	21	30		210								290	.39	121	182	10	1.0	460	8.1
Weighted average	583			38	17	20		193								245	0.33	386	165	7	0.7	393	--

GILA RIVER BASIN--Continued

9-5100. VERDE RIVER BELOW BARTLETT DAM, ARIZ.--Continued

Temperature (°F) of water, water year October 1957 to September 1958

/Once-daily measurement, generally at 8:30 a. m./

Month	Day																															Aver- age	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October.....	76	76	76	76	76	76	76	76	76	74	74	74	74	74	74	74	74	74	72	72	72	70	70	70	70	70	70	70	70	70	70	73	
November....	70	70	70	70	70	70	70	68	66	64	62	60	58	58	58	58	56	56	56	56	54	54	56	56	56	56	56	56	56	56	56	56	61
December....	56	56	56	56	56	56	56	58	56	56	56	54	54	54	54	54	54	54	54	54	54	56	56	56	58	54	54	52	52	53	54	55	
January.....	54	54	---	---	54	54	54	54	54	54	54	52	52	53	54	54	54	54	54	54	54	54	54	54	52	52	52	50	50	54	52	53	
February....	54	54	54	52	52	52	52	52	52	52	50	50	50	54	54	54	54	54	54	54	54	54	54	54	56	54	54	54	54	54	54	52	
March.....	52	52	52	52	52	52	52	50	50	50	50	50	54	54	54	54	54	54	54	54	54	54	54	54	56	54	54	54	54	54	54	53	
April.....	54	54	54	54	54	56	56	56	56	56	56	56	60	60	60	60	58	56	56	56	56	56	56	56	56	58	58	56	56	60	---	57	
May.....	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	58	58	58	60	60	60	60	60	60	60	60	60	60	
June.....	58	58	58	60	60	60	58	58	58	60	60	58	58	58	58	58	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	
July.....	60	60	60	60	60	60	60	60	66	66	67	67	67	67	67	67	66	66	66	66	58	58	56	58	67	70	67	72	72	72	72	64	
August....	72	78	78	---	77	76	75	76	76	77	77	77	77	77	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	58	58	72
September..	58	58	58	78	78	78	78	78	78	78	80	80	78	78	78	80	78	78	79	79	79	79	79	79	79	78	78	79	71	79	---	76	

GILA RIVER BASIN--Continued

9-5136. AGUA FRIA RIVER BELOW LAKE PLEASANT DAM, ARIZ.

LOCATION.--At water stage recorder on canal, 1.2 miles downstream from Lake Pleasant Dam on Agua Fria River, 19 miles north of Maricopa County, and 23 miles upstream from New River.

DRAINAGE AREA.--1,459 square miles upstream from Lake Pleasant.

RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1958 (discontinued).

Water temperatures: December 1950 to September 1958 (discontinued).

EXTREMES, 1957-58.--Dissolved solids: Maximum, 281 ppm June 22-30; minimum, 244 ppm July 1-31, Sept. 1-12.

Hardness: Maximum, 160 ppm June 22-30; minimum, 143 ppm Sept. 1-12.

Specific conductance: Maximum, 325 micromhos June 22; minimum, 346 micromhos Aug. 11.

Water temperatures: Maximum, 82°F Aug. 19; minimum, 49°F Jan. 29 to Feb. 10, 1952.

EXTREMES, 1950 to 1956.--Dissolved solids: Maximum, 400 ppm Oct. 14-20, 1955; minimum, 168 ppm Jan. 29 to Feb. 10, 1952.

Hardness: Maximum, 246 ppm Oct. 14-20, 1955; minimum, 108 ppm June 21-30, 1952.

Specific conductance: Maximum daily, 698 micromhos Oct. 19, 1955; minimum daily, 241 micromhos Jan. 29, 1952.

Water temperatures: Maximum, 85°F Aug. 12, 15, 16, 1955.

REMARKS.--Samples collected from diversion canal when there is flow. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1957 to September 1958 furnished by Maricopa County Water District through Surface Water Branch, Tucson District. Monthly diversions to canal below Lake Pleasant diversion dam are published as Agua Fria River at Lake Pleasant Dam in WSP 1563. No flow Oct. 1 to June 21, Sept. 13-30.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Sodium carbonate ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
June 22-30, 1958.	71.1			43	13	27		196							281	0.38	53.9	160	0	0.9	477	7.3
July 1-31.....	86.4	22	0.03	42	11	23	3.2	180		29	15	0.4	3.6	0.07	244	.33	56.9	132	4	.8	405	7.4
Aug. 1-31.....	97.1			38	13	24		179							251	.34	65.8	131	4	.8	398	7.5
Sept. 1-12.....	117			39	12	23		179							244	.33	77.1	145	0	.8	381	7.6
Weighted average	a93.3			40	12	24		181							250	0.34	63.0	150	1	0.9	403	--

a Average for 83 days of flow.

GILA RIVER BASIN--Continued
9-5195. GILA RIVER BELOW GILLESPIE DAM, ARIZ.

LOCATION.--About 1 mile below gaging station on Gila Bend Canal, which is 200 feet below Gillespie Dam, Maricopa County, and 8 miles downstream from Hassayampa River. Gila Bend Canal diverts from left bank and Enterprise Canal diverts from right bank at Gillespie Dam.

DRAINAGE AREA.--49,620 square miles.

RECORDS AVAILABLE.--Chemical analyses.

Water temperatures: December 1950 to September 1958.

EXTREMES, 1957-58.--Dissolved solids: Maximum, 6,770 ppm Dec. 1-31; minimum, 452 ppm Feb. 11.

Hardness: Maximum, 1,780 ppm Nov. 23-30; minimum, 108 ppm Nov. 5-7.

Specific conductance: Maximum daily, 10,000 micromhos Nov. 24; minimum daily, 683 micromhos Aug. 16.

Water temperatures: Maximum, 98°F July 8; minimum, 47°F Jan. 24.

EXTREMES, 1950-58.--Dissolved solids: Maximum, 6,770 ppm Dec. 1-31, 1957; minimum, 227 ppm Aug. 2, 1955.

Hardness: Maximum, 1,740 ppm Oct. 11, 1958; minimum, 452 ppm Feb. 11, 1957.

Specific conductance: Maximum daily, 10,200 micromhos Oct. 3, 1958; minimum, 227 ppm Aug. 2, 1955.

Water temperatures: Maximum, 98°F July 8, 1958; minimum, 45°F Jan. 1, 1951.

REMARKS.--Samples from canal are believed to be representative of total flow passing Gillespie Dam, including spill and amounts diverted into Gila Bend and Enterprise Canals. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of separate and combined discharge for the river and canals for water year October 1957 to September 1958 given in WSP 1563.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbocationate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 1-21, 1957...	15.4	32	0.00	365	147	1,500	10	325		1,370	2,200	2.7	37	3.7	5,930	8.06	247	1,520	1,250	17	9,120	7.7
Oct. 22.....	28	23	---	157	50	585	---	259	---	---	---	---	---	---	2,270	3.09	172	597	384	10	3,650	7.7
Oct. 23.....	23	---	---	296	113	1,170	---	339	---	---	---	---	---	---	4,640	6.31	288	1,200	925	15	6,930	8.0
Oct. 24-31.....	16.4	---	---	385	147	1,600	---	337	---	---	---	---	---	---	6,420	8.73	284	1,560	1,290	18	9,150	7.9
Nov. 1-4.....	168	---	---	66	13	178	---	175	---	---	---	---	---	---	747	1.02	339	218	74	5.2	1,270	8.6
Nov. 5-7.....	271	---	---	37	3.8	---	---	255	---	---	---	---	---	---	574	.78	429	108	0	6.9	927	8.2
Nov. 8.....	28	---	---	312	131	1,468	---	281	---	---	---	---	---	---	1,740	2.37	148	1,340	219	9.2	2,790	7.6
Nov. 9.....	28	---	---	361	131	1,200	---	397	---	---	---	---	---	---	4,850	6.90	367	1,340	1,030	14	7,170	7.7
Nov. 10.....	27	---	---	405	171	1,620	---	360	---	---	---	---	---	---	5,450	7.41	387	1,440	1,110	15	7,950	7.9
Nov. 11-22.....	22.4	---	---	---	---	---	---	---	---	---	---	---	---	---	6,570	8.94	397	1,710	1,420	17	9,430	7.9
Nov. 23-30.....	18.9	---	---	425	174	1,680	---	377	---	---	---	---	---	---	6,760	9.19	345	1,780	1,470	17	9,720	7.9
Dec. 1-31.....	22.1	---	---	433	166	1,690	---	377	---	---	---	---	---	---	6,770	9.21	404	1,780	1,490	17	9,500	7.9
Jan. 1-17, 1958...	21.9	32	.00	411	163	1,520	13	361	---	1,450	2,220	2.7	51	3.7	6,080	8.27	360	1,700	1,400	16	9,200	7.9
Jan. 18.....	20	---	---	357	140	1,410	---	331	---	---	---	---	---	---	5,620	7.64	303	1,470	1,190	16	8,370	7.9
Jan. 19-31.....	19.3	---	---	409	159	1,580	---	368	---	---	---	---	---	---	6,320	8.73	325	1,670	1,370	17	9,250	8.0
Feb. 1-4.....	20.2	---	---	391	139	1,540	---	372	---	---	---	---	---	---	6,370	8.66	347	1,550	1,240	17	8,940	7.9
Feb. 5.....	67	---	---	308	108	1,100	---	306	---	---	---	---	---	---	4,580	6.23	829	1,210	962	13	6,630	7.4
Feb. 6.....	143	---	---	83	12	110	---	118	---	---	---	---	---	---	568	.77	219	256	160	3.0	922	8.2
Feb. 7.....	57	---	---	125	36	380	---	156	---	---	---	---	---	---	1,540	2.09	237	460	332	7.7	2,330	7.4

GILA RIVER BASIN--Continued

9-5195. GILA RIVER BELOW GILLESPIE DAM, ARIZ.--Continued

Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonylate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (microhmhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium magnesium	Non-carbonate			
Feb. 8, 1958.....	88	--	--	175	55	620	--	216	--	--	--	--	--	--	2,460	3.35	584	662	486	10	3,770	7.4
Feb. 9.....	311	--	--	64	7.1	130	--	244	--	--	--	--	--	--	528	.72	443	188	0	4.1	893	7.6
Feb. 10.....	460	--	--	87	14	132	--	188	--	--	--	--	--	--	628	.85	780	274	120	3.2	927	7.6
Feb. 11.....	68	--	--	48	9.5	116	--	166	--	--	--	--	--	--	452	.61	83.0	159	0	4.0	766	7.6
Feb. 12.....	50	--	--	151	43	550	--	248	--	--	--	--	--	--	2,050	2.79	277	554	350	10	3,240	7.6
Feb. 13-14.....	47.0	--	--	345	119	1,230	--	378	--	--	--	--	--	--	8,100	6.94	647	1,350	1,040	15	7,360	8.0
Feb. 15-28.....	35.4	--	--	401	159	1,550	--	382	--	--	--	--	--	--	6,400	8.70	577	1,650	1,340	17	9,030	7.8
Mar. 1-10.....	27.9	--	--	413	152	1,520	--	366	--	--	--	--	--	--	6,370	8.66	430	1,660	1,360	16	8,940	8.0
Mar. 11-13.....	28.7	--	--	381	152	1,380	--	331	--	--	--	--	--	--	5,900	7.89	606	1,580	1,290	15	8,230	7.8
Mar. 14.....	32	--	--	95	24	355	--	144	--	--	--	--	--	--	1,180	1.60	166	336	218	8.4	1,980	7.4
Mar. 15-16.....	118	--	--	155	46	615	--	208	--	--	--	--	--	--	2,150	2.92	685	576	405	11	3,470	7.7
Mar. 17.....	66	--	--	48	14	104	--	144	--	--	--	--	--	--	1,480	6.65	85.5	178	60	3.4	747	7.8
Mar. 18-19.....	44.0	--	--	266	71	970	--	295	--	--	--	--	--	--	3,570	4.86	424	1,000	764	13	5,340	8.2
Mar. 20-30.....	37.5	--	--	397	157	1,440	--	367	--	--	--	--	--	--	6,050	8.23	613	1,640	1,340	15	8,520	7.9
Mar. 31.....	43	--	--	413	152	1,240	--	370	--	--	--	--	--	--	--	--	--	1,660	1,350	13	7,600	7.6
Apr. 1-30.....	27.7	32	0.01	393	145	1,450	12	366	--	1,420	2,150	4.8	30	2.6	6,150	8.36	460	1,580	1,280	16	8,780	7.8
May 1-31.....	17.8	--	--	381	147	1,420	--	336	--	--	--	--	--	--	6,060	8.24	291	1,560	1,280	16	8,710	7.9
June 1-30.....	13.2	--	--	345	145	1,450	--	280	--	--	--	--	--	--	6,020	8.19	215	1,460	1,230	17	8,620	7.8
July 1.....	7.1	--	--	326	152	1,580	--	200	--	--	--	--	--	--	6,340	8.62	122	1,440	1,270	18	9,070	7.5
July 2.....	7.2	--	--	195	67	596	--	174	--	--	--	--	--	--	2,500	3.40	48.6	762	620	9.4	3,970	7.5
July 3-4.....	7.05	--	--	115	33	366	--	234	--	--	--	--	--	--	422	230	25.3	422	230	7.8	2,240	7.8
July 5-17.....	7.92	30	0.00	298	133	1,400	12	194	--	1,340	2,020	3.5	21	2.6	5,620	7.64	120	1,290	1,130	17	8,160	7.7
July 18-Aug. 9, 12-13.....	19.3	--	--	128	34	400	--	212	--	--	--	--	--	--	1,550	2.11	80.8	462	288	8.1	2,490	7.7
Aug. 10-11.....	118	--	--	91	17	120	--	264	--	--	--	--	--	--	690	.94	220	297	80	3.0	1,080	7.6
Aug. 16-17.....	82.0	--	--	48	9.5	115	--	139	--	--	--	--	--	--	488	.66	108	159	54	4.0	777	8.1
Aug. 18.....	50	--	--	167	48	612	--	213	--	--	--	--	--	--	2,370	3.22	320	614	440	11	3,660	7.4
Aug. 19-20.....	49.5	--	--	250	93	875	--	298	--	--	--	--	--	--	3,640	4.95	486	1,010	762	12	5,500	7.9
Aug. 21-22.....	138	--	--	67	12	110	--	206	--	--	--	--	--	--	5,566	7.77	211	216	48	3.3	867	7.7
Aug. 23.....	23	--	--	87	17	188	--	179	--	--	--	--	--	--	850	1.16	52.8	287	140	4.8	1,330	7.7
Aug. 24.....	16	--	--	167	43	430	--	214	--	--	--	--	--	--	1,900	2.58	82.1	594	418	7.7	2,890	7.9
Aug. 25-27.....	15.0	--	--	278	131	1,060	--	274	--	--	--	--	--	--	4,230	5.75	171	1,230	1,010	13	6,540	7.9

Aug. 28, 1958.....	60	--	373	140	1,380	--	278	--	1,926	h 480	h 230	16	5,210	7.6		
Aug. 29-30.....	36.0	--	107	26	344	--	205	--	1,030	1,400	1,600	--	8,120	7.6		
Aug. 31.....	151	--	151	38	388	--	187	--	1,580	2.15	2,590	7.6	5,310	8.1		
Sept. 1, 4, 9-13.....	85.0	--	246	90	830	--	260	--	3,610	4.91	984	765	12	5,310	8.1	
Sept. 2-5, 20-30.....	27.0	--	330	140	1,260	--	271	--	5,400	7.40	397	1,400	1,70	7.8	8.0	
Sept. 5-8, 19.....	66.2	--	167	45	460	--	229	--	2,040	2.77	365	602	420	8.2	3,160	8.0
Sept. 14, 16-18.....	154	--	99	26	320	--	188	--	1,380	1.88	574	354	200	7.4	2,100	7.8
Sept. 15.....	306	--	12	9.5	110	--	159	--	540	.73	446	168	38	3.7	800	7.8
Weighted average	34.8	--	244	88	887	--	278	--	3,660	4.98	344	971	743	12	5,360	--

Temperature (°F) of water, water year October 1957 to September 1958
/Once-daily measurement, generally in the a.m./

[illegible]

DIVERSIONS AND RETURN FLOWS AT AND BELOW IMPERIAL DAM
9-5225. GILA GRAVITY MAIN CANAL AT IMPERIAL DAM, ARIZ.-CALIF.

LOCATION.--At gaging station, 3,200 feet downstream from intake at east end of Imperial Dam, Yuma County, Ariz.
RECORDS AVAILABLE.--Water temperatures: January 1956 to September 1958.
EXTREMES, 1957-58.--Water temperatures: Maximum, 88°F July 11, 12, Aug. 18, Sept. 9, 10; minimum, 51°F on several days during January.
EXTREMES, 1956-58.--Water temperatures: Maximum, 89°F July 27-29, 1956, July 30 to Aug. 1, 1957; minimum, 48°F Dec. 10-12, 25, 1956.
REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1463.

Temperature (°F) of water, water year October 1957 to September 1958																																	
Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October	81	80	79	76	74	74	73	73	73	74	73	72	71	70	70	71	72	72	72	72	71	69	67	66	66	67	66	67	68	68	68	68	72
	Maximum.....	81	80	79	76	74	74	73	73	74	73	72	71	70	70	71	72	72	72	72	71	69	67	66	66	67	66	67	68	68	68	68	72
	Minimum.....	80	79	76	74	73	73	72	72	72	72	72	71	70	69	69	70	71	71	71	71	69	67	66	66	66	66	67	67	67	67	67	70
November	69	69	69	66	63	62	62	62	61	61	62	63	63	63	62	61	61	60	59	58	58	56	55	55	55	56	56	56	55	55	--	61	
	Maximum.....	69	69	69	66	63	62	62	62	61	61	62	63	63	63	62	61	60	59	58	58	56	55	55	55	56	56	56	55	55	--	61	
	Minimum.....	68	69	67	63	62	61	61	61	62	63	63	62	62	61	60	60	59	58	58	56	55	55	55	55	56	56	56	55	55	--	60	
December	54	54	54	53	53	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53	53	53	53	53	53	53	53	54		
	Maximum.....	54	54	54	53	53	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53	53	53	53	53	53	53	53	54		
	Minimum.....	54	54	53	53	53	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53	53	53	53	53	53	53	53	54		
January	52	52	52	52	52	52	52	52	52	52	52	51	52	52	52	51	51	51	51	51	51	51	51	51	51	52	52	53	53	53	52		
	Maximum.....	52	52	52	52	52	52	52	52	52	52	51	52	52	52	51	51	51	51	51	51	51	51	51	51	52	52	53	53	53	52		
	Minimum.....	52	52	52	52	52	52	52	52	52	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	52	53	53	53	52		
February	53	53	54	54	55	56	56	58	58	58	58	58	58	58	58	59	59	60	59	60	62	62	63	63	63	61	59	58	--	--	58		
	Maximum.....	53	53	54	54	55	56	58	58	58	58	58	58	58	58	59	59	60	59	60	62	62	63	63	63	61	59	58	--	--	58		
	Minimum.....	53	53	53	54	55	54	56	56	57	57	57	57	57	57	57	58	58	59	59	59	60	81	82	61	59	58	57	--	--	57		
March	57	58	58	58	59	59	59	58	58	58	58	58	58	59	59	59	59	61	62	62	62	63	64	63	63	63	64	63	64	64	60		
	Maximum.....	57	58	58	58	59	59	59	58	58	58	58	58	59	59	59	59	61	62	62	62	63	64	63	63	63	64	63	64	64	60		
	Minimum.....	57	57	57	57	58	59	58	57	57	57	57	57	57	58	58	58	59	60	62	61	62	62	61	61	62	62	62	62	63	59		
April	64	63	62	61	62	63	63	63	64	65	65	66	66	67	67	68	69	70	72	73	73	72	71	70	71	71	71	72	72	72	--	68	
	Maximum.....	64	63	62	61	62	63	63	64	65	65	66	66	67	67	68	69	70	72	73	73	72	71	70	71	71	71	72	72	72	--	68	
	Minimum.....	62	61	60	60	60	61	62	62	63	64	64	64	64	65	65	66	67	68	69	70	71	70	70	70	70	70	70	70	70	--	66	
May	72	73	74	75	76	76	75	75	75	74	74	74	74	74	75	76	78	80	81	82	81	80	79	80	81	81	82	82	82	81	80	78	
	Maximum.....	72	73	74	75	76	76	75	75	74	74	74	74	74	75	76	78	80	81	82	81	80	79	80	81	81	82	82	82	81	80	78	
	Minimum.....	70	71	72	73	74	74	73	73	73	73	72	72	72	72	74	75	77	78	79	80	79	78	79	80	81	80	80	80	78	76		
June	79	79	78	79	79	80	79	78	78	78	78	77	78	79	79	79	79	81	83	84	83	85	86	85	84	84	84	85	85	84	--	81	
	Maximum.....	79	79	78	79	79	80	79	78	78	78	77	78	79	79	79	79	81	83	84	83	85	86	85	84	84	84	85	85	84	--	81	
	Minimum.....	77	77	76	77	77	78	77	76	76	76	75	75	77	77	77	77	79	81	82	82	81	82	84	82	82	82	82	83	82	--	79	
July	83	82	83	84	84	84	85	86	87	87	88	88	87	87	87	85	84	83	83	83	83	83	83	84	84	85	85	85	84	85	85	85	
	Maximum.....	83	82	83	84	84	84	85	86	87	87	88	87	87	87	85	84	83	83	83	83	83	83	84	84	85	85	85	84	85	85	85	
	Minimum.....	81	81	80	82	82	82	82	84	85	86	86	87	86	85	84	82	82	81	81	81	81	81	82	82	82	83	83	83	84	83	83	
August	86	87	87	87	86	86	86	87	87	87	87	87	87	87	87	87	87	88	87	87	87	87	87	87	87	87	87	87	86	86	87	87	
	Maximum.....	86	87	87	87	86	86	87	87	87	87	87	87	87	87	87	87	88	87	87	87	87	87	87	87	87	87	87	86	86	87	87	
	Minimum.....	84	85	86	85	85	85	85	85	85	85	85	85	85	85	85	86	86	86	86	86	85	85	85	85	85	85	85	85	84	85	85	
September	87	87	86	86	86	87	87	87	88	88	87	86	84	82	81	80	81	82	83	83	83	83	82	78	76	74	72	75	76	77	--	83	
	Maximum.....	87	87	86	86	86	87	87	87	88	88	87	86	84	82	81	80	81	82	83	83	83	82	78	76	74	72	75	76	77	--	83	
	Minimum.....	85	85	85	84	85	85	85	85	86	86	85	83	81	79	78	79	80	81	82	81	81	78	76	74	72	72	72	72	75	76	--	81

DIVERSIONS AND RETURN FLOWS AT AND BELOW IMPERIAL DAM
9-5955, YUMA MAIN CANAL BELOW COLORADO RIVER SIPHON, AT YUMA, ARIZ.

LOCATION ---At gaging station on Yuma Main Canal below Colorado River Siphon on Arizona side of river, 3.5 miles downstream from siphon-drop power plant, and 0.2 mile downstream from upper highway bridge over Colorado River, Imperial County.

RECORDS AVAILABLE ---Chemical analyses: September 1926 to September 1928, October 1928 to September 1958.

EXTREMES, 1957-58 ---Dissolved solids: Maximum, 850 ppm Oct. 1-31; minimum, 706 ppm July 1-31.

Hardness: Maximum, 380 ppm Nov. 1-30; minimum, 315 ppm Aug. 1-31.

Specific conductance: Maximum, 1,330 micromhos Oct. 21; minimum, 1,020 micromhos Apr. 29, Aug. 22.

EXTREMES, 1943-58 ---Dissolved solids: Maximum, 1,000 ppm Jan. 1-31, 1957; minimum, 532 ppm Jan. 1-10, 1953.

Hardness: Maximum, 478 ppm July 1-31, 1957; minimum, 260 ppm Jan. 1-10, 1953.

Specific conductance: Maximum, 1,520 micromhos Jan. 16, 1957; minimum, 795 micromhos Jan. 5, 1953.

REMARKS ---Records of specific conductance of daily samples available in district office at Alberquerque, N. Mex. Records of discharge for water year October 1957 to September 1958 given in WSP 1563.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, carbonate	Non-carbonate			
Oct. 1-31, 1957..	393	16	0.01	100	29	140	5.6	169		349	128	0.4	1.7	0.18	850	1.16	902	368	230	3.2	1,300	8.0
Nov. 1-30.....	234	17	0.00	98	33	134	5.4	170		342	120	.4	1.8	.18	840	1.14	531	380	240	3.0	1,260	7.9
Dec. 1-31.....	233	17	0.00	97	29	126	5.4	169		334	110	.4	1.4	.17	810	1.10	510	361	222	2.9	1,230	8.0
Jan. 1-31, 1958..	275	19	0.01	92	29	121	5.2	170		318	100	.4	1.6	.18	770	1.05	572	348	209	2.8	1,160	8.1
Feb. 1-28.....	331	18	0.03	98	28	112	5.0	182		296	106	.6	2.4	.20	785	1.07	702	360	210	2.6	1,190	7.6
Mar. 1-31.....	466	22	.02	94	26	112	4.8	182		298	88	.6	2.3	.18	777	1.06	978	342	192	2.5	1,120	7.6
Apr. 1-30.....	526	22	.02	93	25	114	4.8	176		291	90	.8	2.2	.15	747	1.02	1,060	335	191	2.7	1,110	7.6
May 1-31.....	581	21	.01	90	26	112	4.8	172		291	90	.6	2.2	.18	736	1.00	1,150	332	190	2.7	1,100	7.8
June 1-30.....	563	22	.02	91	24	112	4.7	168		288	92	.8	2.0	.19	740	1.01	1,120	326	188	2.7	1,090	8.0
July 1-31.....	629	22	.02	88	26	108	4.5	164		284	88	.8	1.7	.20	706	.96	1,200	326	192	2.6	1,070	7.8
Aug. 1-31.....	524	20	.02	85	25	112	4.6	158		287	88	.4	1.6	.14	710	.97	1,000	315	186	2.7	1,060	8.0
Sept. 1-30.....	602	18	.01	87	24	114	4.8	160		287	91	.6	1.6	.18	713	.97	1,160	316	184	2.8	1,080	8.1
Weighted average	447	20	0.02	92	26	116	4.9	169		300	96	0.6	1.9	0.18	753	1.02	909	336	198	2.8	1,130	--

MISCELLANEOUS ANALYSES OF STREAMS IN COLORADO RIVER BASIN

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)		Hardness as CaCO ₃		Sodium adsorption ratio at 25°C	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-day	Calcium, Magnesium	Non-carbonate			

BRIGHT ANGEL CREEK BASIN

9-4030. BRIGHT ANGEL CREEK NEAR GRAND CANYON, ARIZ.

Oct. 17, 1957.....	17							242	10		5.0									386	8.0	
Dec. 14.....	17							146			4.8									281	8.7	
Jan. 16, 1958....	16							229			5.2									346	7.7	
Mar. 18.....	21							229			1.8									280	7.3	
May 20.....	372							138			3.0									228	7.3	
July 21.....	28							204												330	7.7	

GILA RIVER BASIN

MINERAL CREEK AT KELVIN, ARIZ.

Nov. 8, 1957.....				639	140	45		328									2,170	1,900	0.4	3,010	7.9	
Feb. 26, 1958....				61	14	13		5									210	206	.4	517	6.3	

NORTH FORK WHITE RIVER AT POST OFFICE CANYON ABOVE ALCHESEY SPRINGS, ARIZ.

June 6, 1958.....								38			1.8						26	0		74.5	7.5	
June 13.....								42			2.0						30	0		77.5	7.2	
June 21.....								50	4		1.8						41	0		100	8.7	
July 1.....								72			2.0						54	0		125	7.3	

9-4917. ALCHESEY SPRINGS NEAR WHITE RIVER, ARIZ.

June 6, 1958.....								185			4.8						279	128		567	8.0	
June 13.....								189			4.8						284	129		575	7.7	
June 21.....								182			4.8						260	111		531	7.1	
July 1.....								132			4.0						154	46		332	7.3	

PART 10. THE GREAT BASIN

WEBER RIVER BASIN

10-1365. WEBER RIVER AT GATEWAY, UTAH

LOCATION---At gaging station, 800 feet downstream from railroad bridge, 2,500 feet downstream from Strawberry Creek, and 2,500 feet east of section house at Gateway, Morgan County.

DRAINAGE AREA--1,610 square miles, approximately.

RECORDS AVAILABLE--Chemical analyses: May to September 1958.

REMARKS---Records of discharge for water year October 1957 to September 1958 given in WSP 1564.

Chemical analyses, in parts per million, May to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbocationate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium, sodium	Non-carbonate			
May 26, 1958.....	1,030	9.2		40	4.6	13		138	0	19	10		1.2		165	0.22	459	119	6	0.5	283	8.1
May 30.....	690	10		43	8.4	14		157	0	22	12		2.9		189	.26	352	141	12	.5	312	7.6
June 6.....	615	10		55	11	15		202	0	28	15		2.7		236	.32	392	184	19	.5	397	7.9
June 13.....	650	10		61	14	16		219	5	31	16		2.4		263	.36	462	210	22	.5	436	8.4
June 20.....	710	10		64	15	17		243	0	31	16		2.3		274	.37	525	218	19	.5	460	8.0
June 27.....	680	10		67	14	15		248	0	30	16		1.4		275	.37	505	225	22	.4	479	7.6
July 4.....	695	10		63	15	15		239	0	30	16		1.6		269	.37	505	218	22	.4	459	7.9
July 11.....	670	11		64	14	23		238	0	29	19		1.6		266	.39	514	216	24	.4	438	7.8
July 18.....	670	11		62	15	16		239	0	28	18		2.2		281	.38	512	226	22	.5	481	8.0
July 25.....	630	11		67	15	17		252	0	29	18		1.8		283	.38	481	227	20	.5	488	7.6
Aug. 1.....	553	12		63	16	19		253	0	28	17		1.7		281	.38	421	220	13	.6	470	8.2
Aug. 8.....																						
Aug. 15.....	546	14		44	17	18		173	11	28	18		1.2		236	.32	348	177	17	.6	387	8.6
Aug. 22.....	460	14		51	16	19		216	0	27	18		1.5		252	.34	313	191	14	.6	423	8.1
Aug. 29.....	436	13		62	16	19		228	12	27	17		1.7		280	.38	345	220	13	.5	462	8.6
Sept. 5.....	424	12		59	16	19		239	0	32	18		1.2		275	.37	315	214	18	.6	464	7.9
Sept. 12.....	412	13		52	16	17		201	11	30	17		1.7		252	.34	280	194	19	.5	420	8.5
Sept. 19.....	265	11		52	17	20		202	8	32	20		.8		260	.35	186	198	19	.6	438	8.4
Sept. 26.....	322	11		61	16	21		246	0	32	19		1.3		282	.38	245	218	16	.6	473	8.2

Temperature (°F) of water, water year October 1957 to September 1958

Temperature (°F) of water, water year October 1957 to September 1958																																	
Month			Day																												Aver- age		
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		29	30	31
May 1-31, 1958...	771	23					85	78		290	6.0	356	0	351		350			11	0.45	1,370		1.86		1.82		2,850		534	242	5.5	2,240	8.1
June 1-30.....	474	19					75	71		245	5.7	332	0	299		300			8.4	.31	1,190		1.62		1.60		1,520		478	206	4.9	1,950	8.1
July 1-31.....	408	21	--				71	71		249	6.1	316	0	299		305			6.8	.32	1,180		1.60		1.60		1,300		468	209	5.0	1,940	7.8
Aug. 1-31.....	320	21					74	84		308	6.8	311	0	370		390			5.2	.36	1,410		1.92		1.92		1,220		528	273	5.8	2,300	8.0
Sept. 1-5, 10-30,	105	22					74	87		295	6.0	307	0	370		405			3.3	.34	1,410		1.92		1.92		1,400		540	288	5.5	2,300	7.9
Sept. 6-9.....	44.5	23					56	64		170	4.7	262	0	205		260			2.3	.22	914		1.24		1.24		110		404	189	3.7	1,530	7.8
Weighted average	208	21					80	78		271	5.8	330	0	332		344			7.6	0.36	1,300		1.77		1.77		730		520	250	5.2	2,130	--

CARSON RIVER BASIN

10-3090, EAST FORK CARSON RIVER NEAR GARDNERVILLE, NEV.

LOCATION.--Temperature recorder at gaging station, 3 miles downstream from Leviathan Creek, and 7 miles southeast of Gardnerville, Douglas County. DRAINAGE AVAILABLE.--44 square miles.

RECORDS AVAILABLE.--Water temperatures: July 1955 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 78°F Aug. 12; minimum, freezing point on several days during December and January.

EXTREMES, 1955-58.--Water temperatures: Maximum, 79°F Aug. 4, 1955; minimum, freezing point on several days during winter months.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1564.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																															Average		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
October	60	60	55	51	54	55	54	53	55	51	54	52	52	55	58	56	58	52	50	51	52	49	54	55	51	53	53	52	52	52	54			
	52	49	49	45	42	43	42	45	45	48	48	47	46	49	46	48	48	46	43	42	43	44	45	48	49	45	48	44	44	45	46			
November	49	46	42	42	41	42	43	44	45	47	44	45	46	44	42	40	39	44	48	46	44	39	40	41	42	42	40	40	38	38	--	43		
	45	39	38	39	36	36	36	41	38	39	40	42	43	39	38	36	39	42	41	39	35	35	36	37	36	35	34	34	--	38	--			
December	38	37	36	36	38	38	39	38	38	38	38	37	37	38	40	39	36	37	38	36	36	35	34	35	37	35	38	38	37	35	37			
	34	34	34	35	35	34	34	34	34	34	34	34	34	35	37	38	35	34	33	35	34	33	33	32	32	33	34	36	34	32	34			
January	35	37	37	35	34	33	34	36	35	37	36	37	35	34	36	38	38	36	34	35	34	34	35	35	39	39	38	42	41	37	38	36		
	32	34	35	33	32	32	32	32	32	34	33	33	32	32	33	33	33	32	32	33	32	32	34	33	34	33	36	36	34	33	33	43		
February	38	39	39	39	42	43	43	44	42	46	44	44	42	44	47	45	45	45	50	47	46	48	46	49	46	49	41	40	39	--	43	--		
	33	34	35	35	35	37	39	38	38	39	39	39	39	36	39	40	40	40	42	43	40	41	40	39	36	35	34	36	--	--	38	--		
March	40	41	41	43	42	40	45	46	44	40	41	41	44	40	44	44	48	48	50	46	43	48	48	49	48	44	47	50	44	46	45	45		
	34	34	35	35	36	37	35	37	36	37	36	37	35	37	35	36	37	38	39	42	38	38	41	41	41	40	40	39	41	38	35	37		
April	44	40	41	43	46	45	46	51	53	52	51	51	50	51	51	51	53	51	50	51	50	48	47	48	49	50	49	48	51	--	49	--		
	39	36	35	34	38	40	41	39	41	41	40	39	40	40	40	39	40	39	40	38	40	37	37	39	40	40	42	43	40	--	39	--		
May	52	53	53	53	51	50	50	51	51	50	46	50	51	51	53	54	54	54	53	51	53	49	54	53	54	54	55	53	55	55	52	52		
	40	41	41	41	41	39	38	40	40	40	42	39	41	40	42	42	42	43	42	43	43	44	43	44	43	44	45	45	46	45	42	42		
June	52	52	53	55	53	55	54	53	56	56	55	52	53	59	59	58	57	55	59	59	60	60	60	58	60	62	62	60	60	--	57	--		
	45	45	44	45	47	47	46	46	46	49	49	48	48	48	50	50	50	50	48	50	51	52	53	49	50	52	53	51	52	50	--	49		
July	61	60	64	63	64	66	66	66	66	65	67	67	65	66	64	64	62	64	64	65	64	61	66	68	70	72	68	69	72	71	66	66		
	52	52	54	54	55	56	56	56	56	57	57	57	57	58	58	56	56	52	57	58	60	59	56	54	59	60	62	63	59	61	57	57		
August	69	72	73	73	74	77	75	73	74	77	77	78	77	76	73	71	70	70	66	73	72	72	74	76	74	75	72	72	72	73	73	73		
	60	62	62	61	62	64	65	66	63	66	65	64	65	64	65	64	63	62	58	60	60	59	60	62	62	63	63	62	61	60	62	62		
September	72	71	69	68	68	69	68	68	67	67	67	64	63	64	64	66	65	68	68	66	66	63	59	58	59	62	64	65	64	64	--	66		
	61	60	59	56	56	57	62	59	56	55	55	56	51	52	53	54	58	56	55	55	54	56	53	47	47	50	51	52	52	53	--	55		

HUMBOLDT RIVER BASIN

10-3350. HUMBOLDT RIVER NEAR RYE PATCH, NEV.

LOCATION --Below Rye Patch Dam, 1,000 feet upstream from gaging station, and 2 miles northwest of Rye Patch, Pershing County.

DRAINAGE AREA 13,700 square miles, approximately.

RECORDS AVAILABLE --Chemical analyses: December 1951 to September 1958.

Water temperatures: December 1951 to September 1958.

EXTREMES: 1957-58 --Dissolved solids: Maximum, 565 ppm Jan. 1-24, 26-31; minimum, 266 ppm Jan. 25.

Hardness: Maximum, 186 ppm Dec. 1-31, Feb. 3-28; minimum, 86 ppm Jan. 25.

Specific conductance: Maximum daily, 953 micromhos Feb. 4; minimum daily, 427 micromhos Jan. 25.

Water temperatures: Maximum, 78°F Sept. 21; minimum, 33°F on many days during December and January.

EXTREMES, 1951-58 --Dissolved solids: Maximum, 2,190 ppm Sept. 1-5, 1954; minimum, 253 ppm June 24, 1956.

Hardness: Maximum, 482 ppm Sept. 1-5, 1954; minimum, 86 ppm Jan. 25, 1958.

Specific conductance: Maximum daily, 4,010 micromhos Sept. 2, 1954; minimum daily, 384 micromhos June 24, 1956.

Water temperatures: Maximum, 78°F Sept. 21, 1958; minimum, 33°F on many days during winter months.

REMARKS --Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year

October 1957 to September 1958 given in WSP 1564. No appreciable inflow between gaging station and sampling point except during periods of local rains.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Cal- cium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Potas- sium (K)	Bi- car- bon- ate (HCO ₃)	Car- bon- ate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃	So- ad- orp- tion ratio	Specific con- duc- tance (micro- mhos at 25°C)	pH	
															Parts per million	Tons per acre- foot	Tons per day					
Oct. 1-31, 1957...	0.1	43		47	16	98	15	338	0	62	54		0.8	0.43	516	0.70	0.14	184	0	3.1	797	7.7
Nov. 1-30.....	.1	43		47	16	104	15	300	18	67	60		.8	.46	525	.71	.14	184	0	3.3	813	--
Dec. 1-31.....	.1	43		46	18	104	14	336	0	71	61		.9	.52	526	.72	.14	186	0	3.3	814	8.2
Jan. 1-24.....																						
26-31, 1958....	.1	50		47	14	124	9.1	323	0	75	86		1.4	.55	565	.77	.15	177	0	4.1	885	7.8
Jan. 25.....	.1	20		22	7.8	51	7.9	150	0	57	25		1.3	--	a266	.36	.07	86	0	2.4	427	7.9
Feb. 1-2.....	.1	30		42	11	76	9.7	232	0	51	42		1.3	--	a366	.50	.10	124	0	3.0	584	8.0
Feb. 3-28.....	.1	46		36	17	116	12	332	0	74	74		.9	.52	545	.74	.15	186	0	3.7	866	8.2
Mar. 1-31.....	58.9	47		46	17	113	13	337	0	66	72		.9	.51	544	.74	86.5	184	0	3.6	853	8.2
Apr. 1-30.....	418	42		44	18	113	13	327	0	68	73		.9	.52	536	.73	605	183	0	3.6	853	8.2
May 1-31.....	524	34		46	13	99	11	297	0	65	63		.5	.42	483	.66	683	170	0	3.3	793	8.1
June 1-30.....	196	32		46	13	89	11	280	0	65	54		.4	.36	450	.61	238	166	0	3.0	726	7.9
July 1-31.....	541	35		46	14	91	13	287	0	64	56		.7	.32	463	.63	676	173	0	3.0	733	7.7
Aug. 1-31.....	174	37		47	13	99	14	298	0	67	64		.9	.39	490	.67	230	172	0	3.3	774	7.7
Sept. 1-30.....	321	35		46	14	105	13	318	0	65	68		1.2	.41	509	.69	441	173	0	3.5	790	7.7
Weighted average	187	36		46	14	100	12	303	0	65	63		0.8	0.41	491	0.67	248	172	0	3.3	783	--

a Calculated from determined constituents.

MISCELLANEOUS ANALYSES OF STREAMS IN THE GREAT BASIN

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (microhmhos at 25°C)		
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium, sodium	Non-carbonate				
JORDAN RIVER BASIN																						
10-1670. JORDAN RIVER AT NARROWS NEAR LEHI, UTAH																						
Oct. 31, 1957.....	21			103	78	244		264	0	404	332		3.9		1,320	1.80		578	362	4.4	2,050	7.4
Dec. 3.....	33			107	63	180		300	0	304	250	2.4			1,090	1.48		526	280	3.4	1,740	7.4
Feb. 18, 1958.....	16			75	59	157		254	0	260	190	7.1			1,909	1.24		432	224	3.1	1,530	7.5
Apr. 7.....	18			116	83	213		319	0	398	295	2.2			1,280	1.74		630	368	3.7	2,070	7.9
May 5.....	15			67	54	163		237	0	250	201		3.8		871	1.18		386	192	3.6	1,440	7.4
June 10.....	16	0.05		65	57	168	16	244	0	264	218	0.6	3.6	0.36	929	1.26		396	196	3.7	1,510	8.1
Aug. 4.....	19			59	64	205		217	0	303	255		.9		1,010	1.37		408	230	4.4	1,700	7.5
Sept. 2.....	21			55	66	213		194	12	313	260		.2		1,040	1.41		408	229	4.6	1,710	8.4
MILL CREEK NEAR SALT LAKE CITY, UTAH																						
Nov. 1, 1957.....	7.6			90	24	8.7		241	0	129	6.6		0.6		386	0.52		323	125	0.2	606	7.4
Dec. 4.....	8.2			85	24	16		242	0	133	8.0		.9		395	.54		315	117	.4	611	7.4
Feb. 21, 1958.....	7.5			87	27	8.3		236	0	137	6.8		.7		390	.53		328	134	.2	623	8.0
Apr. 8.....	7.9			85	25	8.7		232	0	126	8.0		.4		375	.51		314	124	.2	600	8.0
May 6.....	8.6			73	21	7.6		224	0	85	7.2		1.6		374	.43		267	83	.2	514	7.9
June 11.....	8.2	0.01		67	19	5.7	0.9	212	0	73	5.5	0.1	1.5	0.01	288	.39		244	70	.2	468	8.2
PYRAMID AND WINNEMUCCA LAKES BASIN																						
10-3368. LAKE TAHOE (SOUTH END) BIJO, CALIF.																						
Oct. 25, 1957.....	---	---	---	---	---	5.5	---	51	---	---	1.7	---	---	0.0	---	---	---	40	0	0.4	94	7.3
Nov. 15.....	---	---	---	---	---	5.5	---	52	---	---	2.2	---	---	---	---	---	---	39	0	.4	93	7.4
Apr. 18, 1958.....	---	---	---	---	---	5.5	---	50	---	---	3.0	---	---	.1	---	---	---	32	0	.4	90	7.4
May 16.....	14	0.03		8.4	2.2	6.2	1.9	48	3.8	1.5	0.0	0.1	.1		62	0.08		30	0	.5	91	7.5
June 20.....	---	---	---	---	---	5.6	---	48	---	---	1.0	---	---	.0	---	---	---	31	0	.4	87	7.9
July 18.....	---	---	---	---	---	6.2	---	49	---	---	3.0	---	---	---	---	---	---	30	0	.5	92	7.8
Aug. 14.....	---	---	---	---	---	6.1	---	50	---	---	3.5	---	---	.0	---	---	---	33	0	.5	93	7.7
Sept. 5.....	15	.01		9.2	3.2	5.3	2.5	50	4.8	2.4	.1	.0	.0		68	.09		36	0	.4	91	7.7

MISCELLANEOUS ANALYSES OF STREAMS IN THE GREAT BASIN--Continued

Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
PYRAMID AND WINNEMCCA LAKES BASIN--Continued																							
10-3369. LAKE TAHOE (NORTH END) TAHOE VISTA, CALIF.																							
Oct. 25, 1957.....						5.5		52			3.0			0.0					36	0	0.4	95	7.6
Nov. 15.....						6.5		55			3.0			0.0					41	0	0.4	104	7.5
Apr. 18, 1958.....						5.9		58			3.5			0.0					39	0	0.4	105	7.5
May 15.....		14	0.02	8.8	2.2	6.1	1.9	50		3.8	1.0	0.1	0.1	0.1	63	0.09			31	0	0.5	91	7.5
June 19.....						6.4		50			1.5			0.0					33	0	0.5	93	7.9
July 18.....						6.1		50			3.0			0.0					31	0	0.5	92	7.9
Aug. 14.....						6.3		54			3.0			0.0					34	0	0.5	94	8.0
Sept. 3.....		14	.01	9.2	2.4	5.3	2.5	49		3.8	3.0	0.0	.1	.1	64	.09			33	0	0.4	92	7.5
10-3370. LAKE TAHOE AT TAHOE, CALIF.																							
Oct. 25, 1957.....						5.5		51			1.6			0.0					35	0	0.4	95	7.6
Nov. 15.....						6.5		52			2.5			0.0					37	0	0.5	95	7.4
Apr. 18, 1958.....						5.9		52			3.0			0.0					32	0	0.5	94	7.5
May 15.....		13	0.03	9.2	1.7	6.2	2.0	47		5.8	1.5	0.1	0.1	0.1	63	0.09			30	0	0.5	92	7.6
June 19.....						6.1		50			1.5			0.0					31	0	0.5	92	7.9
July 17.....						6.2		52			3.1			0.0					31	0	0.5	93	7.8
Aug. 14.....						6.3		50			3.5			0.2					34	0	0.5	95	7.8
Sept. 4.....		14	.01	9.2	3.4	5.4	2.5	50		3.8	3.5	.1	.1	.1	67	.09			37	0	0.4	93	7.6
10-3380. TRUCKEE RIVER NEAR TRUCKEE, CALIF.																							
Oct. 25, 1957.....	304					5.7		51			2.0			0.0					41	0	0.4	97	7.2
Nov. 15.....	316					6.1		50			2.8			0.0					43	2	0.4	96	7.4
Apr. 17, 1958.....	1,940					5.5		48			2.0			0.0					32	0	0.4	91	7.5
May 15.....	2,210	15	0.00	10	2.2	5.0	1.7	46		1.0	6.0	0.0	0.0	0.0	64	0.09			34	0	0.4	94	7.0
June 19.....	386					2.2		24			1.3			0.0					18	0	0.2	48	7.6
July 17.....	89					2.9		31			1.1			0.0					23	0	0.3	62	7.5
Aug. 14.....	30					5.7		50			2.0			0.0					40	0	0.4	103	7.8
Sept. 3.....	18	26	.04	12	3.9	6.3	3.2	58		12	3.8	0.0	0.0	0.0	96	.13			46	0	0.4	125	7.7

10-3460. TRUCKEE RIVER AT PARAD, CALIF.

Oct. 25, 1957.....	450	--	--	--	5.2	--	2.0	--	--	0.1	--	--	36	0	0.4	98	7.0
Nov. 15.....	508	--	--	--	5.8	--	3.4	--	--	0	--	--	34	0	0.4	96	7.9
Apr. 17, 1958.....	3,320	--	--	--	7.2	--	2.5	--	--	0	--	--	32	0	.5	85	7.4
May 15.....	5,060	18	0.04	7.2	3.4	1.4	2.3	0.0	0.0	0.0	0.0	53	26	0	.3	69	7.0
June 19.....	2,180	--	--	--	2.4	--	--	1.0	--	0	--	--	18	0	.2	48	7.6
July 17.....	553	--	--	--	2.9	--	--	1.6	--	0	--	--	25	0	.3	65	7.6
Aug. 14.....	553	--	--	--	3.1	--	--	1.5	--	0	--	--	24	0	.3	67	7.6
Sept. 3.....	553	22	.02	8.0	1.7	--	3.8	1.4	0	.6	0	63	27	0	.3	70	7.6

HONEY LAKE BASIN

10-3565. SUBAN RIVER AT SUSANVILLE, CALIF.

Oct. 25, 1957.....	15	--	--	--	5.3	--	1.2	--	--	0.0	--	--	69	0	0.3	159	8.0
Nov. 14.....	76	--	--	--	5.1	--	--	1.0	--	0	--	--	53	0	.3	118	7.2
Apr. 17, 1958.....	554	--	--	--	3.0	--	--	1.0	0.0	0.3	0	--	34	0	.2	81	7.3
May 14.....	748	17	0.07	6.0	2.2	0.9	1.0	1.6	0.0	0.3	0	47	24	0	.3	59	7.4
June 19.....	106	--	--	--	3.8	--	--	1.2	--	0	--	--	38	0	.3	190	7.9
July 19.....	127	--	--	--	3.0	--	--	--	--	0	--	--	26	0	.3	157	7.1
Aug. 13.....	127	--	--	--	2.0	--	--	1.6	--	0	--	--	26	0	.3	157	7.1
Sept. 11.....	8.4	35	.10	14	9.0	2.9	1.9	1.5	0	.8	0	120	72	0	.3	161	7.7

PART II. PACIFIC SLOPE BASINS IN CALIFORNIA

CARMEL RIVER BASIN

11-1432.5. CARMEL RIVER NEAR CARMEL, CALIF.

LOCATION --On right bank approximately 30 feet below Rancho San Carlos bridge, 2 miles east of Carmel, Monterey County, and 4.5 miles from mouth.
 RECORDS AVAILABLE--Chemical analyses: October 1953 to September 1958.
 REMARKS--No discharge records available for this station.

Chemical analyses, in parts per million, November 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonylate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)		Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate		
Nov. 20, 1957....						44		166			56			0.06			231	95	1.3	648	8.2
Dec. 17.....						42		160			46			.05			210	79	1.3	589	7.8
Jan. 23, 1958...						30		144			34			.00			168	50	1.0	479	7.7
Feb. 13.....						11		80			10			.01			73	7	.6	186	7.6
Mar. 13.....						13		99			14			.00			91	10	.6	251	7.6
Apr. 17.....						14		96			16			.01			94	15	.6	249	7.5
May 15.....						18	3.1	116		36	28	0.0	0.6	.04	201	0.27	115	20	.7	327	7.7
June 18.....	27		0.02 29		10	25		135			28			.00			150	39	.9	413	8.2
July 15.....						39		147			36			.00			170	49	1.0	480	8.0
Aug. 15.....						39		147			45			.10			186	67	1.2	543	7.1
Sept. 9.....	24		.00 57		18	39	4.0	161		98	47	.3	.4	.00	367	.50	214	82	1.2	599	7.9

SALINAS RIVER BASIN

11-1488. NACIMIENTO RIVER NEAR BRYSON, CALIF.

LOCATION --At gaging station, 0.6 mile upstream from Turtle Creek, 1.6 miles west of Bryson, and 10 miles southwest of Lockwood, Monterey County. DRAINAGE AREA --140 square miles.

RECORDS AVAILABLE --Water temperatures: March to September 1958.

EXPLANATION: Sediment concentrations: Maximum daily, 887 ppm Apr. 3; minimum daily, no flow many days.

EXPLANATION: Sediment concentrations: Maximum daily, 30, 200 tons Apr. 3; minimum daily, 0 tons many days.

REMARKS: No flow Aug. 6, to Sept. 30; tabulation omitted for September. Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Temperature (°F) of water, water year October 1957 to September 1958

		Once-daily measurement generally between 7 a.m. and 12 m.																															Average
		Day																															
Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
November....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
December....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
January....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
February....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
March.....	--	--	48	--	46	--	47	--	--	48	--	48	--	48	48	53	53	--	52	--	53	52	53	53	52	--	49	49	--	--	52		
April.....	--	51	52	52	52	--	53	52	--	54	--	--	--	55	57	--	--	--	--	--	61	--	60	--	60	--	--	57	--	61	--		
May.....	--	63	--	--	65	--	64	65	--	--	62	65	65	65	65	65	65	65	--	65	--	65	--	65	--	67	--	68	--	--	--		
June.....	--	68	--	--	--	--	--	67	--	--	--	--	--	--	69	69	--	--	--	--	--	69	--	69	--	--	--	--	69	--	--		
July.....	--	--	--	--	--	--	69	--	--	--	--	--	--	--	--	--	--	--	--	--	77	--	--	--	--	--	--	76	--	--	--		
August.....	--	--	76	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
September..	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		

Day

Aver-

age

QUALITY OF SURFACE WATERS, 1958

SALINAS RIVER BASIN--Continued

11-1488, NACIMIENTO RIVER NEAR BRYSON, CALIF.--Continued

Suspended sediment, March to September 1958

Day	March			April			May		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1...	600	--	8.5	6,980	600	sa13,000	118	--	0.9
2...	502	--		5,930	514	sa12,400	110	--	
3...	430	5		10,600	887	sa30,200	104	--	
4...	358	--		3,750	310	sa3,260	100	--	
5...	299	3		2,420	150	sa1,030	94	3	
6...	266	--	.7	4,200	300	sa3,600	85	--	.5
7...	218	2		2,700	187	sa1,360	82	2	
8...	186	--		1,650	100	sa450	76	--	
9...	163	--		1,200	50	162	73	2	
10...	146	1		942	--	--	73	--	
11...	142	--	.3	788	--	57	70	--	.3
12...	128	1		665	--	--	67	--	
13...	142	--		565	--	--	65	--	
14...	499	41		492	27	36	60	--	
15...	3,580	313		434	--	--	54	--	
16...	3,920	275	sa3,760	380	--	26	52	2	.7
17...	1,820	131	644	335	--	--	49	--	
18...	906	70	sa170	294	--	--	44	--	
19...	766	69	143	266	--	--	44	3	
20...	1,640	140	sa800	246	--	--	44	--	
21...	4,560	320	sa6,100	222	--	11	42	2	.1
22...	4,360	286	sa4,610	202	--		70	--	
23...	2,620	148	sa1,200	190	17		73	5	
24...	2,400	95	sa673	174	--		52	--	
25...	1,360	32	118	163	14		47	--	
26...	1,040	20	sa56	154	--	1.6	42	1	.1
27...	2,140	228	sa1,670	146	--		39	--	
28...	1,400	55	208	135	4		41	1	
29...	1,040	25	sa70	132	--		37	--	
30...	1,980	210	sa1,300	121	3		36	--	
31...	1,460	38	150	--	--	--	34	--	
Total	41,071.0	--	26,171.1	46,476.0	--	65,909.4	1,977.0	--	13.1
Day	June			July			August		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1...	32	--	0.1	8.2	--	(t)	0.7	--	(t)
2...	32	2		7.5	--		.4	--	
3...	32	--		7.5	--		.3	--	
4...	30	--		7.5	--		.2	2	
5...	27	--		7.0	--		.1	--	
8...	26	--	0	6.8	--	0	0	--	0
7...	24	--		6.2	1		0	--	
8...	24	--		6.0	--		0	--	
9...	23	1		5.5	--		0	--	
10...	23	--		5.0	--		0	--	
11...	23	--	(t)	4.8	--	0	0	--	0
12...	22	--		4.4	--		0	--	
13...	21	--		4.2	--		0	--	
14...	20	--		3.8	2		0	--	
15...	18	--		3.8	--		0	--	
18...	16	3	0	4.0	--	0	0	--	0
17...	16	--		4.0	--		0	--	
16...	15	--		4.0	--		0	--	
19...	14	--		3.8	--		0	--	
20...	15	--		3.6	--		0	--	
21...	14	--	(t)	3.2	1	0	0	--	0
22...	13	--		3.2	--		0	--	
23...	13	1		2.8	--		0	--	
24...	13	--		2.8	--		0	--	
25...	12	--		2.6	--		0	--	
26...	11	--	0	2.2	--	0	0	--	0
27...	10	--		2.1	--		0	--	
28...	9.2	--		1.6	1		0	--	
29...	8.9	--		1.5	--		0	--	
30...	8.2	2		1.2	--		0	--	
31...	--	--	--	1.1	--	--	0	--	--
Total	565.3	--	2.4	131.9	--	0.4	1.7	--	(t)

Total discharge for period (cfs-days)..... 90,222.9
 Total load for period (tons)..... 92,096.4

s Computed by subdividing day.
 t Less than 0.05 ton.

a Computed from estimated-concentration graph.

PAJARO RIVER BASIN

11-1540. UVAS CREEK NEAR MORGAN HILL, CALIF.

LOCATION ---At site of former gaging station, 500 feet upstream from Uvas Dam, 0.6 mile downstream from Eastman Canyon, and 4.8 miles southwest of Morgan Hill, Santa Clara County.

WATER AREA (Revised).--30.4 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbocationate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 14, 1957.....		---	---	---	---	13	---	196	---	---	6.5	---	---	0.07	---	---	---	174	13	0.4	365	8.1
Nov. 21.....		---	---	---	---	14	---	202	---	---	6.7	---	---	.14	---	---	---	174	8	.5	372	8.2
Dec. 17.....		---	---	---	---	12	---	140	---	---	9.0	---	---	.13	---	---	---	132	17	.5	307	8.0
Jan. 24, 1958.....		---	---	---	---	13	---	190	---	---	9.0	---	---	.08	---	---	---	172	16	.4	373	8.0
Feb. 13.....		---	---	---	---	7.1	---	102	---	---	6.5	---	---	.27	---	---	---	90	6	.3	202	7.7
Mar. 12.....		---	---	---	---	9.0	---	145	---	---	6.0	---	---	.00	---	---	---	128	9	.3	280	7.7
Apr. 17.....		---	---	---	---	5.6	---	95	---	---	5.3	---	---	.00	---	---	---	82	4	.3	183	7.8
May 15.....		21	0.01	20	10	7.2	1.8	109	13	---	4.6	0.0	0.6	.04	132	0.18	---	93	4	.3	209	7.7
June 14.....		---	---	---	---	8.3	---	174	---	---	7.2	---	---	.00	---	---	---	123	7	.3	263	7.6
July 14.....		---	---	---	---	9.0	---	172	---	---	7.0	---	---	.20	---	---	---	148	5	.3	311	7.7
Aug. 14.....		---	---	---	---	---	---	---	---	---	---	---	---	.10	192	.26	---	156	12	.3	320	7.8
Sept. 8.....	18	---	.01	35	17	7.6	2.2	176	18	---	7.0	.1	.3	.10								

PAJARO RIVER BASIN--Continued

11-1590. PAJARO RIVER AT CHITTENDEN, CALIF.

LOCATION.--At gaging station in Salispuedes Grant on State highway bridge, 0.6 mile downstream from Pescadero Crsek, 0.6 mile southeast of Chittenden, Santa Cruz County, and 2.3 miles downstream from San Benito River.

DRAINAGE AREA.--1,188 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958																					
Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)		
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 14, 1957	2.5	---	---	---	---	188	---	529	---	162	---	---	0.80	---	---	---	500	20	3.7	1,680	8.3
Nov. 20	1.1	---	---	---	---	257	---	495	7	374	---	---	1.5	---	---	---	408	0	5.5	2,020	8.3
Dec. 17	5.1	---	---	---	---	197	---	579	---	182	---	---	1.3	---	---	---	504	29	3.8	1,720	8.1
Jan. 23, 1958	2.0	---	---	---	---	227	---	562	---	245	---	---	1.5	---	---	---	510	49	4.4	1,770	8.1
Feb. 13	236	---	---	---	---	34	---	136	---	28	---	---	.27	---	---	---	141	29	1.2	437	7.5
Mar. 13	118	---	---	---	---	38	---	224	---	34	---	---	.26	---	---	---	220	36	1.1	587	7.9
Apr. 16	a700	---	---	---	---	43	---	258	---	29	---	---	.26	---	---	---	262	50	1.2	677	8.1
May 15	66	21	0.01	74	49	67	3.6	310	---	65	0.3	6.1	.42	612	0.83	---	384	130	1.5	991	7.9
June 18	14	---	---	---	---	97	---	411	6	90	---	---	.80	---	---	---	520	173	1.9	1,280	8.3
July 14	9.9	---	---	---	---	134	---	462	---	130	---	---	.80	---	---	---	518	139	2.6	1,450	8.2
Aug. 13	5.8	---	---	---	---	139	---	494	---	60	---	---	.90	---	---	---	540	135	2.6	1,500	8.2
Sept. 8	5.3	24	.00	89	71	155	6.4	538	---	138	.3	.4	.90	952	1.29	---	514	73	3.0	1,510	8.2
a Daily mean discharge (cfs).																					

a Daily mean discharge (cfs).

SOQUEL CREEK BASIN

11-1600. SOQUEL CREEK AT SOQUEL, CALIF.

LOCATION.--At gaging station, 0.2 mile upstream from highway bridge in town of Soquel, Santa Cruz County, and 0.4 mile downstream from Bates Creek.

WATERSHED AREA.--30.4 square miles.

PERIODS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)		
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 15, 1957	8.1					55		243			77			0.17				306	107	1.4	828	8.2
Nov. 20	5.8					56		a248			81			.09				310	107	1.4	823	8.4
Dec. 16	312					19		116			16			.11				141	46	7.7	366	7.1
Jan. 23, 1958	9.7					46		240			54			.00				285	88	1.2	747	8.1
Feb. 13	180					20		130			15			.01				164	57	7.7	404	7.8
Mar. 13	64					24		167			20			.02				204	67	.7	512	7.8
Apr. 16	99					22		158			16			.02				187	57	.7	474	8.0
May 16	29	30	0.01	63	19	30	3.6	202		91	28	0.2	0.3	.11	365	0.50		236	70	.8	575	8.1
June 18	15					36		b220			37			.00				249	69	1.0	616	8.6
July 15	8.3					39		226			49			.00				246	61	1.1	661	8.2
Aug. 12	5.0					43		234			54			.00				264	72	1.1	691	8.2
Sept. 10	5.6	36	.01	75	22	44	5.1	245		85	59	.2	.0	.10	447	.61		278	77	1.1	719	7.9

a Includes equivalent of 6 parts per million of carbonate (CO₃).

b Includes equivalent of 14 parts per million of carbonate (CO₃).

SAN LORENZO RIVER BASIN

11-1605. SAN LORENZO RIVER AT BIG TREES, CALIF.

LOCATION.--In Canada del Rincon Grant at Sequoia Picnic and Camp Grounds at Big Trees, Santa Cruz County, about 0.5 mile upstream from gaging station, and 4 miles north of Santa Cruz.

DRAINAGE AREA.--110 square miles upstream from gaging station.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonyl Sulfate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (calculated)			Hardness as CaCO ₃	Sodium adsorption ratio	Specific conductance (microhmhos at 25°C)	pH	
														Parts per million	Tons per acre-foot	Tons per day					
Oct. 15, 1957.....	36	---	---	---	---	20	---	131	---	---	23	---	---	0.05	---	---	131	24	0.8	356	7.8
Nov. 20.....	32	---	---	---	---	23	---	146	---	---	24	---	---	0.09	---	---	140	20	0.8	374	8.2
Dec. 16.....	1,290	---	---	---	---	11	---	57	---	---	12	---	---	---	---	---	71	24	0.6	181	6.8
Jan. 23, 1958.....	48	---	---	---	---	23	---	136	---	---	21	---	---	---	---	---	135	23	0.9	371	7.8
Feb. 14.....	623	---	---	---	---	13	---	86	---	---	12	---	---	0.04	---	---	98	27	0.6	268	7.5
Mar. 13.....	239	---	---	---	---	15	---	107	---	---	14	---	---	0.00	---	---	114	26	0.6	299	7.6
Apr. 16.....	418	---	---	---	---	13	---	105	---	---	13	---	---	0.01	---	---	115	29	0.5	289	7.7
May 16.....	131	27	0.04	39	6.9	18	2.1	124	41	16	0.1	0.08	0.08	0.00	0.29	0.29	126	24	0.7	325	7.7
June 18.....	70	---	---	---	---	17	---	126	---	---	18	---	---	---	---	---	124	21	0.7	325	8.2
July 15.....	49	---	---	---	---	19	---	135	---	---	16	---	---	0.00	---	---	126	15	0.7	339	8.0
Aug. 12.....	32	---	---	---	---	19	---	132	---	---	20	---	---	0.10	---	---	130	22	0.7	332	8.0
Sept. 10.....	29	28	.02	38	6.9	19	2.3	133	28	21	21	.2	.3	0.00	0.29	0.29	124	15	0.7	330	7.7

GUADALUPE RIVER BASIN

11-1660. LOS GATOS CREEK AT LOS GATOS, CALIF.

LOCATION.--At gaging station, 0.3 mile downstream from Trout Creek, 0.5 mile downstream from Lexington Reservoir, and 1 mile south of Los Gatos, Santa Clara County.

DRAINAGE AREA.--38.9 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonyl sulfate (CO ₂)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium sulfate ratio at 25°C	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 15, 1957....	0.4	--	--	--	--	23	--	306	--	--	18	--	--	0.13	--	--	308	57	0.6	640	8.1	
Nov. 20.....	1.7	--	--	--	--	29	--	343	--	--	22	--	--	.11	--	--	357	76	.7	728	8.2	
Dec. 16.....	9.2	--	--	--	--	14	--	144	--	--	13	--	--	.05	--	--	216	0	.5	378	7.9	
Jan. 23, 1958....	10	--	--	--	--	19	--	386	--	--	12	--	--	.03	--	--	165	42	.6	487	7.7	
Feb. 14.....	5.2	--	--	--	--	12	--	152	--	--	9.0	--	--	.07	--	--	167	42	.4	367	7.8	
Mar. 13.....	9.5	--	--	--	--	11	--	133	--	--	8.0	--	--	.08	--	--	139	30	.4	315	7.7	
Apr. 16.....	193	--	--	--	--	6.8	--	108	--	--	7.6	--	--	.04	--	--	108	19	.4	242	7.8	
May 16.....	33	33	0.00	24	9.0	1.7	--	102	--	23	6.0	0.1	0.9	12	157	0.21	97	13	.4	236	7.6	
June 18.....	60	--	--	--	--	11	--	98	--	--	5.2	--	--	.00	--	--	96	16	.5	230	8.0	
July 15.....	42	--	--	--	--	8.3	--	106	--	--	5.8	--	--	.00	--	--	97	10	.4	240	7.8	
Aug. 12.....	44	--	--	--	--	9.0	--	112	--	--	7.0	--	--	.00	--	--	110	18	.4	250	7.9	
Sept. 10.....	49	22	.02	32	10	9.2	3.4	130	--	29	8.0	.2	.9	.00	179	.24	123	16	.4	278	8.0	

COYOTE CREEK BASIN

11-1700. COYOTE CREEK NEAR MADRONE, CALIF.

LOCATION.--At gaging station near southeast corner of La Laguna Seca Grant, 1.2 miles downstream from Anderson Dam, and 1.8 miles northeast of Madrone, Santa Clara County.

DRAINAGE AREA.--194 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 14, 1957	89	--	--	--	--	15	--	117	--	--	9.0	--	--	0.11	--	--	--	154	9	0.5	346	8.1
Nov. 21	53	--	--	--	--	18	--	180	5	--	13	--	--	.07	--	--	--	170	14	.6	393	8.3
Dec. 17	5.3	--	--	--	--	17	--	193	--	--	15	--	--	.03	--	--	--	178	20	.6	401	7.9
Jan. 24, 1958	17	--	--	--	--	17	--	186	--	--	12	--	--	.01	--	--	--	170	17	.6	393	7.8
Feb. 13	12	--	--	--	--	17	--	142	16	--	12	--	--	.12	--	--	--	166	23	.6	369	8.7
Mar. 12	11	--	--	--	--	15	--	144	18	--	14	--	--	.04	--	--	--	167	19	.5	389	8.7
Apr. 17	220	--	--	--	--	14	--	143	--	--	9.7	--	--	.00	--	--	--	132	15	.5	306	7.9
May 15	43	16	0.05	24	17	13	2.2	148	--	20	10	0.1	1.5	.07	177	0.24	--	128	7	.5	317	7.6
June 18	53	--	--	--	--	12	--	105	--	--	5.5	--	--	.00	--	--	--	100	14	.5	227	8.0
July 14	85	--	--	--	--	10	--	106	--	--	6.1	--	--	.10	--	--	--	90	3	.5	230	7.9
Aug. 14	a28	--	--	--	--	11	--	110	--	--	8.0	--	--	.00	--	--	--	114	24	.4	266	8.0
Sept. 8	66	15	.07	24	10	11	2.1	112	--	20	7.3	.0	1.2	.00	146	.20	--	101	9	.3	242	7.9

a Daily mean discharge (cfs)

ALAMEDA CREEK BASIN

11-1790. ALAMEDA CREEK NEAR NILES, CALIF.

LOCATION.--At gaging station, 0.3 mile downstream from railroad bridge and 1.2 miles northeast of Niles, Alameda County.

DRAINAGE AREA.--633 square miles.

RECORDS AVAILABLE.--Chemical analyses: February 1952 to September 1958.

Water temperatures: January 1957 to September 1958.

Sediment loads: January 1957 to September 1958.

EXTREMES 1950-59.--Sodium maximum daily, 5,340 ppm Apr. 3; minimum daily, no flow on many days.

Sulfate maximum daily, 285,000 tons Apr. 3; minimum daily, 0 tons Apr. 3.

Sediment loads: Maximum daily, 285,000 tons Apr. 3; minimum daily, 0 tons Apr. 3.

EXTREMES 1956-57.--Water temperatures: Maximum 84°F June 30, 1957; minimum, 38°F Dec. 22, 24, 28, 30, 1956; Jan. 9, 10, 1957.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565. No flow Oct. 1 to Nov. 6.

Chemical analyses, in parts per million, November 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂) (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonyl Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
												Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium, Sulfate	Non-carbonate			
Nov. 20, 1957	1.3	--	--	--	76	--	324	--	77	--	--	--	--	--	398	132	1.7	1,040	8.2
Dec. 17	22	--	--	--	136	--	437	--	210	--	0.8	--	--	--	474	116	2.7	1,500	7.5
Jan. 23, 1958	4.3	--	--	--	86	--	352	14	125	--	1.4	--	--	--	420	108	1.8	1,140	8.4
Feb. 13	1,230	--	--	--	24	--	180	--	20	--	.7	--	--	--	342	11	1.9	378	7.8
Mar. 12	42	--	--	--	449	--	284	--	49	--	.5	--	--	--	283	50	1.3	734	8.0
Apr. 16	544	--	--	--	26	--	205	--	24	--	.2	--	--	--	184	16	.8	479	7.8
May 16	39	17	0.00	36	58	3.7	316	5	52	0.2	4.1	.6	511	0.69	329	62	1.4	828	8.3
June 18	7.7	--	--	--	77	--	255	--	68	--	1.0	--	--	--	316	107	1.9	852	8.2
July 15	6.2	--	--	--	68	--	292	--	67	--	.9	--	--	--	277	36	1.8	858	8.1
Aug. 14	2.5	--	--	--	69	--	310	--	64	--	.7	--	--	--	318	64	1.7	872	8.1
Sept. 8	.6	18	.00	66	79	6.4	319	--	61	.4	.7	1.0	.79	.580	335	73	1.9	943	8.1

ALAMEDA CREEK BASIN--Continued

11-1790. ALAMEDA CREEK NEAR NILES, CALIF.--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...				0	--		1.2	--	
2...				0	--		1.0	--	
3...				0	--		.6	--	
4...				0	--	0	.9	--	
5...				0	--		1.2	--	
6...				0	--		1.2	--	
7...				.1	41	(t)	1.3	--	(et)
8...				.6	--		1.5	--	
9...				1.0	--		1.2	10	
10...				.7	--		1.0	--	
11...				.6	--	e.1	1.0	--	
12...				.8	--		.9	--	
13...				1.0	--		.9	--	
14...				1.9	--		.9	--	
15...				1.4	21		2.5	45	a.3
16...				1.2	--		15	120	sa6.1
17...				1.2	--		22	160	a9.5
18...				1.2	3		28	285	s27
19...				1.3	--		15	455	18
20...				1.3	--		7.3	289	5.7
21...				1.2	--		5.7	115	1.8
22...				1.1	--	(et)	5.5	41	.6
23...				.9	--		5.7	21	.3
24...				.9	--		4.4	16	.2
25...				.9	--		3.8	13	.1
26...				.8	--		3.4	9	.1
27...				.8	--		3.2	7	.1
28...				.6	--		3.1	5	(t)
29...				.9	--		2.6	6	(t)
30...				1.3	--		2.6	8	.1
31...				--	--		2.4	7	(t)
Total	0		0	23.7	--	1.0	147.0	--	70.4
Day	January			February			March		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	2.4	12	0.1	106	45	13	282	69	53
2...	3.8	19	.2	428	570	sa1,300	206	58	32
3...	4.7	22	.3	1,150	886	s2,880	158	41	17
4...	4.4	18	.2	577	210	327	128	34	12
5...	3.5	8	.1	494	150	200	106	25	7.2
6...	3.1	14	.1	451	120	146	91	20	a4.9
7...	2.9	22	a.2	419	150	170	82	15	a3.3
8...	3.2	31	.3	344	250	232	72	11	2.1
9...	2.9	37	.3	298	260	209	59	9	1.4
10...	4.2	35	.4	332	200	179	52	9	1.3
11...	9.3	24	.6	277	280	209	48	7	.9
12...	7.5	8	.2	1,140	1,380	s5,890	42	5	
13...	5.5	6	.1	1,230	770	sa2,500	37	--	.6
14...	4.4	6	.1	382	280	a290	41	--	
15...	3.7	7	.1	202	170	a93	133	140	sa130
16...	3.2	7	.1	166	140	a63	1,770	2,200	sa13,000
17...	3.2	4	(t)	141	130	a49	1,040	462	s1,450
18...	2.9	5	(t)	265	311	sa47	700	110	208
19...	2.8	5	(t)	4,410	2,660	s37,900	550	110	a160
20...	2.5	4	(t)	2,220	1,340	s9,880	552	390	sa730
21...	2.4	5	(t)	778	330	693	3,090	3,650	s29,700
22...	2.3	8	(t)	426	150	173	4,990	3,200	sa45,000
23...	4.3	10	a.1	274	70	52	2,670	810	5,840
24...	44	48	s18	523	225	s739	1,840	310	a1,500
25...	33	75	6.7	2,490	1,390	s9,540	1,360	220	808
26...	462	943	s1,740	1,370	730	2,700	1,010	200	a550
27...	689	716	s1,590	650	250	439	1,160	658	s2,300
28...	237	210	134	413	119	133	1,320	990	a3,500
29...	195	320	s316	--	--	--	937	180	455
30...	413	566	s809	--	--	--	1,550	1,500	sa7,100
31...	187	105	53	--	--	--	1,370	1,600	a5,900
Total	2,349.1	--	4,670.4	21,956.0	--	77,416.0	27,446.0	--	118,467.9

e Estimated.

s Computed by subdividing day.

t Less than 0.05 ton.

a Computed from estimated concentration graph.

ALAMEDA CREEK BASIN--Continued

11-1790, ALAMEDA CREEK NEAR NILES, CALIF.--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	5,160	4,640	s71,400	136	24	8.8	14	--	
2...	8,710	4,560	s113,000	130	23	a8.1	12	--	
3...	18,100	5,340	s285,000	117	21	6.6	12	--	
4...	6,780	3,090	73,300	103	21	a5.8	12	21	
5...	5,490	2,110	s33,600	91	21	5.2	12	--	
6...	5,730	2,600	a40,000	82	16	3.5	11	--	
7...	3,920	1,200	12,700	74			11	--	
8...	2,650	620	a4,400	67	14		10	--	e0.6
9...	1,810	410	2,000	70	--		10	--	
10...	1,390	300	a1,100	91	--	3.0	9.3	--	
11...	1,140	220	677	89	16		9.3	--	
12...	955	150	387	61	--		9.3	--	
13...	806	150	a330	65	--		9.6	--	
14...	688	130	a240	50	188		11	--	
15...	600	150	243	36	--		9.6	--	
16...	544	190	279	39	--	e2	8.7	22	
17...	469	100	127	61	--		8.4	--	
18...	438	94	111	56	--		7.7	--	
19...	328	86	a76	35	--		7.5	--	e.3
20...	219	59	a35	24	9		7.3	--	
21...	198	--		24	--		6.9	--	
22...	190	37		28	--		6.9	--	
23...	185	--	17	37	--		6.6	--	
24...	185	29		29	--		6.6	8	
25...	181	--		24	--	e1	6.4	--	
26...	177	17		23	--		6.2	--	.1
27...	177	--	9.0	23	--		5.5	8	
28...	169	21		17	23		5.3	--	
29...	155	--		16	--		4.4	6	
30...	144	--		15	--		4.0	--	
31...	--	--	--	14	--		--	--	--
Total	69,688.0	--	644,135.0	1,727	--	83.0	260.5	--	11.9
Day	July			August			September		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	4.4			3.7			1.8		
2...	4.9	--	e0.1	3.7			1.5		
3...	4.4			3.5			1.4		
4...	4.2	6	.1	3.4			1.8		
5...	6.0			3.2			1.3		
6...	6.2			2.9			.9		
7...	5.5			2.5	--	e0.1	.7		
8...	5.1			2.5			.6		
9...	4.4			3.1			.6		
10...	4.2	--	e.1	3.8			.9		
11...	5.1			4.0			.9		
12...	5.3			3.7			.7		
13...	4.9			2.8			.7		
14...	5.1			2.5	10	.1	.7		
15...	6.2			2.9			.8		
16...	6.4	--	e.2	3.2			.7	--	(et)
17...	6.9			3.8			.7		
18...	6.4			4.4			.7		
19...	5.1			3.2			.7		
20...	4.6			2.6			.6		
21...	4.4			2.3			.7		
22...	4.4			2.0	--	e.1	.7		
23...	3.8			2.4			.6		
24...	4.2			2.6			.6		
25...	4.6	--	e.1	2.5			.6		
26...	4.2			2.2			.5		
27...	4.0			1.7			.4		
28...	4.6			1.6			.4		
29...	4.6			1.3			.3		
30...	4.2			1.3			.3		
31...	4.2			2.2			--	--	--
Total	152.5	--	3.5	87.5	--	3.1	23.8	--	0.3
Total discharge for year (cfs-days).....									
Total load for year (tons).....									

e Estimated.

t Less than 0.05 ton.

ALAMEDA CREEK BASIN--Continued

11-1790. ALAMEDA CREEK NEAR NILES, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Sam- pling point	Water tem- per- ature (°F)	Discharge (cfs)	Sediment con- cen- tration (ppm)	Suspended sediment											Method of analysis
						Percent finer than size indicated, in millimeters											
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Dec. 19, 1957.....	1515		60	011	438	--	56	74	--	93	--	100	--	--	--	--	SPWC
Jan. 26, 1958.....	1245		51	762	2,200		66	88	81	92	98	100	--	--	--	--	SPWC
Jan. 30.....	1515		56	305	0,281		--	82	--	95	--	98	100	--	--	--	SPWC
Feb. 4.....	1230		53	501	0,164		--	82	--	92	--	98	100	--	--	--	SPWC
Feb. 12.....	1610		56	2,100	3,050		50	60	73	83	91	96	98	100	--	--	SPWC
Feb. 19.....	1400		56	6,180	4,510		--	41	--	60	--	78	86	93	99	100	SPWC
Feb. 25.....	1010		54	3,180	1,930		--	41	--	61	--	84	91	97	100	--	VPWC

KERN RIVER BASIN

11-1860. KERN RIVER NEAR KERNVILLE, CALIF.

LOCATION.--At gaging station, 3 miles upstream from Salmon Creek and 15 miles (revised) north of Kernville, Kern County.

DRAINAGE AREA.--865 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1955 to September 1958.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958																						
Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Specific conductance (microhmhos at 25°C)	pH	
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 16, 1957.....	214	--	--	--	--	14	--	66	--	--	6.7	--	--	0.13	--	--	--	41	0	1.0	146	7.5
Nov. 19.....	220	--	--	--	--	15	--	68	--	--	8.0	--	--	.13	--	--	--	48	0	.9	154	7.4
Dec. 16.....	361	--	--	--	--	14	--	72	--	--	5.5	--	--	.11	--	--	--	48	0	.9	146	7.8
Jan. 15, 1958....	206	--	--	--	--	16	--	70	--	--	6.0	--	--	.15	--	--	--	43	0	1.1	158	7.1
Feb. 14.....	359	--	--	--	--	13	--	69	--	--	6.0	--	--	.10	--	--	--	43	0	.9	142	7.4
Mar. 19.....	760	--	--	--	--	9.6	--	62	--	--	3.5	--	--	.09	--	--	--	36	0	.7	113	7.5
Apr. 14.....	1,360	--	--	--	--	8.6	--	54	--	--	3.2	--	--	.00	--	--	--	35	0	.6	100	7.7
May 13.....	3,380	14	0.07	4.8	1.0	4.1	1.0	23	3.8	3.8	1.0	0.3	0.3	.08	41	0.06	41	16	0	.4	52	7.2
June 27.....	3,240	--	--	--	--	2.7	--	18	--	--	2.1	--	--	.00	--	--	--	11	0	.4	37	7.4
July 13.....	2,020	--	--	--	--	3.0	--	20	--	--	.5	--	--	.00	--	--	--	16	0	.3	42	7.4
Aug. 12.....	769	--	--	--	--	5.8	--	30	--	--	3.0	--	--	.00	--	--	--	20	0	.6	67	7.5
Sept. 16.....	341	18	.00	10	2.2	9.1	1.1	50	--	5.8	5.0	.2	.0	.00	76	.10	--	34	0	.7	110	7.5

KERN RIVER BASIN--Continued
11--1910. KERN RIVER BELOW ISABELLA DAM, CALIF.

LOCATION.--On right bank, 500 feet below Isabella Dam, Kern County, about 0.6 mile upstream from gaging station, and 1 mile southwest of Isabella. DRAINAGE AREA.--2,094 square miles upstream from gaging station. RECORDS AVAILABLE.--Chemical analyses: October 1955 to September 1958. REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate		
Oct. 16, 1957....	3.4	---	---	---	---	12	---	70	---	---	5.5	---	---	0.19	---	---	42	0	0.8	144	7.4
Nov. 19.....	202	---	---	---	---	13	---	73	---	---	6.0	---	---	.13	---	---	51	0	.8	153	7.4
Dec. 16.....	110	---	---	---	---	14	---	75	---	---	7.5	---	---	.04	---	---	47	0	.9	160	7.8
Jan. 13, 1958....	6.2	---	---	---	---	15	---	84	---	---	6.0	---	---	.22	---	---	47	0	.9	154	6.9
Feb. 1.....	3.1	---	---	---	---	15	---	84	---	---	7.0	---	---	.26	---	---	50	0	.9	173	7.4
Mar. 19.....	1.2	---	---	---	---	16	---	88	---	---	8.5	---	---	.08	---	---	60	0	.9	189	7.6
Apr. 21.....	679	---	---	---	---	12	---	74	---	---	5.5	---	---	.09	---	---	50	0	.7	151	7.8
May 16.....	1,190	16	0.08	7.6	1.5	8.9	1.6	42	---	6.7	3.5	0.2	0.8	.06	68	0.09	25	0	.8	196	7.2
June 23.....	2,800	---	---	---	---	6.2	---	34	---	---	2.0	---	---	.00	---	---	21	0	.6	72	7.6
July 13.....	3,000	---	---	---	---	5.5	---	33	---	---	1.8	---	---	.00	---	---	24	0	.5	70	7.4
Aug. 12.....	1,800	---	---	---	---	6.7	---	36	---	---	3.5	---	---	.00	---	---	28	0	.5	84	6.9
Sept. 16.....	345	9.6	.20	10	1.7	6.0	1.6	44	---	3.8	3.2	.1	2.1	.00	60	.08	32	0	.5	98	7.1

KERN RIVER BASIN--Continued

11-1940. KERN RIVER NEAR BAKERSFIELD, CALIF.

LOCATION.--At gaging station at Kern County Land Co. diversion weir, approximately 2 miles east of Oil City, and 5 miles northeast of Bakersfield, Kern County. DRAINAGE AREA.--2,420 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--Gaging station maintained and operated by State of California Department of Water Resources. Records of discharge for water year October 1957 to September 1958 given in State of California Bulletin No. 23.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Bo-ron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Specific con-ductance (microhm-cm at 25°C)	pH	
															Parts per million	Tons per acre-foot	Tons per day	Cal-cium, Mag-nes-ium	Non-car-bon-ate			
Oct. 15, 1957....	245	--	--	--	--	17	--	75	--	--	14	--	--	0.27	--	--	--	60	0	1.0	197	7.1
Nov. 20.....	223	--	--	--	--	19	--	80	--	--	14	--	--	.23	--	--	--	60	0	1.1	203	7.3
Dec. 17.....	380	--	--	--	--	18	--	86	--	--	12	--	--	.03	--	--	--	76	5	.9	243	7.6
Jan. 28, 1958....	537	--	--	--	--	15	--	66	--	--	8.6	--	--	.18	--	--	--	55	1	.9	166	7.4
Feb. 18.....	442	--	--	--	--	16	--	78	--	--	7.0	--	--	.16	--	--	--	49	0	1.0	174	7.9
Mar. 4.....	599	--	--	--	--	18	--	94	--	--	10	--	--	.06	--	--	--	63	0	1.0	204	7.7
Apr. 8.....	899	--	--	--	--	16	--	100	--	--	8.0	--	--	.10	--	--	--	73	0	.8	220	7.8
May 6.....	2,223	14	0.02	14	2.2	12	2.1	66	--	7.7	5.8	0.2	0.1	.09	91	0.12	--	44	0	.8	141	7.5
June 10.....	3,375	--	--	--	--	6.5	--	36	--	--	2.2	--	--	.00	--	--	--	26	0	.8	82	7.7
July 8.....	2,870	--	--	--	--	7.0	--	40	--	--	3.5	--	--	.00	--	--	--	26	0	.5	75	7.4
Aug. 6.....	1,356	11	.03	11	1.8	8.1	2.5	52	--	6.7	4.8	.1	.8	.10	73	.10	--	26	0	.6	86	7.5
Sept. 3.....	1,356	11	.03	11	1.8	8.1	2.5	52	--	6.7	4.8	.1	.8	.10	73	.10	--	35	0	.6	108	7.5

TULARE LAKE BASIN
11-2035. TULE RIVER NEAR PORTERVILLE, CALIF.

LOCATION.--At gaging station on downstream side of highway bridge, 1 mile upstream from South Fork, and 6 miles east of Porterville, Tulare County.
DRAINAGE AREA.--261 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.
REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F) (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance micro-mhos at 25°C	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 15, 1957	50	--	--	--	--	21	--	204	--	--	10	--	0.16	--	--	--	150	0	0.7	362	7.7
Nov. 20	39	--	--	--	--	21	--	241	--	--	12	--	.17	--	--	--	170	0	.7	403	8.4
Dec. 17	328	--	--	--	--	11	--	100	--	--	6.8	--	.01	--	--	--	176	0	.6	186	7.6
Jan. 28, 1958	213	--	--	--	--	11	--	108	--	--	5.5	--	.07	--	--	--	74	0	.6	191	7.7
Feb. 16	145	--	--	--	--	12	--	130	--	--	6.0	--	.09	--	--	--	90	0	.5	227	8.2
Mar. 4	184	--	--	--	--	11	--	118	--	--	6.0	--	.02	--	--	--	82	0	.5	202	7.9
Apr. 8	610	--	--	--	--	10	--	89	--	--	5.0	--	.00	--	--	--	60	0	.6	157	7.8
May 6	690	16	0.02	12	1.2	4.4	1.4	48	--	3.6	2.9	0.0	0.0	66	0.09	--	35	0	.3	90	7.6
June 10	305	--	--	--	--	5.6	--	66	--	--	2.0	--	.00	--	--	--	46	0	.4	117	7.9
July 8	115	--	--	--	--	8.9	--	115	--	--	5.0	--	.00	--	--	--	40	0	.4	195	8.1
Aug. 6	32	--	--	--	--	14	--	b184	--	--	8.0	--	.10	--	--	--	126	0	.5	303	6.4
Sept. 3	15	31	.01	46	7.8	17	3.2	202	--	7.7	11	.2	.6	225	.31	--	147	0	.6	341	8.2

a Includes equivalent of 7 parts per million of carbonate (CO₃).

b Includes equivalent of 4 parts per million of carbonate (CO₃).

TULARE LAKE BASIN--Continued

11-2105. KAWEAH RIVER NEAR THREE RIVERS, CALIF.

LOCATION.--Just below gaging station, 2.5 miles downstream from South Fork and 3 miles southwest of Three Rivers Post Office, Tulare County.
 DRAINAGE AREA.--520 square miles, approximately
 RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.
 REMARKS.--Records of discharge for water year October 1957 to September 1958 given in W8P 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium, Sodium	Non-carbonate			
Oct. 15, 1957....	95	--	--	--	--	5.6	--	67	--	--	4.8	--	--	0.00	--	--	--	53	0	0.3	130	7.3
Nov. 20.....	133	--	--	--	--	5.8	--	56	--	--	3.8	--	--	.00	--	--	--	44	0	.4	106	7.9
Dec. 17.....	949	--	--	--	--	3.8	--	28	--	--	2.2	--	--	.00	--	--	--	22	0	.4	85	7.0
Jan. 28, 1958....	365	--	--	--	--	4.4	--	43	--	--	3.4	--	--	.04	--	--	--	34	0	.4	193	7.8
Feb. 18.....	375	--	--	--	--	4.8	--	47	--	--	2.8	--	--	.04	--	--	--	34	0	.4	99	7.6
Mar. 4.....	375	--	--	--	--	5.1	--	48	--	--	3.2	--	--	.00	--	--	--	43	4	.3	99	7.6
Apr. 8.....	1,240	--	--	--	--	5.5	--	64	--	--	2.5	--	--	.00	--	--	--	45	0	.4	116	7.8
May 6.....	2,630	9.5	0.01	5.2	0.2	1.8	1.0	20	0.0	0.0	1.8	0.0	0.0	.01	30	0.04	14	0	.2	40	7.3	
June 10.....	2,260	--	--	--	--	1.7	--	16	--	--	.4	--	--	.00	--	--	10	0	.2	32	7.4	
July 8.....	1,200	--	--	--	--	1.5	--	17	--	--	.3	--	--	.00	--	--	16	2	.2	33	7.3	
Aug. 6.....	271	--	--	--	--	2.9	--	32	--	--	3.0	--	--	.00	--	--	26	0	.3	64	7.6	
Sept. 3.....	107	15	.01	12	1.5	4.1	2.7	45	--	4.8	3.9	.1	.1	.00	66	.09	--	36	0	.3	92	7.5

TULARE LAKE BASIN--Continued

11-2185. KINGS RIVER BELOW NORTH FORK, CALIF.

LOCATION.--At gaging station, 0.8 mile downstream from North Fork, Fresno County, 2.4 miles southwest of Balch Camp, and 8.5 miles southeast of Trimmer. DRAINAGE AREA.--1,350 square miles, approximately.
 RECORDS AVAILABLE.--Chemical analyses: October 1955 to September 1958. 1958 given in WSP 1565.
 REMARKS.--Records of discharge for water year October 1957 to September 1958.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio (microhmhos at 25°C)	pH	
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 8, 1957.....	175	---	---	---	---	3.8	---	28	---	---	3.8	---	---	0.00	---	---	---	25	2	0.3	68	7.2
Nov. 13.....	363	---	---	---	---	3.9	---	24	---	---	2.2	---	---	.02	---	---	---	25	5	.3	55	7.0
Dec. 9.....	307	---	---	---	---	4.0	---	25	---	---	3.4	---	---	.00	---	---	---	18	0	.4	59	7.3
Jan. 14, 1958....	350	---	---	---	---	4.0	---	27	---	---	3.0	---	---	.04	---	---	---	20	0	.4	58	6.6
Feb. 11.....	580	---	---	---	---	3.6	---	26	---	---	2.0	---	---	.01	---	---	---	21	0	.3	60	7.3
Mar. 7.....	1,000	---	---	---	---	3.5	---	33	---	---	2.0	---	---	.00	---	---	---	24	0	.3	66	6.9
Apr. 15.....	3,070	---	---	---	---	4.8	---	27	---	---	2.5	---	---	.00	---	---	---	20	0	.5	66	7.3
May 13.....	5,690	12	0.02	3.6	0.5	2.2	1.0	16	---	1.9	1.0	0.2	0.3	.15	31	0.04	11	0	.3	32	6.9	
July 11.....	5,590	---	---	---	---	1.3	---	7	---	---	1.5	---	---	.00	---	---	6	0	.2	17	6.8	
Aug. 12.....	1,650	---	---	---	---	1.3	---	12	---	---	1.1	---	---	.00	---	---	9	0	.2	27	6.6	
Sept. 9.....	656	8.4	.00	4.6	.5	3.2	1.2	16	---	6.7	2.1	.0	.2	.00	35	.05	14	1	.1	40	6.9	

a Daily mean discharge (cfs).

a Daily mean discharge (cfs).

TULARE LAKE BASIN--Continued

11-2215. KINGS RIVER BELOW PINE FLAT DAM, CALIF.

LOCATION.--At gaging station, 3,200 feet downstream from Pine Flat Dam, Fresno County, and 2.9 miles northeast of Piedra.

DRAINAGE AREA.--1,542 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1955 to September 1958.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium, silicon	Non-carbonate			
Oct. 8, 1957.....	242	--	--	--	--	1.7	--	16	--	--	0.8	--	--	0.03	--	--	--	12	0	0.2	34	7.0
Nov. 13.....	39	--	--	--	--	2.0	--	18	--	--	1.0	--	--	.04	--	--	--	19	4	.2	39	6.9
Dec. 9.....	137	--	--	--	--	1.8	--	17	--	--	2.0	--	--	.00	--	--	--	12	0	.2	38	7.3
Jan. 4, 1958.....	185	--	--	--	--	2.4	--	23	--	--	--	--	--	.03	--	--	--	26	3	.3	66	7.9
Feb. 11.....	556	--	--	--	--	2.5	--	26	--	--	1.8	--	--	.00	--	--	--	24	3	.3	66	7.1
Mar. 7.....	556	--	--	--	--	2.8	--	29	--	--	1.0	--	--	.00	--	--	--	22	0	.3	56	7.3
Apr. 15.....	1,780	--	--	--	--	3.2	--	25	--	--	2.5	--	--	.00	--	--	--	19	0	.3	58	7.0
May 13.....	6,890	14	0.05	6.0	0.7	3.2	1.3	23	--	5.8	2.5	0.2	0.5	.01	43	0.06	--	18	0	.2	54	7.1
June 13.....	7,180	--	--	--	--	1.8	--	15	--	--	2.0	--	--	.00	--	--	--	11	0	.2	32	7.3
July 11.....	7,080	--	--	--	--	1.4	--	8	--	--	1.0	--	--	.00	--	--	--	9	2	.2	19	7.3
Sept. 9.....	2,110	7.3	.00	2.8	.1	2.6	.7	10	--	3.8	1.3	.0	.0	.00	24	.03	--	8	0	.4	22	6.5
Sept. 12.....	1,800	--	--	--	--	1.5	--	14	--	--	.9	--	--	.00	--	--	--	11	0	.2	28	6.9

TULARE LAKE BASIN--Continued

111-2227. KINGS RIVER AT PEOPLES WEIR, NEAR KINGSBURG, CALIF.

LOCATION --About 0.25 mile below gaging station located on diversion weir, 2 miles south of Kingsburg, and about 12 miles northeast of Hanford, Kings County.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio at 25°C)	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 15, 1957	118	---	---	---	---	9.6	---	84	---	---	3.4	---	---	0.07	---	---	60	0	0.5	159	7.2	7.2
Nov. 20	93	---	---	---	---	15	---	116	---	---	7.5	---	---	.03	---	---	84	0	.7	222	7.7	7.7
Dec. 17	130	---	---	---	---	12	---	91	---	---	5.5	---	---	.00	---	---	63	0	.7	179	7.8	7.8
Jan. 28, 1958	415	---	---	---	---	6.1	---	52	---	---	4.6	---	---	.06	---	---	39	0	.4	108	7.4	7.4
Feb. 18	237	---	---	---	---	6.8	---	70	---	---	8.5	---	---	.03	---	---	44	0	.6	103	7.4	7.4
Mar. 4	210	---	---	---	---	13	---	110	---	---	8.0	---	---	.12	---	---	81	0	.6	215	7.7	7.7
Apr. 8	505	---	---	---	---	10	---	105	---	---	5.0	---	---	.04	---	---	80	0	.5	198	7.6	7.6
May 6	4,975	12	0.05	6.8	1.5	3.7	1.5	28	3.8	3.8	3.1	0.1	0.1	.00	47	0.06	23	0	.3	61	7.3	7.3
June 10	5,890	---	---	---	---	2.6	---	20	---	---	.8	---	---	.00	---	---	14	0	.3	39	7.4	7.4
July 8	2,460	---	---	---	---	1.6	---	14	---	---	.7	---	---	.00	---	---	10	0	.2	29	7.0	7.0
Aug. 6	2,083	---	---	---	---	2.3	---	18	---	---	1.5	---	---	.00	---	---	14	0	.3	40	7.3	7.3
Sept. 3	1,045	11	.04	6.0	1.5	3.3	1.9	24	5.8	2.4	.0	.5	.00	.44	.06	.21	1	.3	.3	58	7.0	7.0

SAN JOAQUIN RIVER BASIN

11-2510. SAN JOAQUIN RIVER BELOW FRIANT, CALIF.

LOCATION.--At gaging station, 0.5 mile west of Friant, Fresno County, 1.5 miles downstream from Cottonwood Creek, and 2 miles downstream from Friant Dam.
DRAINAGE AREA.--1,675 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1958.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonyl Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F) (NO ₃) (B)	Dissolved solids (calculated)	Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
													Calcium Magnesium	Non-carbonate			
Oct. 15, 1957.....	101	--	--	--	--	3.8	--	22	--	3.0	--	--	15	0	0.4	45	6.9
Nov. 19.....	71	--	--	--	--	4.4	--	20	--	4.0	--	--	13	0	.5	45	6.9
Dec. 17.....	466	--	--	--	--	3.8	--	18	--	4.0	--	--	11	0	.5	42	7.5
Jan. 27, 1958.....	60	--	--	--	--	5.0	--	22	--	5.5	.07	--	20	2	.5	54	7.1
Feb. 18.....	102	--	--	--	--	4.7	--	21	--	4.0	--	--	20	3	.4	56	7.0
Mar. 5.....	96	--	--	--	--	5.6	--	29	--	4.5	--	--	26	2	.5	69	7.1
Apr. 8.....	7,100	--	--	--	--	3.9	--	22	--	3.8	--	--	14	0	.5	50	7.0
May 7.....	6,500	13	--	4.0	1.2	4.0	--	15	4.8	3.0	0.3	.07	15	0	.4	43	7.0
June 10.....	3,030	--	0.08	4.0	2.2	2.2	--	13	--	1.7	--	0.06	6	0	.3	30	7.4
July 9.....	712	--	--	--	2.6	--	--	13	--	1.7	--	--	10	0	.3	30	6.9
Aug. 7.....	149	--	--	--	1.9	--	--	13	--	2.2	--	--	6	0	.3	28	7.3
Sept. 4.....	153	9.0	.00	2.9	.2	1.8	.6	10	1.0	1.6	.0	.03	8	0	.3	27	7.0

SAN JOAQUIN RIVER BASIN--Continued
11-2535. SAN JOAQUIN RIVER NEAR BIOLA, CALIF.

LOCATION.--At Skaggs Bridge, 1.9 miles upstream from gaging station, and about 2.5 miles northwest of Biola, Fresno County. DRAINAGE AREA.--1,805 square miles upstream from gaging station.

RECORDS AVAILABLE.--Chemical analyses: November 1932 to September 1958.

Water temperatures: November 1932 to September 1958.

EXTREMES, 1957-58.--Dissolved solids: 131 ppm Nov. 29; minimum, 30 ppm June 9-12.

Hardness: Maximum, 54 ppm Nov. 29; minimum, 11 ppm June 9-12; maximum, 29 microhos Nov. 29; minimum, 36 microhos on many days during May and June.

Specific conductance: Maximum, 90°F July 19, 1958; minimum, 38°F Dec. 13.

EXTREMES, 1952-58.--Dissolved solids: Maximum, 131 ppm Nov. 29, 1957; minimum, 26 ppm May 30, 1956.

Hardness: Maximum, 54 ppm Nov. 29, 1957; minimum, 9 ppm Oct. 1-15, 1956.

Specific conductance: Maximum daily, 198 microhos Nov. 29, 1957; minimum daily, 32.7 microhos June 18, 1956.

Water temperatures: Maximum, 98°F June 4, 1957; minimum, 36°F Feb. 23, 24, 28, Mar. 1, 2, 1953.

REMARKS.--Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1957 to September 1958 given in WSP 1565. No appreciable inflow between sampling point and gaging station except during periods of heavy runoff.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (microhmios at 25°C)	
															Parts per million	Tons per acre-foot	Tons per day	Calcium-Magnesium	Non-carbonate			
Oct. 1-22, 1957..	81.7	12	0.01	6.7	1.2	7.2	1.3	35		1.0	4.8	0.1	0.5	0.0	52	0.07	11.5	21	0	0.7	82	6.9
Oct. 23-25.....	76.3	12	.09	10	2.1	8.0	1.5	41		2.9	15	.1	.1	.0	72	.10	14.8	33	0	.6	119	7.2
Oct. 26-31.....	73.0	12	.01	7.8	2.1	8.3	1.5	41		2.3	9.6	.1	.3	.0	64	.09	12.6	28	0	.7	97	7.3
Nov. 1-20.....	72.4	13	.02	4.4	3.4	8.2	1.6	42		.0	6.5	.2	.8	.0	59	.08	11.5	25	0	.7	92	6.8
Nov. 21-28.....	68.5	14	.02	6.8	1.9	8.3	1.5	42		1.0	6.0	.2	1.1	.0	61	.08	11.3	25	0	.7	92	6.8
Nov. 29.....	68.0	--	--	20	1.0	8.0	--	45		--	--	--	--	--	131	.18	24.1	54	17	.5	198	6.8
Nov. 30-Dec. 17..	67.3	13	.03	8.0	2.2	9.1	1.6	44		3.8	8.0	.0	.6	.0	68	.09	12.4	29	0	.7	103	6.8
Dec. 18-22.....	192.2	11	.02	7.8	1.2	6.3	1.6	28		3.8	4.1	--	.3	.0	48	.07	25.5	16	0	.6	168	7.1
Dec. 23-27, 1958..	98.4	15	.01	10	2.9	11	1.8	59		1.0	9.2	.0	2.0	.0	73	.11	18.0	33	0	.8	121	7.2
Jan. 18-20.....	201	11	.02	16	1.2	7.4	--	32		5.8	8.5	--	1.3	.1	57	.08	30.9	22	0	.7	87	7.3
Jan. 21.....	152	10	.02	16	2.8	9.0	--	27		3.8	8.5	--	--	--	89	.12	36.5	47	25	.6	135	7.1
Jan. 22-25.....	184	10	.02	5.0	1.0	5.7	1.1	22		1.7	6.8	.0	.8	.1	43	.06	21.4	17	0	.6	68	7.0
Jan. 26-Feb. 18..	90.2	14	.01	7.8	2.1	9.1	1.8	45		2.9	7.0	.2	1.1	.1	68	.09	16.6	28	0	.8	105	7.1
Feb. 19-25.....	148	14	.01	9.2	2.4	9.1	1.9	48		2.9	7.5	.1	.9	.0	72	.10	28.8	33	0	.7	113	7.2
Feb. 26-28.....	527	16	--	10	3.2	8.8	3.6	57		2.9	5.7	--	1.1	.1	79	.11	11.2	38	0	.6	123	7.6
Mar. 1-16.....	170	23	.04	11	3.5	11	2.3	66		1.9	8.0	.1	1.8	.3	96	.13	44.1	42	0	.7	138	7.3
Mar. 17-23.....	960	20	.15	9.6	3.6	9.6	2.9	56		7.7	6.0	.0	2.4	.1	90	.12	234	39	0	.7	111	7.3
Mar. 24-31.....	4,599	14	.04	2.4	3.8	5.3	1.5	28		3.8	5.5	.0	.6	.2	51	.07	633	22	0	.5	71	6.8

SAN JOAQUIN RIVER BASIN--Continued
 11-2535. SAN JOAQUIN RIVER NEAR BIOLA, CALIF.--Continued

Chemical analyses, in parts per million, water year October to September 1958--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)		
															Parts per million	Tons per acre-foot	Tons per day					
Apr. 1-5, 1958...	5,948	17	0.10	6.4	3.4	5.6	1.9	34		7.7	6.5	0.0	1.3	0.1	67	0.09	1,080	30	2	0.4	87	6.8
Apr. 6-14.....	7,544	14	.00	6.7	1.3	4.5	1.0	30		1.9	4.5	.1	.6	.1	50	.07	1,020	22	0	.4	71	7.3
Apr. 15-30.....	7,199	14	.00	5.7	.9	4.3	1.0	24		1.9	4.5	.1	.9	.1	45	.06	875	17	0	.5	63	6.4
May 1-7.....	6,474	15	.03	5.2	1.1	3.3	1.2	21		2.9	4.0	.2	.5	.1	44	.06	769	17	0	.4	57	6.8
May 8-June 8.....	5,675	13	.02	3.8	.5	2.7	1.1	16		1.9	2.6	.2	.7	.0	35	.05	536	12	0	.4	42	6.7
June 9-12.....	3,530	11	--	3.2	.7	2.7	1.2	14		1.9	1.5	.2	.7	.0	30	.04	286	11	0	.4	37	6.7
June 13-27.....	3,585	12	.02	4.0	1.0	2.7	1.1	17		2.9	2.4	.2	.8	.0	36	.05	306	14	0	.3	43	6.7
June 28-July 11.....	3,982	15	.01	4.7	1.0	4.3	.8	22		3.1	3.1	.1	1.1	.1	44	.06	117	16	0	.5	60	6.7
July 12-16.....	419	13	.01	5.3	1.1	4.4	.8	24		1.9	4.5	.1	1.1	.1	44	.06	49.8	18	0	.5	63	6.6
July 17-31.....	162	19	.01	7.1	1.6	6.8	1.1	36		3.8	4.0	.1	.9	.0	62	.08	27.1	24	0	.6	88	7.3
Aug. 1-12.....	141	18	.01	7.1	1.5	6.7	.8	38		3.8	3.8	.1	.9	.1	62	.08	23.6	24	0	.6	84	7.5
Aug. 13-31.....	132	16	.00	5.8	1.6	6.1	.7	34		1.0	4.0	.1	1.0	.1	53	.07	18.9	21	0	.6	77	7.2
Sept. 1-15.....	135	13	.00	6.2	1.5	6.3	.9	35		1.0	4.0	.1	.7	.1	51	.07	18.6	22	0	.6	77	7.4
Sept. 16-30.....	96.5	13	.00	6.8	1.7	7.0	1.1	38		2.3	4.8	.1	.9	.1	57	.08	14.9	24	0	.6	86	7.4
Weighted average	1,809	14	0.02	4.9	1.2	4.0	1.2	23		2.6	3.8	0.1	0.8	0.1	44	0.06	191	17	0	0.4	59	--
Analysis of additional sample																						
Jan. 28, 1958....	97	11	0.01	6.8	1.1	6.7	1.0	32		3.5	4.5	0.1	0.5	0.0	--	--	--	21	0	0.6	75	7.1

SAN JOAQUIN RIVER BASIN--Continued
11-2535. SAN JOAQUIN RIVER NEAR BIOLA, CALIF.--Continued

Temperature (°F) of water, water year October 1957 to September 1958

Once-daily measurement, generally between 7 a.m. and 8 p.m.

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October....	77	74	71	71	60	67	68	70	72	60	70	65	65	64	65	65	72	72	66	65	67	65	64	67	65	70	71	66	70	63	62	67	
November....	61	55	54	59	60	59	59	60	59	59	60	62	61	59	58	55	48	55	57	60	58	--	58	58	58	60	55	54	55	53	--	57	
December...	51	50	51	48	50	49	48	48	47	47	47	47	38	47	50	56	58	60	54	51	--	52	49	48	48	47	--	56	48	47	54	50	
January....	56	54	51	--	--	51	46	46	51	52	47	--	53	51	49	46	45	49	49	51	48	50	50	50	52	52	54	56	56	58	56	51	
February....	55	54	52	59	55	58	58	61	59	51	61	59	59	61	63	65	64	58	57	61	62	61	54	58	59	58	57	59	--	--	59	59	
March.....	59	58	60	60	62	55	52	61	59	59	60	58	57	55	53	60	59	62	--	64	55	63	57	53	54	51	49	50	53	51	50	57	
April.....	49	49	49	50	49	49	50	51	51	50	51	48	53	54	54	55	54	53	54	55	53	52	53	53	53	53	---	57	55	56	56	52	
May.....	56	56	57	57	--	58	57	57	57	59	55	57	--	59	60	60	60	--	59	60	60	59	60	59	59	59	58	58	--	58	58	65	
June.....	--	60	59	59	60	60	65	64	--	63	61	61	67	70	65	74	72	71	67	62	62	--	68	62	62	68	65	65	68	--	--	65	
July.....	67	66	78	72	68	83	84	70	81	84	85	72	76	80	--	78	80	82	72	85	80	85	84	82	73	89	88	81	90	76	90	79	
August.....	85	89	--	89	88	86	80	87	84	85	--	85	88	86	86	88	81	80	80	77	86	75	--	--	--	--	--	--	80	80	75	--	83
September..	82	78	82	--	82	80	74	--	50	52	53	78	81	82	62	--	--	80	80	68	68	68	69	68	69	68	64	67	67	64	--	71	

SAN JOAQUIN RIVER BASIN--Continued
11-2540. SAN JOAQUIN RIVER NEAR MENDOTA, CALIF.

LOCATION.--On left bank, 2.5 miles downstream from Mendota Dam and 4 miles north of Mendota, Fresno County.
DRAINAGE AREA.--4,310 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carb- onate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Bor- on (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorp- tion ratio	Specific con- duct- ance (micro- mhos at 25°C)	
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 14, 1957						72		140			103			0.17				147	32	2.6	653	7.5
Nov. 19						71		112			99			.13				139	47	2.6	639	7.7
Dec. 16						63		88			83							119	47	2.5	556	7.9
Jan. 27, 1958						8.0		30			8.0			.03				23	0	.7	84	7.2
Feb. 17						11		54			7.5			.03				40	0	.8	123	7.3
Mar. 3						9.8		64			6.2			.06				46	0	.6	133	7.3
Apr. 7						43		70			25			.21				146	89	1.5	513	7.6
May 5	13		0.10	3.6	1.5	4.6	1.3	24		2.9	3.0	0.2	0.7	.01	43	0.06		15	0	.5	53	7.0
June 9						3.2		16			2.0			.00				11	0	.4	35	7.5
July 7						15		45			18			.00				40	3	1.0	157	7.3
Aug. 5						56		109			84			.10				131	42	2.1	538	8.0
Sept. 2	5.9		.01	.22	9.2	38	1.9	92	27		48	.1	.4	.20	198	.27		93	18	1.7	374	7.2

SAN JOAQUIN RIVER BASIN--Continued
11-2560. SAN JOAQUIN RIVER NEAR DOS PALOS, CALIF.

LOCATION.--On left bank, 0.7 mile downstream from Temple Slough and 7 miles east of Dos Palos, Fresno County.
DRAINAGE AREA.--5,630 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to October 1958 (discontinued).

REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, October 1957 to October 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25 C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 14, 1957....						63		131			85			0.23	--	--		131	24	2.4	579	7.5
Nov. 19.....						66		112			90			.13	--	--		134	42	2.5	600	7.7
Dec. 16.....						47		95			5			.14	--	--		113	33	2.3	317	7.9
Jan. 27, 1958....						40		94			67			.18	--	--		113	35	2.3	439	7.8
Feb. 17.....						55		108			67			.02	--	--		112	20	2.3	439	7.6
Mar. 3.....						55		110			67			.00	--	--		109	19	2.3	485	7.5
Apr. 7.....						15		43			9.2			.00	--	--		47	12	.9	181	7.3
May 5.....	13		0.11	6.0	2.2	9.7	1.6	27		14	7.0	0.3	0.5	.23	68	0.09		24	2	.9	97	7.0
June 9.....						3.4		19			2.5			.00	--	--		13	0	.4	43	7.4
July 7.....						21		55			21			.00	--	--		48	3	1.3	202	7.1
Aug. 5.....						34		83			47			.20	--	--		84	16	1.6	352	7.8
Sept. 2.....	5.9		.00	22	11	40	3.4	96		37	52	.1	.5	.20	219	.30		100	21	1.7	400	7.6
Oct. 6.....						52		110			63			.1	--	--		112	22	2.1	468	7.9

SAN JOAQUIN RIVER BASIN--Continued

11-2580. FRESNO RIVER NEAR DAULTON, CALIF.

LOCATION.--At gaging station, 0.5 mile downstream from Willow Creek and 5.3 miles southeast of Daulton, Madera County.
 DRAINAGE AREA.--239 square miles.

RECORDS AVAILABLE.--Chemical analyses: January to September 1958.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, January to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F) (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Jan. 20, 1958.....	18	27	--	15	3.5	24	2.2	64		5.8	32	0.0	0.5	142	0.19		52	0	1.4	221	7.0
Feb. 19.....	143	--	--	--	--	12	--	61		--	11	--	.1	--	--		41	0	.8	142	7.8
Mar. 5.....	148	--	--	--	--	12	--	65		--	11	--	.1	--	--		42	0	.8	142	7.4
Apr. 9.....	1,120	--	--	--	--	7.2	--	57		--	4.4	--	.0	--	--		35	0	.5	106	7.8
May 7.....	1,193	26	0.07	--	2.4	8.5	2.0	55		.0	7.4	.0	.0	83	.11		34	0	.6	108	7.7
June 5.....	141	--	--	--	--	6.6	--	39		--	5.0	--	--	--	--		24	0	.6	73	8.0
July 9.....	80	18	--	5.8	.9	6.4	1.4	28		--	8.4	.0	.5	55	.07		18	0	.7	72	7.4
Aug. 7.....	33	35	--	8.4	1.2	10	1.9	38		1.9	12	.1	.2	90	.12		26	0	.9	108	7.5
Sept. 4.....	6.1	23	.00	13	2.1	16	2.3	50		3.8	25	.1	.2	110	.05		41	0	1.1	168	7.4

SAN JOAQUIN RIVER BASIN--Continued
11-2590. CHOWCHILLA RIVER AT BUCHANAN DAMSITE, CALIF.

LOCATION.--At gaging station on right bank, 1.9 miles upstream from Raynor Creek, and 4.3 miles west of Raymond, Madera County.
DRAINAGE AREA.--238 square miles.
RECORDS AVAILABLE.--Chemical analyses: January to September 1958.
REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, January to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Jan. 20, 1958....	12	29	--	25	5.7	30	2.6	86		4.8	53	0.1	0.5	0.1	193	0.26		86	15	1.4	323	7.3
Feb. 19.....	258	--	--	--	--	13	--	58		--	16	--	--	.2	--	--		46	0	.8	156	7.4
Mar. 5.....	120	--	--	--	--	11	--	68		--	12	--	--	.0	--	--		51	0	.7	152	7.6
Apr. 9.....	895	--	--	--	--	8.3	--	65		--	6.0	--	--	.1	--	--		43	0	.5	127	7.6
May 7.....	148	32	0.02	13	2.9	11	2.1	67		3.5	8.2	.0	.2	.0	106	.14		44	0	.7	137	7.8
June 5.....	57	--	--	--	--	13	--	75		--	13	--	--	.0	--	--		56	0	.8	159	8.2
July 7.....	10	31	--	18	3.6	13	2.6	102		1.9	25	.9	.1	.1	144	.20		61	26	1.1	235	8.9
Aug. 7.....	1.1	21	--	32	7.3	34	3.1	102		3.8	72	.1	.8	.0	224	.30		112	26	1.1	203	8.1
Sept. 4.....	.1	41	.00	39	11	44	3.9	115		9.6	103	.1	.8	.0	309	.42		142	48	1.6	517	7.8

SAN JOAQUIN RIVER BASIN--Continued
11-2608. BEAR CREEK NEAR STEVINSON, CALIF.

LOCATION.--On right bank, 1 mile above confluence with San Joaquin River and 4.5 miles southeast of Stevinson, Merced County.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to November 1958 (discontinued).
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million. October 1957 to November 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 14, 1957....						73		171			63			0.04				87	0	3.4	514	7.3
Nov. 21.....						108		302			81			.07				162	0	3.7	772	8.2
Dec. 16.....						98		280			52			.01				112	0	4.0	626	8.1
Jan. 29, 1958....						20		90			7.2			.12				32	0	1.2	194	7.0
Feb. 19.....						38		142			15			.24				74	0	1.9	305	7.7
Mar. 3.....						27		136			12			.04				55	0	1.3	269	7.6
Apr. 10.....						21		108			8.0			.03				59	0	1.2	208	7.4
May 5.....		14	0.11	12	2.9	11	2.3	99		7.7	6.7	0.1	0.6	.10				42	0	1.7	140	7.2
June 9.....						19.5		48			4.7			.00				36	0	1.2	98	7.8
July 9.....						26		102			24			.10				72	0	1.3	265	7.1
Aug. 5.....						65		150			82			.30				142	19	2.4	576	8.0
Sept. 2.....		35	.03	22	9.5	55	3.8	176		15	36	.2	2.7	.10				94	0	2.5	420	7.6
Oct. 6.....						38		139			26			.00				89	0	1.7	343	7.7
Nov. 10.....						72		218			52			.10				120	0	2.9	534	8.1

SAN JOAQUIN RIVER BASIN--Continued

11-2615. SAN JOAQUIN RIVER AT FREMONT FORD BRIDGE, CALIF.

LOCATION (revised).--At Fremont Ford Bridge, Merced County, in Orestimba Grant, 150 feet upstream from gaging station, 2.1 miles downstream from Salt Slough, 4.5 miles west of Stevenson, and 6.7 miles upstream from Marced River.

DRAINAGE AREA.--8,090 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: July 1955 to September 1958.

Water temperatures: July 1955 to September 1958.

EXTREMES, 1957-58.--Dissolved solids: Maximum, 1,690 ppm Nov. 9-21, Dec. 1-5; minimum, 73 ppm May 30 to June 14.

Hardness: Maximum, 335 ppm Nov. 9-21; minimum, 28 ppm May 30 to June 14.

Specific conductance: Maximum daily, 2,980 micromhos Nov. 10; minimum daily, 95 micromhos June 6, 12.

Water temperatures: Maximum, 81°F July 28, Aug. 18-20; minimum, 44°F Dec. 23.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 3,350 ppm Oct. 30-31, 1955; minimum, 73 ppm May 30 to June 14, 1958.

Hardness: Maximum, 1,240 ppm Oct. 30-31, 1955; minimum, 28 ppm May 30 to June 4, 1958.

Specific conductance: Maximum daily, 7,130 micromhos Nov. 4, 1955; minimum daily, 95 micromhos June 6, 12, 1958.

Water temperatures: Maximum, 80°F July 23, 1956; minimum, 39°F Jan. 29-30, 1957.

REMARKS. Records of dissolved solids: Less than 1,000 ppm are residues at 180°C and values more than 1,000 ppm are calculated from determined constituents. Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids				Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium, Sodium	Non-carbonate				
Oct. 1-11, 1957...	120	26	0.00	49	29	136	5.0	180		86	212	0.3	4.3	0.3	664	0.90	215	240	92	3.8	1,140	7.6	
Oct. 12-17.....	71.2	27	.01	81	51	256	5.6	188		186	450	.2	6.5	.5	1,240	1.69	238	410	256	5.3	2,090	7.5	
Oct. 18-19.....	106	22	.00	42	24	112	4.6	164		171	172	.2	3.0	.3	541	1.74	153	205	71	5.2	915	7.3	
Oct. 20-31.....	67.6	25	.00	72	40	222	6.0	208		138	360	.2	3.9	.4	1,030	1.40	188	345	174	5.2	1,740	7.3	
Nov. 1-8.....	46.9	24	.00	85	52	272	6.0	220		169	472	.2	3.7	.5	1,300	1.77	165	425	245	5.7	2,150	7.7	
Nov. 9-21.....	38.8	26	.00	107	65	362	6.5	236		250	628	.2	3.9	.7	1,690	2.30	177	535	341	6.8	2,700	7.7	
Nov. 22-30.....	47.9	26	.00	90	57	324	6.5	252		250	520	.2	5.2	.6	1,460	1.99	189	460	253	6.6	2,430	7.5	
Dec. 1-5.....	46.8	23	.00	99	69	379	7.0	240		315	595	.2	4.5	.8	1,690	2.30	214	530	333	7.2	2,690	7.8	
Dec. 6-18.....	70.7	25	.00	82	50	304	6.5	242		219	460	.2	5.0	.6	1,330	1.81	254	410	212	6.5	2,230	7.6	
Dec. 19-31.....	130	24	.00	50	33	171	5.6	220		132	225	.2	6.3	.2	755	1.03	265	260	80	4.6	1,260	7.6	
Dec. 22-31.....	96.5	26	.01	73	47	272	6.4	224		227	380	.2	5.9	.6	1,170	1.59	305	374	190	6.1	1,990	7.1	
Jan. 1-14, 1958..	106	26	.01	77	51	292	6.5	235		265	388	.2	23	.8	1,300	1.77	372	400	207	6.4	2,130	7.4	
Jan. 15-25.....	236	21	.02	62	38	222	6.8	241		227	258	.2	28	.9	991	1.35	631	312	114	5.5	1,600	7.3	
Jan. 26-Feb. 4...	965	20	.08	26	14	67	4.2	130		65	66	.2	1.9	.4	343	.47	894	124	17	2.6	1,567	7.2	
Feb. 5-10.....	1,401	19	.09	18	9.5	45	4.0	100		40	42	.2	2.3	.2	253	.34	957	84	2	2.2	387	7.1	
Feb. 11-20.....	660	24	.05	37	21	100	4.2	159		102	105	.2	2.8	.5	493	.67	879	178	48	3.3	820	6.9	
Feb. 21-22.....	2,210	--	--	--	9.6	21	--	79		--	--	--	--	--	172	.23	1,030	48	0	1.3	195	7.5	
Feb. 23-28.....	1,778	24	.22	22	13	52	4.1	114		50	54	.3	2.4	.2	303	.41	1,450	108	15	2.2	462	6.9	
Mar. 1-3.....	1,897	23	.09	25	11	55	3.2	115		47	57	--	2.1	.4	304	.41	1,560	109	15	2.3	475	7.3	
Mar. 4-15.....	1,798	22	.01	47	22	122	4.2	161		143	133	.2	2.9	.8	602	.82	1,300	206	74	3.7	970	7.5	

SAN JOAQUIN RIVER BASIN--Continued
 11-2615. SAN JOAQUIN RIVER AT FREMONT FORD BRIDGE, CALIF.--Continued
 Temperature (°F) of water, water year October 1957 to September 1958
 /Once-daily measurement at approximately 10 a.m./

Month		Day																															Average	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October.....	68	66	66	66	62	62	61	62	63	62	62	63	63	64	65	65	65	65	64	62	61	61	61	61	61	61	60	61	65	62	62	63	63	
November.....	61	57	54	54	56	54	54	56	58	57	57	57	57	58	56	54	53	55	55	56	55	51	50	49	49	50	50	50	50	48	48	--	54	54
December.....	47	47	47	46	49	46	48	50	49	48	48	47	46	46	46	51	51	54	50	49	49	48	44	45	47	47	45	45	48	50	50	48	48	
January.....	49	51	50	48	46	47	46	47	49	49	48	48	48	46	45	45	46	46	46	46	46	46	45	45	48	47	51	54	54	55	55	54	48	48
February.....	53	51	53	54	53	57	56	--	--	--	58	58	56	56	57	57	57	58	56	56	58	60	60	61	57	55	56	55	--	--	--	56	56	
March.....	54	55	55	54	54	55	53	55	55	56	56	56	--	55	54	53	59	60	61	61	58	52	60	61	62	61	62	61	60	58	58	59	57	57
April.....	53	53	52	54	56	55	55	60	63	65	68	70	73	70	70	70	70	69	68	69	70	69	61	60	--	62	65	65	66	66	--	64	64	
May.....	69	69	68	69	70	70	70	70	70	70	65	65	65	65	65	70	77	75	74	73	74	73	70	71	72	72	74	72	72	72	72	71	71	
June.....	71	71	70	70	71	70	71	71	71	71	72	72	69	72	75	78	75	77	76	75	75	77	77	77	75	75	76	76	75	74	72	--	73	73
July.....	72	75	75	77	78	78	79	79	80	80	80	79	80	80	77	75	72	74	75	78	77	76	76	76	76	77	79	80	81	80	80	80	78	78
August.....	80	80	79	79	80	80	79	77	78	78	77	78	78	80	--	80	81	81	81	81	81	79	79	78	78	78	78	77	77	77	77	79	79	79
September.....	79	80	77	74	75	76	76	77	77	73	72	71	70	70	70	71	73	72	--	72	72	73	70	65	65	66	68	71	72	74	--	73	73	73

SAN JOAQUIN RIVER BASIN--Continued
11-2700. MERCED RIVER AT EXCHEQUER, CALIF.

LOCATION.--At gaging station at Exchequer, Mariposa County, 0.65 mile downstream from Lake McClure, and 5 miles northeast of Merced Falls.
DRAINAGE AREA.--1,035 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.
REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- he- sium (Mg)	Sodium (Na)	Potas- sium (K)	Bi-car- bon- ate (HCO ₃)	Car- bon- ate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		So- dium ad- sorp- tion ratio (micro-mhos at 25°C)	Specific con- duct- ance (micro-mhos at 25°C)	
															Parts per million	Tons per acre-foot	Tons per day	Cal- cium	Non-car- bon- ate			
Oct. 17, 1957	42	--	--	--	--	2.5	--	56	--	--	2.2	--	--	0.05	--	--	--	46	0	0.2	100	7.0
Nov. 21	39	--	--	--	--	3.6	--	57	--	--	3.8	--	--	.00	--	--	--	51	4	.2	115	7.2
Dec. 18	40	--	--	--	--	4.4	--	56	--	--	5.8	--	--	.00	--	--	--	48	2	.3	119	7.7
Jan. 29, 1958	78	--	--	--	--	4.0	--	52	--	--	3.7	--	--	.04	--	--	--	45	2	.3	108	7.2
Feb. 20	43	--	--	--	--	4.4	--	52	--	--	3.0	--	--	.03	--	--	--	44	1	.3	108	7.5
Mar. 5	750	--	--	--	--	3.2	--	44	--	--	3.8	--	--	.06	--	--	--	41	5	.2	98	7.4
Apr. 10	2,940	--	--	--	--	2.8	--	36	--	--	2.0	--	--	.00	--	--	--	32	2	.2	77	7.5
May 7	6,060	14	0.03	8.4	3.0	3.1	1.2	38	--	5.8	2.8	0.1	0.2	.02	58	0.08	33	2	.2	80	7.7	
June 13	1,800	--	--	--	--	1.2	--	12	--	.5	--	--	--	.00	--	--	9	0	.2	22	7.2	
July 9	2,480	--	--	--	--	1.1	--	12	--	--	.0	--	--	.00	--	--	11	1	.1	22	7.0	
Aug. 7	1,650	--	--	--	--	.9	--	10	--	--	1.5	--	--	.00	--	--	8	0	.1	20	7.2	
Sept. 4	1,370	7.0	.01	2.8	.6	1.0	1.7	12	--	1.9	1.1	.0	.3	.00	22	.03	10	0	.1	21	6.8	

SAN JOAQUIN RIVER BASIN--Continued
11-2725. MERCED RIVER NEAR STEVINSON, CALIF.

LOCATION.--At gaging station, 5 miles upstream from mouth, and 6 miles northwest of Stevinson, Merced County.
DRAINAGE AREA.--1,274 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1958.
REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate		
Oct. 14, 1957.....	291	--	--	--	--	18	--	92	--	--	12	--	--	0.24	--	--	--	57	0	1.0	183 7.4
Nov. 21.....	146	--	--	--	--	32	--	138	--	--	21	--	--	--	--	--	--	89	0	1.5	304 8.0
Dec. 16.....	156	--	--	--	--	28	--	124	--	--	18	--	--	--	--	--	--	76	0	1.4	280 8.0
Jan. 29, 1958.....	526	--	--	--	--	8.9	--	54	--	--	3.6	--	--	.11	--	--	--	38	0	.6	120 7.1
Feb. 19.....	329	--	--	--	--	19	--	98	--	--	9.3	--	--	.06	--	--	--	64	0	1.0	209 7.9
Mar. 3.....	726	--	--	--	--	8.2	--	69	--	--	5.0	--	--	.00	--	--	--	56	0	.5	141 7.4
Apr. 10.....	3,500	--	--	--	--	6.3	--	55	--	--	3.4	--	--	.00	--	--	--	40	0	.4	107 7.3
May 5.....	3,660	13	0.05	8.3	2.8	4.7	1.2	39	--	5.8	3.2	0.0	0.0	.07	58	0.08	--	32	0	.4	81 7.4
June 9.....	3,850	--	--	--	--	2.4	--	18	--	--	--	--	--	.00	--	--	--	14	0	.3	39 7.5
July 9.....	998	--	--	--	--	6.2	--	33	--	--	3.5	--	--	.00	--	--	--	22	0	.6	75 7.3
Aug. 5.....	236	--	--	--	--	28	--	116	--	--	22	--	--	.00	--	--	--	74	0	1.4	277 7.6
Sept. 2.....	255	26	.01	16	5.4	23	3.1	93	--	11	16	.1	2.0	.10	150	.20	--	62	0	1.3	222 7.4

SAN JOAQUIN RIVER BASIN--Continued
11-2747. SAN JOAQUIN RIVER NEAR GRAYSON, CALIF.

LOCATION.--At gaging station at Laird Slough Bridge, 1.8 miles east of Grayson, Stanislaus County, 5 miles above the confluence of the Tuolumne River, and 14 miles southwest of Modesto.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--Gaging station maintained and operated by City of San Francisco in cooperation with the State of California Department of Water Resources, Modesto Irrigation District, and Turlock Irrigation District. Flow is San Joaquin River diversion into Laird Slough, which returns to San Joaquin River main channel 2.1 miles downstream. Records of discharge for water year October 1957 to September 1958 given in State of California Bulletin No. 23 as San Joaquin River at Grayson (Laird Slough).

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate	
Oct. 17, 1957.....	550	--	--	--	--	118	--	184	--	--	162	--	--	0.26	--	--	210	59	3.5	1,010
Nov. 22.....	370	--	--	--	--	156	--	208	--	--	218	--	--	.19	--	--	270	99	4.1	1,270
Dec. 19.....	560	--	--	--	--	142	--	211	--	--	192	--	--	.25	--	--	230	57	4.1	1,130
Jan. 30, 1958.....	1,800	--	--	--	--	62	--	116	--	--	66	--	--	.33	--	--	99	4	2.7	503
Feb. 20.....	3,640	--	--	--	--	64	--	136	--	--	65	--	--	.32	--	--	130	18	2.4	555
Mar. 6.....	2,310	--	--	--	--	97	--	160	--	--	100	--	--	.51	--	--	154	23	3.4	759
Apr. 11.....	18,800	--	--	--	--	29	--	95	--	--	28	--	--	.19	--	--	77	0	1.4	306
May 8.....	10,350	16	0.20	12	4.6	20	2.5	61	17	--	18	0.3	0.9	.12	121	0.16	49	0	1.2	197
June 6.....	9,920	--	--	--	--	12	--	41	--	--	12	--	--	.00	--	--	32	0	.9	127
July 14.....	1,635	--	--	--	--	88	--	128	--	--	111	--	--	.20	--	--	153	48	3.1	717
Aug. 5.....	1,080	--	--	--	--	130	--	177	--	--	165	--	--	.30	--	--	220	75	3.5	988
Aug. 20 (1 p.m.).....	905	--	--	--	--	105	--	--	--	88	128	--	--	.30	--	--	186	--	3.4	846
Aug. 22 (2:20 p.m.).....	960	--	--	--	--	106	--	--	30	30	132	--	--	.30	--	--	190	--	3.4	864
Sept. 23.....	960	25	.00	34	17	78	2.8	152	68	68	100	.1	2.4	.10	402	.55	134	29	2.7	689

SAN JOAQUIN RIVER BASIN--Continued

11-2880. TUOLUMNE RIVER ABOVE LA GRANGE DAM, NEAR LA GRANGE, CALIF.

LOCATION.--On left bank, 0.5 mile above gaging station at Don Pedro Dam, 4 miles upstream from La Grange Dam, and 5.5 miles upstream from La Grange, Stanislaus County.

DRAINAGE AREA.--1,540 square miles upstream from gaging station.

RECORDS AVAILABLE.--October 1953 to September 1958.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565. No appreciable inflow between sampling point and gaging station.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 17, 1957....	906	---	---	---	---	1.5	---	16	---	---	1.2	---	---	0.17	---	---	---	11	0	0.2	33	6.9
Nov. 21.....	1,200	---	---	---	---	1.3	---	13	---	---	1.2	---	---	.00	---	---	14	3	.2	27	7.3	
Dec. 18.....	976	---	---	---	---	1.5	---	14	---	---	1.8	---	---	.00	---	---	10	0	.2	29	7.0	
Jan. 29, 1958....	515	---	---	---	---	1.8	---	22	---	---	2.0	---	---	.04	---	---	18	0	.2	48	6.9	
Feb. 20.....	1,270	---	---	---	---	2.2	---	34	---	---	1.0	---	---	.05	---	---	30	2	.2	69	7.5	
Mar. 5.....	2,540	---	---	---	---	2.3	---	35	---	---	2.0	---	---	.10	---	---	29	0	.2	68	7.5	
Apr. 10.....	7,000	---	---	---	---	2.6	---	39	---	---	1.8	---	---	.00	---	---	33	1	.2	78	7.5	
May 7.....	5,020	8.2	0.01	3.2	1.2	1.7	0.8	17	---	0.0	2.2	0.0	0.0	.00	25	0.03	13	0	.2	34	7.2	
June 13.....	3,300	---	---	---	---	1.4	---	12	---	---	0	---	---	.00	---	---	9	0	.2	21	7.3	
July 14.....	3,600	---	---	---	---	1.0	---	8	---	---	0	---	---	.00	---	---	8	1	.1	17	6.9	
Aug. 14.....	2,280	---	---	---	---	1.9	---	9	---	---	1.2	---	---	.00	---	---	7	0	.2	19	6.6	
Sept. 24.....	2,300	4.0	.00	2.0	.5	1.1	.7	8	---	1.9	1.0	.0	.1	.00	15	.02	7	0	.2	18	6.5	

a Daily mean discharge (cfs).

SAN JOAQUIN RIVER BASIN--Continued
11-2898. TUOLUMNE RIVER AT HICKMAN, CALIF.

LOCATION.--At gaging station about 0.6 mile south of Waterford and 1 mile north of Hickman, Stanislaus County.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--Gaging station maintained and operated by State of California Department of Water Resources. Records of discharge for water year October 1957 to September 1958 given in State of California Bulletin No. 23, as Tuolumne River at Hickman Bridge.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate		
Oct. 17, 1957	823	--	--	--	--	7.7	--	29	--	--	14	--	--	0.15	--	--	--	27	3	80	7.2
Nov. 21	1,470	--	--	--	--	4.0	--	23	--	--	5.8	--	--	.07	--	--	--	23	4	58	7.2
Dec. 19	1,310	--	--	--	--	4.4	--	21	--	--	7.2	--	--	.00	--	--	--	17	0	58	7.3
Jan. 29, 1958	1,755	--	--	--	--	9.8	--	40	--	--	17	--	--	.01	--	--	--	34	1	123	7.3
Feb. 20	1,440	--	--	--	--	6.0	--	44	--	--	8.0	--	--	.00	--	--	--	39	3	108	7.2
Mar. 6	2,420	--	--	--	--	3.5	--	38	--	--	4.0	--	--	.06	--	--	--	33	2	82	7.6
Apr. 10	7,350	--	--	--	--	3.4	--	41	--	--	2.8	--	--	.00	--	--	--	34	0	3	7.7
May 8	2,220	13	0.04	5.2	1.7	4.4	1.1	25	--	1.9	5.0	0.1	0.3	.11	45	0.06	20	0	4	60	7.0
June 13	729	--	--	--	--	8.9	--	31	--	--	16	--	--	.00	--	--	29	4	7	105	7.7
July 14	786	--	--	--	--	7.8	--	26	--	--	13	--	--	.00	--	--	23	4	7	89	7.4
Aug. 14	115	--	--	--	--	52	--	106	--	--	105	--	--	.10	--	--	132	45	2	521	7.1
Sept. 24	719	16	.00	6.8	3.2	8.5	1.4	27	--	3.8	17	.0	.2	.00	69	.09	30	8	.7	101	7.1

SAN JOAQUIN RIVER BASIN--Continued
11-2902. TUOLUMNE RIVER AT TUOLUMNE CITY, CALIF.

LOCATION --At gaging station on downstream side of bridge at Tuolumne City, Stanislaus County, and 3.4 miles from mouth.

RECORDS AVAILABLE --Chemical analyses: October 1953 to September 1958.

REMARKS --Gaging station maintained and operated by City of San Francisco in cooperation with the State of California Department of Water Resources. Records of discharge for water year October 1957 to September 1958 given in State of California Bulletin No. 23.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonylate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance at 25°C	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium Magnesium	Non-carbonate			
Oct. 17, 1957.....	1,205	---	---	---	---	25	---	54	---	---	54	---	---	0.12	---	---	---	56	12	1.5	263	7.1
Nov. 22.....	1,530	---	---	---	---	21	---	38	---	---	38	---	---	.03	---	---	---	44	13	1.4	184	7.4
Dec. 19.....	1,395	---	---	---	---	21	---	46	---	---	44	---	---	.00	---	---	---	52	14	1.3	226	7.5
Jan. 30, 1958....	980	---	---	---	---	31	---	63	---	---	63	---	---	.07	---	---	---	74	22	1.6	328	7.0
Feb. 20.....	5,415	---	---	---	---	6.7	---	34	---	---	9.5	---	---	.09	---	---	---	34	6	.5	98	7.0
Mar. 6.....	2,750	---	---	---	---	13	---	44	---	---	25	---	---	.00	---	---	---	47	11	.6	165	7.4
Apr. 11.....	9,750	---	---	---	---	6.2	---	47	---	---	9.3	---	---	.00	---	---	---	40	1	.4	113	7.5
May 8.....	8,845	9.6	0.01	6.4	1.9	6.7	1.3	25	---	1.9	13	0.0	0.0	.00	53	0.07	29	4	.9	188	7.3	
June 6.....	5,835	---	---	---	---	11	---	30	---	---	18	---	---	.00	---	---	---	29	4	.9	116	7.4
July 14.....	1,680	---	---	---	---	23	---	52	---	---	42	---	---	.00	---	---	---	52	9	1.4	232	7.5
Aug. 14.....	460	---	---	---	---	79	---	152	---	---	176	---	---	1.0	---	---	---	196	71	2.5	786	6.9
Aug. 20.....	445	---	---	---	---	82	---	---	---	12	158	---	---	.00	---	---	---	168	--	2.8	767	--
Sept. 24.....	1,090	20	0.00	21	5.7	36	3.3	66	---	7.7	68	.1	1.7	.00	196	.27	76	22	.1	347	7.0	

SAN JOAQUIN RIVER BASIN--Continued

11-2903. M. I. D. LATERAL NO. 5 SPILLWAY NEAR MODESTO, CALIF.

LOCATION.--At gaging station at mouth of lateral, 500 feet west of Paradise Road, 0.7 mile south of California Avenue, and 8 miles southwest of Modesto, Stanislaus County.

RECORDS AVAILABLE.--Chemical analyses: March 1957 to September 1958.

Water temperatures: March 1957 to September 1958.

EXTREMES, 1957-58.--Dissolved solids: Maximum, 298 ppm June 12-16; minimum, 126 ppm Oct. 1-17.

Hardness: Maximum, 109 ppm May 30-31; minimum, 46 ppm Oct. 1-17.

Specific conductance: Maximum daily, 482 micromhos June 14; minimum daily, 179 micromhos May 8.

Water temperatures: Maximum, 87°F Aug. 6.

EXTREMES, March 1957 to September 1958.--Dissolved solids: Maximum, 434 ppm May 10, 1957; minimum, 124 ppm Sept. 19-30, 1957.

Hardness: Maximum, 160 ppm May 10, 1957; minimum, 46 ppm Oct. 1-17, 1957.

Specific conductance: Maximum, 1,173 micromhos May 10, 1957; minimum daily, 179 micromhos May 8, 1958.

Water temperatures: Maximum, 89°F July 9, 1957.

REMARKS.--Records of specific conductance of daily samples available in district office at Sacramento, Calif. Gaging station maintained and operated by Modesto Irrigation District. Records of discharge furnished by Modesto Irrigation District. No flow Oct. 18 to Apr. 17.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180° C)			Hardness as CaCO ₃		Soil adsorption ratio at 25° C	Specific conductance (micro-mhos at 25° C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 1-17, 1957.	29.2	16	0.00	13	3.3	20	1.3	a83		29	28	--	0.5	0.10	126	0.17	9.93	46	0	1.3	194	8.9
Apr. 18-25, 1958.	25.1	23	.06	17	4.7	22	2.3	77		5.8	30	--	1.8	1.10	159	.22	10.8	62	0	1.2	235	7.2
Apr. 26-May 2....	13.7	23	.07	16	5.1	19	1.9	74		5.8	24	--	1.9	.00	146	.20	5.40	61	0	1.1	213	7.4
May 3-15.....	10.9	20	.02	16	4.4	25	2.0	80		3.8	31	0.0	3.3	.00	148	.20	4.36	58	0	1.4	241	7.2
May 16-29.....	29.4	21	.01	14	3.2	24	2.0	71		1.9	30	0.0	2.3	.00	143	.19	11.4	48	0	1.5	224	7.3
May 30-31.....	8.50	29	.02	30	8.4	50	3.0	a133		5.8	65	0.0	2.4	.10	275	.37	6.31	109	0	2.1	456	8.5
June 1-11.....	9.82	21	.04	14	5.1	26	1.6	80		5.8	30	0.0	.9	.20	155	.21	4.11	56	0	1.5	296	7.3
June 12-16.....	10.6	33	.03	30	7.1	56	2.8	136		5.8	74	0.0	3.2	.20	298	.41	8.53	104	0	2.4	479	7.2
June 17-30.....	15.8	20	.03	14	4.1	23	1.5	72		4.8	27	0.0	.8	.20	139	.19	5.93	52	0	1.4	214	6.7
July 1-12.....	15.3	18	.03	15	3.8	26	1.8	73		4.8	31	0.0	.6	.20	140	.20	5.99	53	0	1.6	226	6.9
July 13-31.....	24.5	19	.03	13	5.2	28	1.6	74		7.7	30	0.0	.2	.10	150	.20	9.92	54	0	1.5	231	7.4
Aug. 1-3.....	17.7	17	.00	12	4.4	19	1.1	57		5.8	26	.2	4.3	.10	149	.20	7.12	48	1	1.2	191	6.6
Aug. 4-31.....	14.4	24	.00	18	5.4	36	1.4	91		14	39	.2	2.7	.00	204	.28	7.93	67	0	1.9	283	7.5
Sept. 1-30.....	27.3	28	.00	24	7.8	60	1.8	121		41	56	.2	2.0	.10	293	.40	21.6	92	0	2.7	386	7.7
Weighted average	20.1	22	0.01	17	5.2	33	1.7	86		14	37	0.1	1.6	0.09	186	0.25	10.1	64	0	1.8	268	--

a Includes equivalent of 7 parts per million of carbonate (CO₃).

SAN JOAQUIN RIVER BASIN--Continued
 11-2903. M. I. D. LATERAL NO. 5 SPILLWAY NEAR MODESTO, CALIF.--Continued
 Temperature (°F) of water, water year October 1957 to September 1958
 Once-daily measurement at approximately 9 a.m. to 5:30 p.m.

Month		Day																															Aver-
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	age		
66	63	59	---	61	---	60	61	63	60	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
October....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
November...	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
December...	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
January....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
February....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
March.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
April.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
May.....	63	65	66	---	66	66	65	64	66	67	---	65	65	67	68	70	70	67	73	60	59	60	62	63	61	64	65	65	---	---			
June.....	---	70	55	56	---	72	76	---	72	75	70	---	79	74	---	75	76	71	70	74	---	---	73	74	---	76	---	---	76	73	67		
July.....	---	---	---	---	---	---	70	69	67	65	70	74	---	62	64	74	68	71	70	---	74	63	69	63	---	---	---	---	77	73	---		
August.....	72	---	---	85	---	87	73	76	86	---	86	---	71	85	75	72	---	84	82	74	76	---	---	74	---	---	---	---	---	---	---		
September..	---	---	76	---	74	---	70	---	73	71	72	---	---	78	66	---	68	---	---	---	---	---	---	---	---	---	---	---	---	---	---		

SAN JOAQUIN RIVER BASIN--Continued

11-2905. SAN JOAQUIN RIVER AT MAZE ROAD BRIDGE, NEAR MODESTO, CALIF.

LOCATION.--On downstream side of Maze Road Bridge, 0.2 mile downstream from gaging station at Hetch Hetchy Crossing, 2.7 miles upstream from Stanislaus River, and 12 miles west of Modesto, Stanislaus County.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--Gaging station maintained and operated by City of San Francisco in cooperation with the State of California Department of Water Resources.

Records of discharge for water year October 1957 to September 1958 given in State of California Bulletin No. 23 as San Joaquin River at Hetch Hetchy Crossing.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25 C)	pH
													Parts per million	Tons per acre-foot	Tons per day	Calcium-Magnesium	Non-carbonate			
Oct. 17, 1957.....	1,880	--	--	--	--	53	--	96	--	82	--	--	--	--	--	110	31	2.2	508	7.2
Nov. 22.....	2,045	--	--	--	--	56	--	75	--	74	--	0.23	--	--	--	83	31	2.5	442	7.7
Dec. 19.....	2,070	--	--	--	--	58	--	93	--	88	--	0.03	--	--	--	106	30	2.4	518	7.8
Jan. 30, 1958.....	3,115	--	--	--	--	56	--	78	--	67	--	0.27	--	--	--	98	34	2.5	471	7.2
Feb. 20.....	7,340	--	--	--	--	23	--	76	--	24	--	0.18	--	--	--	70	8	1.2	254	7.5
Mar. 6.....	5,325	--	--	--	--	52	--	98	--	60	--	0.28	--	--	--	101	21	2.2	454	7.4
Apr. 11.....	32,860	--	--	--	--	25	--	84	--	23	--	0.06	--	--	--	70	1	1.3	262	7.4
May 8.....	17,500	14	0.16	11	4.3	16	2.2	52	15	17	0.3	0.7	15	107	0.15	45	2	1.0	176	7.1
June 6.....	19,240	--	--	--	--	13	--	41	--	16	--	0.00	--	--	--	36	2	1.0	137	7.7
July 14.....	3,890	--	--	--	--	55	--	96	--	80	--	0.00	--	--	--	111	32	2.3	496	7.9
Aug. 14.....	1,350	--	--	--	--	99	--	165	--	164	--	0.30	--	--	--	212	77	3.0	891	8.0
Aug. 21.....	1,350	--	--	--	--	102	--	--	63	154	--	0.30	--	--	--	194	--	3.2	861	--
Sept. 24.....	2,310	21	.00	26	12	55	2.8	106	.36	81	.1	1.6	.00	288	.39	113	28	2.2	508	7.0

SAN JOAQUIN RIVER BASIN--Continued

11-2999.98. STANISLAUS RIVER AT TULLOCH DAMSITE, NEAR KNIGHTS FERRY, CALIF.

LOCATION.--On left bank, 1 mile downstream from Tulloch Dam, 2.4 miles downstream from Goodwin Dam, and 4.6 miles upstream from Knights Ferry, Stanislaus County.
 RECORDS AVAILABLE.--Chemical analyses: October 1956 to September 1958.
 REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbocation (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium sum	Non-carbonate		
Oct. 17, 1957....						3.3		51			1.0			0.09				61	19	0.2	134
Nov. 21.....						2.5		37			1.5			.02				33	3	.2	74
Dec. 18.....						2.9		42			1.8			.00				36	2	.2	89
Jan. 29, 1958....						3.1		52			1.4			.04				41	0	.2	102
Feb. 20.....						2.7		50			2.0			.00				43	4	.2	100
Mar. 5.....						2.7		45			2.2			.00				41	4	.2	90
Apr. 10.....						2.9		49			2.2			.00				41	1	.2	94
May 8.....	15		0.04	6.4	2.7	3.1	1.3	32		6.7	1.0	0.2	0.2	.00		53	27	1	.3	65	
June 13.....						2.1		17			1.5			.00			15	1	.2	35	
July 10.....						1.4		20			.2			.00			14	0	.2	37	
Aug. 7.....						1.6		22			1.5			.00			16	0	.2	42	
Sept. 4.....	12		.01	6.8	1.0	1.9	1.9	27		3.8	1.1	.0	.2	.00	42	.06	21	0	.2	51	

SAN JOAQUIN RIVER BASIN--Continued
11-3035. SAN JOAQUIN RIVER NEAR VERNALIS, CALIF.

LOCATION.--At gaging station at Durham Ferry highway bridge, 3 miles downstream from Stanislaus River, and 3.4 miles northeast of Vernalis, San Joaquin County. DRAINAGE AREA.--14,010 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: March 1951 to September 1958.

Water temperatures: March 1951 to September 1958.

Flow records: November 1956 to September 1958.

EXTREMES: Maximum daily, 817 micromhos Aug. 3; minimum daily, 90 micromhos June 22.

Specific conductance: Maximum daily, 817 micromhos Aug. 3; minimum daily, 90 micromhos June 22.

Water temperatures: Maximum, 77°F Aug. 1; minimum, 44°F Jan. 18-20, 22.

Sediment concentrations: Maximum daily, 680 ppm Feb. 20; minimum daily, 35 ppm Dec. 9.

EXTREMES: Maximum daily, 28,500 tons Apr. 5; minimum daily, 163 tons Jan. 7.

Sediment loads: Maximum daily, 28,500 tons Apr. 5; minimum daily, 163 tons Jan. 7.

Hardness, 1951-58.--Dissolved solids: Maximum, 640 ppm Nov. 11-17, 1955; minimum, 54 ppm June 1-10, 1952.

Hardness: Maximum, 244 ppm Aug. 1-10, 1954; minimum, 23 ppm June 1-10, 1952.

Water specific conductance: Maximum daily, 1,150 micromhos Nov. 14, 1955; minimum daily, 60.0 micromhos June 21, 1953.

Water temperatures: Maximum, 78°F July 19, 1951, June 22, 1954, July 23, 26, 1956; minimum, 39°F Jan. 10, 1952.

Sediment concentrations (1956-58): Maximum daily, 680 ppm Feb. 20, 1958; minimum daily, 24 ppm Jan. 29, 1957.

Sediment loads (1956-58): Maximum daily, 28,500 tons Apr. 5, 1958; minimum daily, 88 tons Apr. 9-13, 1957.

REMARKS.--Minimum observed during water year: Hardness, 29 ppm June 6. Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharges (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	pH	
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 1-11, 1957..	1,671	32	0.00	34	14	69	4.2	140		38	105	0.0	3.4	0.17	383	0.52	1,730	143	28	2.5	638	7.9
Oct. 12-17.....	2,745	24	.02	22	11	44	2.8	91		33	67	.0	2.9	.17	256	.35	1,900	99	24	1.9	429	7.2
Oct. 17 a.....	---	---	---	---	---	46	---	100	---	---	---	---	---	.30	---	---	---	---	---	---	---	---
Oct. 18-31.....	2,063	25	.01	22	14	55	2.9	103		35	82	.1	1.9	.18	307	.42	1,710	112	28	2.3	506	7.3
Nov. 1-8.....	1,896	24	.01	22	13	54	2.9	95		29	84	.1	2.0	.06	303	.41	1,850	109	31	2.3	502	7.5
Nov. 9-19.....	2,334	21	.01	18	11	42	2.0	74		27	66	.2	2.0	.04	262	.36	1,850	89	28	1.9	405	6.9
Nov. 20-30.....	2,419	21	.01	16	12	43	2.2	78		25	66	.1	1.6	.03	270	.37	1,760	90	26	2.0	407	7.1
Nov. 22 a.....	---	---	---	---	---	44	---	79	---	---	64	---	---	.00	---	---	---	89	24	2.0	404	7.7
Dec. 1-10.....	2,564	20	.01	18	10	43	2.1	76		30	64	.1	1.8	.13	263	.36	1,820	87	25	2.0	404	7.0
Dec. 11-13.....	2,797	20	.01	17	12	43	2.2	76		28	60	.2	1.7	.10	249	.34	1,830	90	28	1.9	388	7.0
Dec. 14-29.....	2,449	22	.01	17	13	49	2.6	90		31	71	.1	2.2	.08	286	.39	1,890	97	23	2.2	448	7.0
Dec. 19 a.....	---	---	---	---	---	52	---	92	---	---	77	---	---	.00	---	---	---	102	27	2.2	479	7.8
Dec. 30-31.....	2,150	22	.02	20	16	57	2.6	104		36	86	.2	2.5	.03	331	.45	1,920	116	31	2.3	481	7.1
Jan. 1-15, 1958..	1,929	22	.00	27	13	66	3.0	100		44	100	.1	1.8	.10	334	.45	1,740	120	38	2.6	581	8.2

a. Calculated from determined constituents.

SAN JOAQUIN RIVER BASIN--Continued
 11-3035. SAN JOAQUIN RIVER NEAR VERNALIS, CALIF.--Continued
 Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (microhmhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium	Non-carbonate			
Jan. 16-27, 1958.	2,599	18	0.01	26	12	66	3.0	105		50	86	0.0	2.1	0.10	318	0.43	2,230	113	27	2.7	560	7.7
Jan. 28 a.....	--	18	.23	18	8.1	40	5.3	84		34	48	0.2	1.6	.20	242	.33	--	78	9	2.0	367	7.1
Jan. 28-Feb. 5....	3,876	17	.05	21	9.4	49	4.0	101		37	60	.2	1.7	.20	250	.34	2,620	91	8	2.2	440	7.9
Jan. 30 a.....	--	--	--	--	--	52	--	98		--	61	--	--	.23	--	--	--	94	14	2.3	449	7.3
Feb. 6-10.....	5,556	16	.02	18	7.8	37	3.4	89		29	43	.2	1.4	.13	208	.28	3,120	77	4	1.8	346	7.7
Feb. 11-19.....	4,106	21	.00	24	11	56	3.6	107		48	66	.1	2.1	.21	290	.39	3,220	105	17	2.4	490	7.3
Feb. 20 a.....	--	--	--	--	--	21	--	74		--	22	--	--	.30	--	--	--	64	3	1.1	234	7.3
Feb. 20-28.....	7,494	15	.03	16	8.5	36	3.0	88		31	47	.2	1.3	.14	210	.29	4,250	80	8	1.8	346	7.3
Mar. 1-16.....	6,845	22	.04	18	9.5	41	2.3	90		36	47	.1	2.7	.50	227	.30	4,070	84	10	1.9	366	7.3
Mar. 6 a.....	--	17	.11	13	--	19	2.3	60		21	45	--	--	.20	137	.18	4,980	58	16	1.8	368	7.2
Mar. 17-22.....	13,470	17	.08	13	6.2	22	2.3	60		17	24	.1	2.4	.20	151	.19	8,410	58	1	1.3	203	7.2
Mar. 23-Apr. 2....	20,630	20	.08	13	6.2	17	--	61		--	18	--	--	.16	--	--	--	52	2	1.0	182	7.3
Mar. 26-Apr. 2....	37,460	20	.10	12	5.8	15	2.3	66		12	15	.1	1.6	.10	125	.16	12,640	54	0	.9	184	7.3
Apr. 3-11.....	--	--	--	--	--	20	--	76		--	19	--	--	.10	--	--	--	62	0	1.1	224	7.3
Apr. 11 a.....	27,130	19	.04	16	6.3	23	2.8	78		19	23	.1	1.9	.20	168	.20	12,310	66	2	1.2	252	7.3
Apr. 12-20.....	--	--	--	--	--	19	2.1	66		15	22	.0	1.9	.20	136	.18	7,980	56	2	1.1	199	7.4
Apr. 21-30.....	21,720	20	.04	12	6.3	13	1.4	50		14	16	.0	1.0	.00	110	.15	6,000	50	9	.8	162	6.8
May 1-18.....	20,190	19	.02	12	4.9	13	1.4	50		14	16	.0	1.0	.00	110	.15	6,000	50	9	.8	162	6.8
May 8 a.....	--	14	.14	9.2	4.1	12	1.6	48		7.7	12	.2	.6	.09	85	.12	--	40	1	.8	144	7.0
May 19-June 6....	24,080	15	.00	8.8	1.9	8	0	36		4.8	12	.0	.6	.00	84	.10	5,460	30	0	.6	109	6.5
June 7-15.....	14,760	17	.02	11	3.0	13	1.2	44		9.6	18	.0	.6	.10	102	.14	4,080	40	4	.9	148	6.7
June 16-18.....	10,700	16	.00	13	4.3	10	1.4	57		9.6	24	.1	.6	.00	117	.16	3,380	50	3	1.2	192	8.2
June 19-30.....	14,810	15	.00	9.2	2.2	11	1.1	37		2.9	16	.0	.5	.00	83	.10	3,320	32	2	.8	129	6.7
July 1-3.....	9,913	18	.02	11	3.3	15	1.2	42		9.6	20	.1	1.0	.10	109	.14	2,920	41	7	1.0	163	6.5
July 4-10.....	6,763	22	.00	20	3.6	20	1.5	65		19	36	.1	1.8	.00	164	.22	2,980	53	12	1.5	268	6.9
July 10-24.....	3,018	27	.00	24	13	53	2.3	101		36	74	.0	2.2	.10	282	.38	2,300	83	16	1.9	353	7.4
July 25-31.....	1,809	32	.00	40	17	81	3.5	146		54	120	.1	2.3	.20	425	.58	1,850	114	31	2.1	489	6.7
																		170	50	2.7	739	7.0

^a Calculated from determined constituents.

Aug. 1-31, 1958..	1,535	34	0.00	42	18	85	3.6	153	61	125	0.1	2.1	0.10	455	0.61	1,890	160	55	2.8	737	7.1
Sept. 1-10.....	1,815	29	.00	54	6.2	74	3.8	153	44	110	.2	2.0	.30	398	.54	1,950	160	35	2.5	676	7.8
Sept. 11-30.....	2,456	29	.00	30	13	53	3.2	123	25	78	.1	3.5	.10	313	.43	2,080	128	27	2.0	506	7.5
Weighted average	8,366	19	0.03	15	6.2	24	2.0	66	18	30	0.1	1.5	0.09	158	0.21	3,570	63	9	1.2	245	--

Analyses of additional samples

June 6, 1958.....	20,300	--	--	--	--	9.6	--	35	--	10	--	--	0.00	--	--	--	29	0	0.8	107	7.5
Aug. 8.....	7,850	--	--	--	--	84	--	156	--	124	--	--	.10	--	--	--	172	44	2.8	751	7.7
Aug. 20.....	1,540	--	--	--	--	84	--	--	54	126	--	--	.10	--	--	--	172	--	2.8	749	--
Sept. 5.....	1,690	27	0.00	40	16	76	3.9	146	46	113	0.1	2.6	.20	a 397	0.54	--	166	46	2.6	708	7.4

a Calculated from determined constituents.

Temperature (°F) of water, water year October 1957 to September 1958
/Once-daily measurement at approximately 7:30 a.m./

Month	Day																															Aver- age	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October....	66	66	65	64	63	62	61	62	63	63	62	62	62	63	63	63	63	63	62	61	58	58	60	60	62	63	63	63	61	61	60	62	
November...	60	62	55	55	55	54	55	55	55	55	--	55	--	57	58	56	55	55	55	55	55	55	53	53	51	51	52	52	50	--	54	50	
December...	51	50	48	48	50	50	51	52	52	51	50	50	50	50	50	50	53	53	53	52	51	51	50	48	48	48	48	48	48	50	51	50	
January....	50	56	51	50	50	50	46	48	48	50	50	50	48	46	46	46	46	44	44	44	46	44	46	48	48	52	56	54	53	54	53	49	
February....	53	53	53	54	53	53	54	54	53	54	54	55	53	55	55	56	55	55	55	54	54	54	55	55	57	56	53	52	--	--	54	53	
March.....	51	51	51	51	51	52	50	51	52	51	51	51	51	51	52	53	51	62	53	55	54	53	54	54	55	53	55	55	55	55	56	55	53
April.....	55	53	52	52	53	53	53	54	55	57	58	60	62	63	63	63	63	63	64	64	64	63	60	57	58	58	59	60	61	61	--	59	
May.....	62	63	64	64	64	62	63	62	64	65	64	60	60	62	64	65	66	66	65	64	64	65	63	65	64	65	65	65	65	65	65	64	
June.....	65	65	65	65	65	65	66	67	65	66	67	67	67	67	68	71	72	72	70	68	67	64	64	65	65	66	67	69	68	69	--	67	
July.....	70	68	70	71	74	74	72	68	71	72	74	74	75	73	71	70	70	70	71	73	73	74	74	74	74	74	75	76	75	74	--	72	
August.....	77	76	75	75	76	76	75	74	74	75	75	75	75	75	75	76	76	76	76	76	76	75	75	75	75	75	76	75	74	74	75	75	
September..	75	75	73	71	71	73	75	73	73	72	71	69	68	68	68	68	70	70	71	70	69	69	--	65	64	65	64	68	70	70	--	70	

QUALITY OF SURFACE WATERS, 1958

SAN JOAQUIN RIVER BASIN--Continued

11-3035. SAN JOAQUIN RIVER NEAR VERNALIS, CALIF.--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1...	1,550	--		1,950	66	347	2,410	52	
2...	1,540	85		1,850	--		2,320	--	
3...	1,570	--		1,870	44		2,270	51	
4...	1,590	86		1,830	--		2,550	--	
5...	1,740	--		1,790	45	240	2,670	55	350
6...	1,700	93	390	1,930	--		2,740	--	
7...	1,780	--		1,940	59	309	2,730	45	
8...	1,590	88		2,010	--		2,730	38	a280
9...	1,590	--		2,280	74		2,600	35	246
10...	1,700	80		2,300	--	380	2,620	50	a350
11...	2,030	95	a520	2,190	60		2,900	90	705
12...	2,560	114	788	2,120	--		2,700	--	
13...	2,610	116	a820	2,340	66		2,580	68	
14...	2,940	144		2,500	--		2,610	--	
15...	3,020	--	1,100	2,500	60		2,670	60	470
16...	2,880	96	746	2,460	--	420	2,530	--	
17...	2,460	77	a510	2,430	71		2,320	81	507
18...	2,150	70		2,260	--		2,560	--	
19...	2,040	--	390	2,290	64		2,560	66	600
20...	2,110	67		2,570	--		2,550	--	
21...	2,000	--		2,510	70	474	2,520	102	694
22...	1,820	45	250	2,440	--		2,540	78	a530
23...	2,030	--		2,460	64		2,440	61	
24...	2,110	55		2,430	--		2,260	--	400
25...	2,250	--		2,290	51		2,480	66	
26...	2,130	55		2,300	--	390	2,320	--	
27...	2,090	--	340	2,500	65		2,080	90	520
28...	2,070	63		2,480	--		2,330	--	
29...	2,090	--		2,420	61		2,420	82	
30...	2,000	60		2,210	--		2,200	63	a370
31...	1,990	--		--	--	--	2,100	55	312
Total	63,730	--	14,124	67,450	--	11,100	77,310	--	13,874
January				February			March		
1...	2,260	54	a330	3,690	262	2,610	7,500	170	
2...	1,970	54		3,870	240	a2,500	7,660	--	3,400
3...	1,700	--		3,710	167	1,670	7,720	163	
4...	1,700	58		3,690	160	1,590	7,360	150	a3,000
5...	1,680	--	240	5,010	247	3,340	6,960	135	
6...	1,620	--		6,250	280	a4,700	6,750	--	
7...	1,630	37	163	5,640	220	3,350	6,640	142	
8...	1,690	54	246	5,410	--		6,600	--	2,500
9...	1,690	65	a300	5,400	208		6,590	140	
10...	1,950	105	553	5,080	--		6,700	--	
11...	2,140	120	a700	4,650	207	2,700	6,700	136	
12...	2,160	124	723	4,430	--		6,190	120	a2,000
13...	2,220	--		4,560	205		5,590	105	1,580
14...	2,270	86	550	4,920	--		5,280	85	a1,200
15...	2,260	--		3,960	155	1,660	5,420	100	1,460
16...	2,570	95		3,300	130	a1,200	6,660	220	a4,000
17...	2,700	--		3,020	126	1,030	11,000	370	11,000
18...	2,720	104	700	3,470	170	a1,600	12,800	270	9,330
19...	2,650	--		4,640	300	3,760	13,000	255	8,950
20...	2,620	92		8,120	680	14,900	13,700	230	8,510
21...	2,490	--		8,760	440	10,400	14,600	230	9,070
22...	2,220	71		7,510	--		15,700	240	10,200
23...	2,170	--	450	6,940	340	6,200	18,300	320	a16,000
24...	2,260	72		6,450	--		21,000	175	9,920
25...	2,500	120	a810	6,250	240	4,050	22,400	168	10,200
26...	2,950	200	1,590	7,750	305	6,380	23,600	146	9,300
27...	3,340	255	a2,300	8,020	215	4,660	24,000	145	9,400
28...	4,270	360	4,150	7,650	180	a3,700	22,900	135	8,350
29...	3,780	330	a3,400	--	--	--	20,900	114	6,430
30...	3,470	285	2,670	--	--	--	18,200	108	5,310
31...	3,390	270	a2,500	--	--	--	16,500	118	5,260
Total	75,040	--	28,585	152,150	--	110,600	374,920	--	178,170

a Computed from estimated-concentration graph.

SAN JOAQUIN RIVER BASIN--Continued

11-3035. SAN JOAQUIN RIVER NEAR VERNALIS, CALIF.--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	17,500	142	6,710	19,400	86	4,500	21,800	129	7,590
2...	21,600	190	11,100	18,300	90	4,450	21,900	140	a8,300
3...	27,200	255	18,700	17,600	98	4,660	20,100	110	
4...	34,700	292	27,400	17,600	105	4,990	20,500	--	
5...	40,900	258	28,500	18,200	108	5,310	21,300	125	6,400
6...	39,000	210	22,100	19,500	97	5,110	20,300	--	
7...	40,200	180	19,500	20,600	88	4,890	16,900	105	4,790
8...	40,600	130	14,300	21,100	100	5,700	15,700	--	
9...	40,900	80	8,830	19,800	107	5,720	15,800	130	
10...	38,400	64	6,640	19,600	116	6,140	15,700	--	
11...	35,200	70	6,650	20,300	123	6,740	15,200	125	5,100
12...	32,600	72	6,340	20,900	114	6,430	14,800	--	
13...	31,200	68	5,730	21,900	112	6,620	13,900	125	
14...	29,200	60	4,730	22,100	97	5,790	12,800	--	
15...	27,800	59	a4,400	22,000	89	5,290	12,000	140	4,540
16...	26,600	65	4,670	21,700	90	5,270	11,400	--	
17...	25,600	73	5,050	21,300	104	5,880	10,500	130	3,900
18...	24,700	72	4,600	21,500	109	6,330	10,200	--	
19...	23,600	63	4,010	22,600	108	6,580	10,900	220	6,470
20...	22,900	66	4,080	24,100	117	7,610	12,900	210	a7,300
21...	23,200	66	4,130	25,200	105	7,140	15,900	165	7,080
22...	23,600	64	4,080	25,700	102	7,080	17,500	--	
23...	23,400	66	4,170	26,600	116	8,330	17,700	109	5,400
24...	23,100	65	4,050	28,300	115	8,790	17,300	--	
25...	22,400	74	4,480	28,600	120	9,220	16,800	173	7,850
26...	21,500	75	4,350	29,100	118	9,270	16,700	270	a12,000
27...	20,700	61	4,530	27,000	112	8,160	15,500	225	9,420
28...	20,100	65	4,610	25,500	114	7,850	13,100	170	a6,000
29...	19,700	62	4,360	24,300	116	7,610	12,200	137	4,510
30...	19,500	86	4,530	22,800	121	7,450	11,200	110	a3,300
31...	--	--	--	21,800	115	6,770	--	--	--
Total	837,600	--	257,530	695,000	--	201,840	468,500	--	178,350
	July			August			September		
1...	10,700	106	3,060	1,430	--	--	1,760	72	342
2...	10,600	105	a3,000	1,410	52	--	1,690	--	
3...	8,440	104	2,370	1,420	--	--	1,670	58	
4...	6,710	--	--	1,590	52	--	1,700	--	
5...	5,630	110	--	1,540	--	190	1,690	65	280
6...	6,530	--	1,900	1,470	44	--	1,670	--	
7...	7,330	104	--	1,440	--	--	1,650	65	
8...	7,650	--	--	1,470	42	--	1,950	--	
9...	6,330	75	1,280	1,590	--	--	1,990	59	340
10...	4,670	77	a1,000	1,660	58	263	2,180	--	
11...	4,080	82	--	1,750	53	a250	2,290	79	
12...	3,960	--	--	1,650	47	--	2,370	--	
13...	3,850	80	810	1,560	--	--	2,410	76	470
14...	3,610	--	--	1,470	47	--	2,550	--	
15...	3,270	78	--	1,440	--	200	2,570	59	
16...	3,150	--	--	1,450	50	--	2,260	--	
17...	2,810	61	530	1,520	--	--	2,260	61	
18...	2,640	--	--	1,630	55	--	2,290	--	360
19...	2,490	83	558	1,600	--	--	2,220	54	
20...	2,450	67	a440	1,540	58	240	2,300	--	
21...	2,330	52	359	1,490	--	--	2,420	66	
22...	2,070	--	--	1,470	56	--	2,450	--	
23...	1,900	51	--	1,520	--	--	2,540	71	480
24...	1,790	--	--	1,570	64	--	2,640	--	
25...	1,710	61	--	1,590	--	--	2,650	73	
26...	1,690	--	250	1,590	65	--	2,560	--	
27...	1,660	54	--	1,500	--	270	2,570	65	
28...	1,650	--	--	1,480	59	--	2,590	--	430
29...	1,590	52	--	1,520	--	--	2,610	59	
30...	1,510	--	--	1,550	68	--	2,470	--	
31...	1,450	48	188	1,670	--	--	--	--	--
Total	126,850	--	24,645	47,600	--	7,023	67,270	--	11,802
Total discharge for year (cfs-days).....									
Total load for year (tons).....									

a Computed from estimated-concentration graph.

SAN JOAQUIN RIVER BASIN--Continued

11-3035. SAN JOAQUIN RIVER NEAR VERNALIS, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;

P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Sam- pling point	Water tem- per- ature (°F)	Discharge (cfs)	Sediment con- cen- tration (ppm)	Suspended sediment											Method of analysis
						Percent finer than size indicated, in millimeters											
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Feb. 20, 1958.....	1730		57	9,130	748		35	46	53	54	69	76	91	98	100		VPWC
Mar. 17.....	1820		54	11,900	372							61	79	99	100		V
Apr. 3.....	1700		52	28,400	266							68	75	96	100		V
Apr. 4.....	1625		53	37,200	287							46	51	66	94	100	S

SAN JOAQUIN RIVER BASIN--Continued

11-3042. SAN JOAQUIN RIVER AT MOSSDALE, CALIF.

LOCATION.--At boat landing on left bank at Mossdale Bridge at Mossdale, San Joaquin County, opposite tidal gaging station, and 7.6 miles northeast of Tracy.
 RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.
 REMARKS.--Tidal gaging station maintained and operated by State of California Department of Water Resources. No discharge records available for this station due to tidal effects from Suisun Bay.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate		
Oct. 23, 1957.....		--	--	--	--	63	--	116	--	--	94	--	--	0.19	--	--	--	138	43	2.3	584
Nov. 26.....		--	--	--	--	52	--	87	--	--	76	--	--	.07	--	--	--	103	32	2.2	473
Dec. 12.....		--	--	--	--	39	--	72	--	--	57	--	--	.06	--	--	--	78	19	1.9	349
Jan. 23, 1958.....		--	--	--	--	73	--	126	--	--	104	--	--	.34	--	--	--	147	44	2.6	676
Feb. 11.....		--	--	--	--	49	--	106	--	--	61	--	--	.23	--	--	--	102	15	2.1	455
Mar. 4.....		--	--	--	--	36	--	91	--	--	40	--	--	.16	--	--	--	86	11	1.7	333
Apr. 11.....		--	--	--	--	20	--	72	--	--	18	--	--	.00	--	--	--	60	1	1.1	219
May 9.....		16	0.04	10	4.6	14	1.7	52	--	12	16	0.1	0.6	.00	101	0.14	--	44	1	.9	158
June 11.....		--	--	--	--	13	--	48	--	--	16	--	--	.00	--	--	--	39	2	1.9	343
July 8.....		--	--	--	--	23	--	48	--	--	23	--	--	.00	--	--	--	58	58	2.7	793
Aug. 5.....		--	--	--	--	85	--	158	--	--	133	--	--	.40	--	--	--	186	39	2.6	692
Sept. 3.....		19	.03	25	24	77	4.0	150	--	49	115	.2	1.8	.20	389	.53	--	162	39	2.6	692

SAN JOAQUIN RIVER BASIN--Continued

11-3048. SAN JOAQUIN RIVER AT GARWOOD BRIDGE, NEAR STOCKTON, CALIF.

LOCATION--At boat landing on left bank by Garwood Bridge on State Highway 4, opposite tidal gaging station, and 1.8 miles west of Stockton, San Joaquin County.

RECORDS AVAILABLE--Chemical analyses: October 1953 to September 1958.

REMARKS--Tidal gaging station maintained and operated by U.S. Bureau of Reclamation. No discharge records available for this station due to tidal effects from Suisun Bay.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carb. sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (microhmhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 18, 1957.....		--	--	--	--	45	--	100	--	64	--	--	0.19	--	--	--	96	14	2.0	423	7.4
Nov. 26.....		--	--	--	--	46	--	82	--	69	--	--	.00	--	--	--	93	26	2.1	426	7.9
Dec. 13.....		--	--	--	--	43	--	82	--	61	--	--	.09	--	--	--	86	19	2.0	390	7.8
Jan. 24, 1958.....		--	--	--	--	66	--	116	--	93	--	--	.20	--	--	--	129	34	2.5	601	7.7
Feb. 10.....		--	--	--	--	36	--	94	--	40	--	--	.20	--	--	--	79	2	1.8	322	7.6
Mar. 3.....		--	--	--	--	33	--	87	--	38	--	--	.25	--	--	--	78	7	1.6	322	7.6
Apr. 11.....		--	--	--	--	19	--	74	--	19	--	--	.04	--	--	--	82	1	1.1	218	7.1
May 20.....		13	0.03	7.8	2.8	9.2	1.4	36	5.8	11	0.1	0.5	.00	71	0.10	--	31	0	.7	109	7.3
June 7.....		--	--	--	--	13	--	77	--	18	--	--	.00	--	--	--	60	1	.9	246	7.7
July 7.....		--	--	--	--	70	--	158	--	38	--	--	.30	--	--	--	60	8	1.4	246	7.7
Aug. 5.....		--	--	--	--	70	--	158	--	97	--	--	.30	--	--	--	159	28	2.4	648	8.0
Sept. 3.....		18	.03	33	19	72	4.5	161	44	101	.3	2.1	.30	373	.51	--	162	30	2.5	659	7.4

SAN JOAQUIN RIVER BASIN--Continued

11-3095. CALAVERAS RIVER AT JENNY LIND, CALIF.

LOCATION---At bridge on Milton Road, 70 feet upstream from gaging station, 0.2 mile south of Jenny Lind, Calaveras County, and 6.5 miles downstream from Cosgrove Creek.

DRAINAGE AREA--395 square miles.

RECORDS AVAILABLE---Chemical analyses: November 1954 to September 1958.

REMARKS---Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 22, 1957....	2.5	---	---	---	---	8.0	---	150	---	---	8.0	---	---	0.06	---	---	---	130	7	0.3	288	7.8
Nov. 27.....	15	---	---	---	---	11	---	134	---	---	12	---	---	.00	---	---	---	128	18	.4	292	7.8
Dec. 11.....	49	---	---	---	---	10	---	131	---	---	12	---	---	.00	---	---	---	121	14	.4	283	8.0
Jan. 24, 1958....	63	---	---	---	---	8.1	---	108	---	---	8.0	---	---	.00	---	---	---	95	6	.4	226	8.1
Feb. 10.....	665	---	---	---	---	5.4	---	77	---	---	3.8	---	---	.03	---	---	---	68	5	.3	154	7.5
Mar. 4.....	80	---	---	---	---	6.0	---	90	---	---	4.8	---	---	.07	---	---	---	80	6	.3	176	7.8
Apr. 3.....	12,100	---	---	---	---	2.7	---	56	---	---	2.0	---	---	.02	---	---	---	46	0	.2	107	7.4
May 8.....	200	22	0.03	14	6.6	4.3	1.6	76	---	5.8	3.0	0.0	0.5	.00	95	0.13	62	0	.2	147	7.5	
June 13.....	215	---	---	---	---	4.4	---	76	---	---	3.0	---	---	.00	---	---	---	61	0	.2	141	7.9
July 7.....	268	---	---	---	---	4.8	---	103	---	---	2.9	---	---	.10	---	---	---	85	0	.3	159	7.8
Aug. 4.....	208	---	---	---	---	5.3	3.2	108	---	---	5.3	---	---	.00	---	---	---	89	0	.3	198	8.1
Sept. 4.....	169	18	.04	23	8.1	5.3	3.2	108	---	7.7	5.0	.1	1.1	.00	125	.17	91	2	.2	200	7.8	

SAN JOAQUIN RIVER BASIN--Continued

11-3112. STOCKTON SHIP CHANNEL NEAR RINDE PUMP ON RINDE TRACT, CALIF.

LOCATION.--At boat landing on right bank of ship channel, just below confluence of Fourteen Mile Slough, below tidal gaging station, and about 9.6 miles northwest of Stockton, San Joaquin County.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--Tidal gaging station maintained and operated by State of California Department of Water Resources. No discharge records available for this station due to tidal effects from Suisun Bay.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 22, 1957.....						66		136			104			0.16				140	28	2.4	614	7.8
Nov. 27.....						52		92			79			.06				107	32	2.2	483	7.7
Dec. 11.....						52		88			82			.11				108	36	2.2	487	7.6
Jan. 24, 1958.....						67		106			110			.10				161	74	2.3	639	7.4
Feb. 10.....						30		80			39			.19				85	19	1.4	327	7.2
Mar. 4.....						33		86			42			.15				96	25	1.5	357	7.3
Apr. 3.....						15		64			16			.00				56	4	.9	184	7.6
May 20.....	15		0.02	9.6	3.4	12	1.9	45		7.7	14	0.1	1.1	.04	87	0.12		38	1	.8	134	6.9
June 12.....						13		48			16			.00				50	11	.8	150	7.6
July 7.....						25		68			32			.00				63	17	1.4	254	7.3
Aug. 4.....						48		106			69			.20				106	19	2.0	488	7.5
Sept. 4.....	3.4		.04	22		65	4.4	149		35	92	.2	1.1	.00	318	.43		147	25	2.3	590	7.3

SAN JOAQUIN RIVER BASIN--Continued

11-3127. OLD RIVER AT SOUTH TIP OF FABIAN TRACT, NEAR TRACY, CALIF.

LOCATION.--At southern tip of Fabian Tract on left bank at trash rack of pump intake at end of Lammers Road, about 3 miles east of Bethany, and 6.1 miles north of Tracy, San Joaquin County.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 23, 1957.....		--	--	--	--	62	--	117	--	--	83	--	--	0.21	--	--	--	129	33	2.4	580	7.8
Nov. 26.....		--	--	--	--	53	--	98	--	--	80	--	--	.10	--	--	--	114	34	2.2	501	7.8
Dec. 12.....		--	--	--	--	53	--	108	--	--	78	--	--	.15	--	--	--	120	31	2.1	513	7.9
Jan. 23, 1958.....		--	--	--	--	66	--	130	--	--	95	--	--	.42	--	--	--	145	38	2.4	594	7.7
Feb. 11.....		--	--	--	--	42	--	97	--	--	51	--	--	.22	--	--	--	90	10	1.9	395	7.3
Mar. 4.....		--	--	--	--	43	--	96	--	--	54	--	--	.31	--	--	--	100	21	1.9	416	7.4
Apr. 11.....		--	--	--	--	22	--	76	--	--	25	--	--	.00	--	--	--	68	6	1.1	251	7.4
May 9.....		15	0.04	10	4.7	13	1.7	48	--	13	17	0.1	0.9	.00	99	0.13	--	44	5	.9	159	7.5
June 12.....		--	--	--	--	14	--	48	--	--	19	--	--	.00	--	--	--	42	3	.9	160	7.7
July 8.....		--	--	--	--	30	--	68	--	--	44	--	--	.00	--	--	--	73	17	1.5	306	7.3
Aug. 5.....		--	--	--	--	84	--	160	--	--	130	--	--	.40	--	--	--	188	57	2.7	784	7.9
Sept. 3.....		13	.02	27	29	85	4.0	166	--	56	132	.2	.5	.10	429	.58	--	186	50	2.7	780	7.3

SAN JOAQUIN RIVER BASIN--Continued

11-3129 9. DELTA-MENDOTA CANAL ABOVE TRACY PUMPING PLANT, NEAR TRACY, CALIF.
(Formerly published as Delta-Mendota Canal near Tracy, Calif.)

LOCATION.--On left bank, 1.1 miles upstream from gaging station near Tracy, and 9.2 miles northwest of Tracy, San Joaquin County.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.
REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565. No appreciable inflow between sampling point and gaging station.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonyl (CO ₂)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio (micro-mhos at 25°C)	Specific conductance (micro-mhos at 25°C)	
															Parts per million	Tons per acre-foot	Tons per day	Calcium magnesium	Non-carbonate			
Oct. 8, 1957.....	1,615	--	--	--	--	55	--	116	--	--	77	--	--	0.10	--	--	--	119	24	2.2	508	7.8
Oct. 23.....	573	--	--	--	--	58	--	110	--	--	91	--	--	.19	--	--	--	133	43	2.2	538	7.8
Nov. 26.....	358	--	--	--	--	54	--	92	--	--	82	--	--	.12	--	--	--	111	36	2.2	502	7.8
Dec. 12.....	179	--	--	--	--	52	--	86	--	--	79	--	--	.25	--	--	--	106	35	2.2	481	7.7
Jan. 23, 1958.....	170	--	--	--	--	95	3.6	138	--	--	138	--	--	.63	--	--	--	166	34	3.2	819	7.4
Mar. 5.....	134	--	--	--	--	70	--	106	--	--	90	--	--	.48	--	--	--	132	45	2.7	615	7.4
May 9.....	509	17	0.02	12	4.9	18	2.3	52	15	23	23	0.2	0.8	.13	119	119	50	7	1.1	193	7.1	
June 11.....	434	--	--	--	--	18	--	49	--	--	23	--	--	.00	--	--	48	8	1.1	179	7.5	
July 8.....	2,532	--	--	--	--	31	--	75	--	--	46	--	--	.00	--	--	77	15	1.5	326	7.5	
Aug. 5.....	3,437	--	--	--	--	25	--	72	--	--	38	--	--	.30	--	--	72	13	1.3	259	--	
Sept. 3.....	1,883	12	.03	29	13	51	1.7	113	35	74	74	.1	.6	.20	273	273	124	31	2.0	493	7.5	

SAN JOAQUIN RIVER BASIN--Continued

11-3130. DELTA-MENDOTA CANAL AT TRACY PUMPING PLANT, NEAR TRACY, CALIF.
(Formerly published as Delta-Mendota Canal at Tracy pumping plant, Calif.)

LOCATION.--At outlet of siphon into canal, 1 mile south of Tracy pumping plant, Alameda County, 7 miles southeast of Byron, and 10 miles northwest of Tracy, San Joaquin County.

RECORDS AVAILABLE.--Chemical analyses: July 1955 to September 1956.

Water temperatures: July 1955 to September 1956.

EXTREMES, 1957-58.--Dissolved solids: Maximum, 442 ppm Mar. 2-3; minimum, 94 ppm June 22-30.

Hardness: Maximum, 164 ppm Sept. 3-7, minimum, 41 ppm June 22-30.

Specific conductance: Maximum daily, 848 micromhos Jan. 24; minimum daily, 118 micromhos June 24.

Water temperatures: Maximum, 81°F Aug. 7.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 571 ppm Mar. 1-7, 1957; minimum, 86 ppm June 1-9, 1956.

Hardness: Maximum, 234 ppm Mar. 1-7, 1957; minimum, 34 ppm June 1-9, 1956.

Specific conductance: Maximum daily, 1,110 micromhos Oct. 19, 22, 1955; minimum daily, 112 micromhos June 3, 1956.

Water temperatures: Maximum, 81°F June 25, 1957, Aug. 7, 1958.

REMARKS.--Records of specific conductance of daily samples available in district office at Sacramento, Calif. Minimum water temperature not available as pumping plant is not in operation during winter months. Records of discharge for Delta-Mendota Canal near Tracy for water year October 1957 to September 1958 given in WSP 1955. NO flow on many days during late winter and early spring months.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)		Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)
														Parts per million	Tons per acre-foot	Calcium-Magnesium	Non-carbonate		
Oct. 1-10, 1957...	1,706	26	0.03	29	14	59	3.5	126	36	88	0.2	1.7	0.1	320	0.44	132	29	2.2	555
Oct. 11-20.....	877	24	.04	31	14	66	3.7	125	41	96	.1	4.3	.2	343	.47	135	33	2.5	593
Oct. 21-31.....	569	22	.00	31	14	65	3.3	113	45	96	.1	3.3	.4	347	.47	136	43	2.4	603
Nov. 1-9.....	425	23	.04	32	14	68	3.3	114	48	102	.2	3.0	.3	360	.49	139	46	2.5	623
Nov. 10-20.....	488	19	.00	25	11	53	2.5	90	32	85	.2	2.7	.2	285	.39	109	35	2.2	506
Nov. 21-30.....	401	17	.00	25	11	54	2.4	86	26	90	.1	2.5	.1	280	.38	108	36	2.3	493
Dec. 1-18.....	169	21	.04	26	14	55	2.7	92	44	80	.0	1.8	.2	267	.40	122	47	2.2	516
Jan. 1-9, 1956...	158	21	.02	34	18	62	2.6	123	53	128	.0	3.4	.5	437	.50	138	50	2.9	725
Feb. 1-9.....	144	22	.03	30	15	76	4.2	119	65	148	.0	2.4	.5	392	.59	136	40	2.8	644
Feb. 15-27.....	121	23	.05	28	16	75	4.0	119	65	100	.0	2.5	.6	380	.52	138	36	2.8	641
Mar. 1-3.....	108	26	--	30	16	81	1.0	118	65	108	--	3.6	.9	442	.60	140	43	3.0	708
Mar. 5-30.....	581	23	.01	23	11	48	2.5	94	48	61	.2	2.5	.2	275	.37	104	27	2.0	455
Apr. 22-30.....	347	18	--	15	6.7	24	2.2	66	17	30	.1	1.4	.1	161	.22	65	9	1.3	257
May 1-6.....	505	16	.10	15	5.7	23	2.2	66	16	30	.1	1.0	.1	157	.21	61	7	1.3	248
May 9-19.....	522	19	.08	14	4.4	18	1.9	55	14	24	.1	1.2	.1	133	.16	53	6	1.1	203
May 20-31.....	556	19	.12	10	4.4	13	1.8	44	12	17	.2	1.4	.2	117	.16	43	7	.9	150
June 1-10.....	499	16	.04	10	5.4	14	1.7	44	14	19	.1	.5	.1	110	.15	47	11	.9	162

SAN JOAQUIN RIVER BASIN--Continued

11--3130. DELTA-MENDOTA CANAL AT TRACY PUMPING PLANT, NEAR TRACY, CALIF.--Continued

Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium, sodium	Non-carbonate			
June 11-21, 1958.....	801	18	0.08	12	7.3	23	2.1	61		21	30	0.1	1.0	0.1	145	0.20	314	60	10	1.3	234	7.2
June 22-30.....	746	14	.07	6.8	4.6	13	1.4	38	12	12	19	.2	.7	.2	94	.13	189	41	10	.9	146	7.3
July 1-21.....	2,688	17	.04	27	7.1	27	2.2	61	25	38	38	.2	1.5	.1	167	.23	1,210	69	19	1.4	272	7.1
July 22-29.....	3,176	19	.04	28	13	56	3.0	106	43	83	83	.3	1.8	.3	309	.42	2,680	125	38	2.2	531	7.3
July 28-31.....	3,107	18	.06	15	9.4	27	2.3	68	25	36	36	.3	.7	.3	173	.24	1,450	76	20	1.3	286	7.0
Aug. 1-18.....	3,320	18	.01	23	8.4	40	2.1	89	29	54	54	.1	.0	.3	230	.31	2,060	92	19	1.8	383	6.7
Aug. 19-24.....	2,726	19	.01	34	15	68	3.6	131	50	98	98	.2	.8	.3	375	.51	2,810	148	41	2.4	631	7.1
Aug. 25-Sept. 2.....	2,599	10	.00	28	4.9	35	2.2	92	24	44	44	.0	.0	.2	201	.27	1,410	90	15	1.6	338	7.1
Sept. 3-10.....	1,781	17	.01	29	22	76	4.2	144	61	108	108	.1	.6	.4	403	.55	1,940	164	46	2.6	693	7.2
Sept. 11-18.....	1,722	19	.00	27	14	54	3.2	117	42	73	73	.1	.2	.2	300	.41	1,390	124	28	2.1	501	7.2
Weighted average a.....	916	18	0.03	23	10	42	2.6	90	32	59	59	0.1	1.0	0.2	241	0.33	596	96	24	1.8	403	--

a Represents 100 percent of runoff for water year.

Temperature (°F) of water, water year October 1957 to September 1958

/Once-daily measurement, generally between 2 a.m. and 11 a.m./

Month		Day																												Aver- age		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
70	69	68	68	68	68	78	66	67	66	66	65	65	68	64	65	65	66	66	64	65	65	65	65	65	64	66	--	65	65	64	66	
64	64	62	61	60	59	57	57	57	58	58	57	57	58	58	58	58	58	58	58	58	60	59	59	55	58	53	--	59	59	--	59	
53	53	53	53	53	54	53	53	53	53	--	53	--	51	--	53	--	54	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	53	--	--	--	--	--	--	--	--	--
52	--	--	--	--	--	--	59	--	--	--	--	--	--	55	--	--	--	57	--	--	--	--	--	--	--	--	--	--	--	--	--	--
--	54	--	--	--	60	59	--	57	54	--	56	53	52	53	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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66	66	67	68	66	66	66	66	66	66	66	60	66	66	68	68	66	67	68	68	68	69	67	68	67	68	68	69	69	69	69	69	69
68	68	67	68	68	68	68	67	67	67	--	68	70	67	67	67	67	67	67	67	67	67	67	68	68	68	69	69	69	69	69	69	69
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
74	71	72	75	75	--	76	76	76	75	74	76	77	76	74	73	73	74	74	75	76	75	74	74	75	76	77	77	77	77	77	77	75
77	77	78	78	78	80	81	80	79	79	79	80	80	80	79	76	78	78	78	78	78	78	78	78	79	78	79	78	77	77	78	78	78
78	79	78	80	75	76	76	77	76	75	74	73	73	73	73	73	76	75	76	76	76	76	76	74	71	73	72	73	74	73	74	73	75

SAN JOAQUIN RIVER BASIN--Continued
11-3130.5. DELTA-MENDOTA CANAL NEAR MENDOTA, CALIF.

LOCATION --One mile upstream from control gates into Mendota Pool and 2 miles north of Mendota, Fresno County.
RECORDS AVAILABLE --Chemical analyses: October 1953 to September 1958.
REMARKS --No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonyl sulfide (CO ₂)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 14, 1957.....						62		146			113						166	46	2.8	708	7.7
Nov. 19.....						70		110			99			0.20			135	45	2.6	623	8.0
Dec. 16.....						66		90			88			.51			124	50	2.6	595	7.8
Jan. 27, 1958.....						67		94			86			.27			132	55	2.5	611	7.9
Feb. 17.....						82		99			89			.20			149	68	2.9	712	8.2
Mar. 3.....						102		102			96			.62			174	90	3.4	816	8.0
Apr. 7.....						76		100			55			.13			197	115	2.4	754	7.6
May 5.....		12	0.01	42	17	69	3.4	99		154	51	0.1	1.7	.49	397	0.34	173	92	2.2	660	7.6
June 9.....						20		53			21			.00			184	14	1.4	202	7.8
July 7.....						20		53			36			.20			75	16	1.3	258	7.8
Aug. 5.....						25		70			30			.20			140	38	2.3	584	7.4
Sept. 2.....		12	.04	31	15	64	3.0	125		48	90	.1	.7	.30	326	.44	140	38	2.3	584	7.4

SAN JOAQUIN RIVER BASIN--Continued

11-3132.5. OLD RIVER AT CLIFTON COURT FERRY, CALIF.

LOCATION ---At Clifton Court Ferry Crossing, 0.3 mile below tidal gaging station, 2.1 miles east of Herdlyn, and 3.6 miles north of Bethany, San Joaquin County.
 RECORDS AVAILABLE---Chemical analyses: October 1953 to September 1958.
 REMARKS---Tidal gaging station maintained and operated by U.S. Bureau of Reclamation. No discharge records available for this station due to tidal effects from Suisun Bay.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 23, 1957....		--	--	--	--	59	--	109	--	--	88	--	--	0.16	--	--	--	120	31	2.3	546	7.8
Nov. 26.....		--	--	--	--	47	--	81	--	--	72	--	--	.02	--	--	--	96	30	2.1	438	7.6
Dec. 12.....		--	--	--	--	50	--	82	--	--	74	--	--	.02	--	--	--	98	31	2.2	459	7.8
Jan. 23, 1958....		--	--	--	--	62	3.0	115	--	--	36	--	--	.33	--	--	--	129	35	2.4	603	7.2
Feb. 11.....		--	--	--	--	47	--	94	--	--	57	--	--	.27	--	--	--	96	19	2.1	371	7.3
Mar. 5.....		--	--	--	--	41	--	92	--	--	49	--	--	.21	--	--	--	94	19	1.8	393	7.7
Apr. 11.....		--	--	--	--	23	--	74	--	--	24	--	--	.00	--	--	--	66	5	1.2	248	7.3
May 9.....	14	0.04	10	4.1	12	1.7	48	48	--	10	14	0.1	1.1	.01	91	0.12	--	42	3	1.8	149	7.2
June 12.....	--	--	--	--	--	15	--	48	--	--	19	--	--	.00	--	--	--	43	4	1.0	163	7.7
July 8.....	--	--	--	--	--	28	--	68	--	--	39	--	--	.00	--	--	--	66	10	1.5	281	7.3
Aug. 2.....	--	--	--	--	--	22	--	66	--	--	28	--	--	.20	--	--	--	64	10	1.2	235	7.8
Sept. 3.....	3.9	.08	14	10	21	1.5	81	81	--	21	24	.3	.6	.10	136	.18	--	76	10	1.0	240	7.4

SAN JOAQUIN RIVER BASIN--Continued
11-3133. ITALIAN SLOUGH AT MOUTH, NEAR BYRON, CALIF.

LOCATION.--On right bank at confluence of Italian Slough and Old River, 3.6 miles east of Byron, Contra Costa County, and 12 miles northwest of Tracy.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate		
Oct. 23, 1957.....						57		96			85			0.26				121	42	2.3	539
Nov. 26.....						49		79			73			.13				99	34	2.1	449
Dec. 12.....						47		102			79			.12				107	23	2.0	489
Jan. 23, 1958.....						74	3.1	108			105			.43				145	58	2.7	674
Feb. 11.....						65		95			93			.39				120	42	2.6	581
Mar. 5.....						56		90			80			.37				118	44	2.2	497
Apr. 11.....						26		76			34			.06				76	14	1.3	288
May 9.....		16	0.02	10	4.5	13	1.7	48		13	16	0.1	0.8	.00	99	0.13		43	4	.9	155
June 12.....						21		49			30			.10				54	14	1.2	210
July 8.....						29		74			46			.00				79	18	1.4	330
Aug. 5.....						22		66			28			.20				67	13	1.2	239
Sept. 3.....	3.2		.08	14	10	21	1.6	79		20	26	.2	.7	.00	137	.19		76	11	1.0	252

SAN JOAQUIN RIVER BASIN--Continued

11-3133.5. INDIAN SLOUGH NEAR BRENTWOOD, CALIF.

LOCATION.--At East Contra Costa Irrigation District pumping station on Bixler Road, 3.6 miles north of Byron, and 4.1 miles southeast of Brentwood, Contra Costa County.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharges (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonsulfate (CO ₃ SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Bo-ron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		So-dium ad-sorp-tion ratio (micro-mhos at 25°C)	Specific conductance (micro-mhos at 25°C)	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 23, 1957	79	...	152	...	108	...	...	0.83	...	...	...	150	25	2.8	692	8.2
Nov. 26	127	...	303	...	158	...	...	2.2	...	...	...	331	83	3.0	1,180	8.0
Dec. 12	139	...	a316	...	152	...	...	2.5	...	...	...	298	39	3.5	1,170	8.3
Jan. 23, 1958	146	3.4	290	...	188	...	...	2.2	...	...	...	332	94	3.5	1,330	7.5
Feb. 11	135	...	274	...	180	...	...	2.2	...	...	...	302	77	3.4	1,200	7.7
Mar. 5	152	...	268	...	188	...	...	2.2	...	...	...	300	80	3.8	1,220	7.8
Apr. 11	141	...	320	...	175	...	...	2.5	...	...	...	325	63	3.4	1,250	8.2
May 19	...	17	0.03	12	5.7	22	1.8	58	17	27	0.1	1.0	17	...	133	0.18	53	5	1.3	219	7.2
June 11	23	...	60	...	28	...	...	10	...	...	...	54	5	1.4	233	7.6
July 8	30	...	68	...	40	...	...	40	...	...	...	72	16	1.5	298	7.0
Aug. 5	23	...	68	...	29	...	...	30	...	...	...	67	11	1.2	240	7.6
Sept. 3	7.8	14	16	...	12	30	1.9	94	29	37	2	1.4	30	...	182	.25	88	11	1.4	323	7.0

Includes equivalent of 4 parts per million of carbonate (CO₃).

a Includes equivalent of 4 parts per million of carbonate (CO₃).

SAN JOAQUIN RIVER BASIN--Continued

11-3134. OLD RIVER AT ORWOOD BRIDGE, NEAR MIDDLE RIVER, CALIF.

LOCATION.--At right bank of Atchison, Topeka and Santa Fe Railroad bridge, 1.6 miles west of the town of Middle River, San Joaquin County, and 7.9 miles east of Brentwood.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate		
Oct. 23, 1957....		--	--	--	--	51	--	103	--	--	74	--	--	0.12	--	--	--	106	22	2.2	460
Nov. 26.....		--	--	--	--	51	--	85	--	--	77	--	--	.07	--	--	--	104	34	2.2	471
Dec. 12.....		--	--	--	--	47	--	82	--	--	80	--	--	.15	--	--	--	108	41	2.0	491
Jan. 23, 1958....		--	--	--	--	71	3.2	102	--	--	112	--	--	.39	--	--	--	174	90	2.3	730
Feb. 11.....		--	--	--	--	56	--	92	--	--	74	--	--	.35	--	--	--	130	55	2.1	543
Mar. 5.....		--	--	--	--	45	--	91	--	--	57	--	--	.29	--	--	--	105	30	1.9	434
Apr. 11.....		--	--	--	--	24	--	72	--	--	26	--	--	.10	--	--	--	70	11	1.2	255
May 19.....		15	0.02	9.0	3.3	12	1.5	42	--	7.7	15	0.1	1.1	.00	86	0.12	--	36	2	1.9	138
June 11.....		--	--	--	--	13	--	46	--	--	20	--	--	.00	--	--	--	46	8	1.0	168
July 6.....		--	--	--	--	17	--	58	--	--	23	--	--	.10	--	--	--	83	14	1.1	190
Aug. 5.....		--	--	--	--	19	--	68	--	--	23	--	--	.20	--	--	--	64	8	.9	210
Sept. 3.....		6.4	.08	14	8.5	18	1.5	76	--	16	21	.2	.9	.00	124	.17	--	70	8	.9	224

SAN JOAQUIN RIVER BASIN--Continued

11-3134.2. ROCK SLOUGH NEAR KNIGHTSEN, CALIF.

LOCATION.--At Contra Costa Canal intake at the end of Tule Lane, 2 miles northeast of Knightsen, Contra Costa County, and 4.2 miles southeast of Oakley.
 RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.
 REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂) (fs)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 23, 1957....		--	--	--	39	--	102	--	--	52	--	--	0.08	--	--	--	95	11	1.7	375	8.1
Nov. 13.....		--	--	--	60	--	107	--	--	90	--	--	.22	--	--	--	129	41	2.3	566	7.8
Dec. 13.....		--	--	--	58	--	98	--	--	88	--	--	.24	--	--	--	124	44	2.3	552	7.8
Jan. 23, 1958....		--	--	--	109	4.0	115	--	--	140	--	--	.80	--	--	--	242	148	2.8	988	7.1
Feb. 11.....		--	--	--	104	--	139	--	--	130	--	--	.70	--	--	--	222	102	3.0	955	7.4
Mar. 5.....		--	--	--	131	--	143	--	--	165	--	--	.11	--	--	--	265	146	3.3	1,120	7.7
Apr. 11.....		--	--	--	60	--	122	--	--	65	--	--	.58	--	--	--	140	40	2.2	578	7.8
May 19.....	16	0.01	14	6.3	21	1.9	65	19	25	25	0.1	1.4	.09	137	0.19	8	62	8	1.2	227	7.0
June 11.....	--	--	--	--	15	--	45	--	20	--	--	--	.00	--	--	--	42	5	1.0	161	7.8
July 8.....	--	--	--	--	18	--	48	--	24	--	--	--	.10	--	--	--	48	9	1.1	184	7.1
Aug. 5.....	--	--	--	--	18	--	66	--	--	22	--	--	.30	--	--	--	61	7	1.0	203	7.4
Sept. 2.....	8.4	.10	13	8.6	18	1.6	78	17	--	118	.2	.7	.00	124	.17	--	68	4	.9	216	7.3

SAN JOAQUIN RIVER BASIN--Continued

11-3134.5. OLD RIVER AT MANDEVILLE ISLAND, CALIF.

LOCATION.--At right bank on northwest side of Mandeville Island, San Joaquin County, about 0.5 mile upstream from confluence with San Joaquin River, and approximately 5.5 miles southwest of Terminous.

RECORDS AVAILABLE.--Chemical analyses: December 1954 to September 1958.

REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 18, 1957.....		--	--	--	--	25	--	91	--	--	30	--	--	0.09	--	--	--	77	2	1.2	269	7.7
Nov. 26.....		--	--	--	--	36	--	90	--	--	53	--	--	.13	--	--	--	100	26	1.7	387	7.7
Dec. 13.....		--	--	--	--	31	--	64	--	--	49	--	--	.19	--	--	--	94	25	1.4	363	7.7
Jan. 23, 1958.....		--	--	--	--	60	--	64	--	--	98	--	--	.50	--	--	--	198	129	1.9	706	7.6
Feb. 10.....		--	--	--	--	45	--	65	--	--	70	--	--	.16	--	--	--	136	66	1.7	515	7.3
Mar. 3.....		--	--	--	--	44	--	79	--	--	67	--	--	.24	--	--	--	150	65	1.6	541	7.2
Apr. 11.....		--	--	--	--	25	--	70	--	--	29	--	--	.18	--	--	--	80	23	1.2	291	7.3
May 8.....		17	0.03	14	--	5.8	20	2.1	63	19	25	0.1	1.1	.05	135	118	--	59	7	1.1	219	7.3
June 12.....		--	--	--	--	12	--	44	--	--	16	--	--	.00	--	--	--	42	6	1.6	144	7.7
July 7.....		--	--	--	--	14	--	42	--	--	19	--	--	.00	--	--	--	42	8	.9	180	7.7
Aug. 4.....		--	--	--	--	16	--	66	--	--	18	--	--	.20	--	--	--	62	6	.9	188	7.8
Sept. 4.....		11	.05	13	7.4	14	1.6	76	--	12	16	.1	.8	.00	113	115	--	63	1	.6	186	7.4

SAN JOAQUIN RIVER BASIN--Continued

11-3210. MOKEJUNE RIVER AT LANCHA PLANA, CALIF.

LOCATION.--On left bank, 500 feet below gaging station, 1 mile east of Lancha Plana, Amador County, 3 miles downstream from Pardee Dam, and 5 miles upstream from Camanche Creek.

DRAINAGE AREA.--364 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)		Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
Oct. 22, 1957	677	---	---	---	---	1.8	---	19	---	---	0.8	---	---	0.05	---	---	13	0	0.2	35	7.0
Nov. 27	677	---	---	---	---	2.2	---	16	---	---	2.0	---	---	0.00	---	---	13	0	0.3	36	6.8
Dec. 11	677	---	---	---	---	2.5	---	16	---	---	3.0	---	---	0.00	---	---	14	11	0.3	36	7.3
Jan. 24, 1958	682	---	---	---	---	2.2	---	14	---	---	3.2	---	---	0.01	---	---	14	3	0.3	45	6.6
Feb. 10	688	---	---	---	---	2.7	---	18	---	---	3.8	---	---	0.00	---	---	22	7	0.3	55	6.7
Mar. 4	1,930	---	---	---	---	2.6	---	22	---	---	4.0	---	---	0.02	---	---	22	4	0.2	52	7.1
Apr. 3	4,010	---	---	---	---	2.4	---	25	---	---	3.3	---	---	0.00	---	---	22	2	0.2	61	7.2
May 8	1,890	15	0.07	4.8	1.5	2.5	1.1	23	---	1.0	3.0	0.0	0.5	0.00	40	0.05	18	0	0.3	52	7.1
June 13	2,250	---	---	---	---	1.9	---	14	---	---	3.3	---	---	0.00	---	---	11	0	0.2	30	7.5
July 7	932	---	---	---	---	1.6	---	15	---	---	2.2	---	---	0.10	---	---	10	0	0.2	31	7.1
Aug. 4	706	---	---	---	---	1.5	---	13	---	---	2.9	---	---	0.00	---	---	9	0	0.2	29	7.2
Sept. 4	696	8.6	.00	3.1	.6	1.3	.5	12	---	1.0	1.4	.0	.2	.00	23	.03	10	0	0.2	27	7.1

SAN JOAQUIN RIVER BASIN--Continued
11-3255. MOKELUNNE RIVER AT WOODBRIDGE, CALIF.

LOCATION.--At dam of Woodbridge Irrigation District, 0.4 mile upstream from gaging station at Woodbridge, San Joaquin County. DRAINAGE AREA.--644 square miles.

RECORDS AVAILABLE.--Chemical analyses: March 1951 to September 1958.

Water temperatures: March 1951 to September 1958.

EXTREMES, 1957-58.--Dissolved solids: Maximum, 83 ppm Jan. 24-31; minimum, 22 ppm Aug. 16-31.

Hardness: Maximum, 29 ppm Jan. 24-31; minimum, 12 ppm Aug. 1-15, 16-31, Sept. 1-15.

Specific conductance: Maximum daily, 91 micromhos Jan. 25, 26, 31; minimum daily, 34 micromhos May 30.

Water temperatures: Maximum, 76°F Sept. 10; minimum, 48°F on several days in March.

EXTREMES, 1951-58.--Dissolved solids: Maximum, 83 ppm Jan. 24-31, 1958; minimum, 22 ppm July 11-20, 1957, Aug. 16-31, 1958.

Hardness: Maximum, 34 ppm Feb. 1, 3, 5, Mar. 3, 1953; minimum, 11 ppm May 16-25, 27-31, 1956.

Specific conductance: Maximum daily, 202 micromhos Dec. 15, 1952; minimum daily, 29.4 micromhos July 9, 1952.

Water temperatures: Maximum (1951-54, 1956-58), 83°F July 17, 1951; minimum (1951-55, 1956-58), 35°F Jan. 29, 30, 1954.

REMARKS.--Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonyl sulfide (CO ₂)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Sodium adsorption ratio (micro-mhos at 25°C)	Specific conductance (micro-mhos at 25°C)	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 1-10, 1957...	249			4.4	1.5	2.2	--	18						30	0.04	20	17	2	0.2	42	7.0
Oct. 11-20.....	324			4.8	1.5	2.2	--	19						33	.04	29	18	2	.2	42	6.8
Oct. 21-31.....	363			4.4	1.7	2.1	--	17						32	.04	31	14	0	.2	47	6.7
Nov. 1-10.....	346			4.8	1.5	2.1	--	16						41	.06	38	18	5	.2	48	6.7
Nov. 11-20.....	414			4.4	1.0	1.9	--	14						33	.04	37	15	2	.2	39	6.8
Nov. 21-30.....	441			4.4	1.2	2.3	--	16						31	.04	37	16	5	.2	46	6.7
Dec. 1-18.....	426			4.3	1.0	2.2	--	16						50	.07	58	14	1	.3	42	6.4
Dec. 19-28.....	419			4.2	1.0	2.3	--	13						51	.07	58	15	4	.3	48	6.4
Dec. 29-Jan. 13, 1958.....	538			4.2	.7	2.2	--	15						50	.07	73	13	1	.3	42	6.5
Jan. 14-23.....	590			4.8	1.5	2.6	--	13						58	.08	92	18	7	.3	58	6.4
Jan. 24-31.....	728			7.6	2.4	4.2	--	18						83	.11	163	29	14	.3	90	6.7
Feb. 1-5.....	357			6.8	2.3	4.2	--	19						63	.09	61	26	10	.3	82	7.2
Feb. 6-14.....	613			5.4	1.5	3.2	--	18						42	.06	70	19	4	.3	60	6.8
Feb. 15-Mar. 10..	1,723			5.4	1.1	2.9	--	20						40	.05	186	18	2	.3	57	6.8
Mar. 11-20.....	1,459			5.4	1.5	3.1	--	22						44	.06	173	20	2	.3	59	7.2
Mar. 21-31.....	2,285			6.4	1.1	2.8	--	23						50	.07	308	21	2	.3	62	6.7

SAN JOAQUIN RIVER BASIN--Continued
11-3255. MOKELENE RIVER AT WOODBRIDGE, CALIF.--Continued

Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonyl (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Borates (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (microhmhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium	Non-carbonate			
Apr. 1-16, 1958..	3,392			6.8	1.7	2.9	--	25							73	0.10	669	24	4	0.3	66	6.8
Apr. 17-30.....	1,777			6.4	1.7	3.4	--	25							70	.10	336	23	3	3	65	6.7
May 1-18.....	1,382	15		5.6	1.7	2.7	1.2	26		3.8	3.2	0.2	0.4	0.0	53	.07	198	21	0	3	61	7.2
May 19-24.....	2,030			5.2	1.2	2.3	--	22							51	.07	280	18	0	2	51	7.5
May 25-31.....	4,111			3.6	1.1	2.2	--	17							49	.07	544	14	0	3	41	6.8
June 1-30.....	2,743			3.2	1.2	2.3	.6	16							25	.03	185	13	0	3	38	6.5
July 1-31.....	508			3.6	1.3	2.1	.5	16							32	.04	44	14	1	2	41	6.5
Aug. 1-15.....	257			3.4	.9	2.2	--	15							30	.04	21	12	0	3	37	6.6
Aug. 16-31.....	271			3.2	1.0	2.0	--	14							22	.03	16	12	1	3	35	6.6
Sept. 1-15.....	363			3.2	1.0	1.9	--	15							36	.05	35	12	0	2	35	7.2
Sept. 16-30.....	437			4.0	.9	1.9	--	17							36	.05	42	14	0	2	39	6.6
Weighted average	1,111			4.9	1.3	2.6	--	20							46	0.06	138	18	2	0	52	--

Temperature (°F) of water, water year October 1957 to September 1958
/Once-daily measurement, generally between 6 a.m. and 12m/

Month		Day																												Average			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		29	30	31
October....	64	65	64	63	63	62	61	61	63	61	60	61	60	60	61	60	61	62	63	62	60	59	57	60	55	57	56	55	57	56	55	54	60
November...	54	55	55	55	55	56	56	55	55	56	55	55	55	55	51	51	52	51	52	53	54	53	53	53	52	50	50	50	50	50	50	50	53
December...	50	50	50	50	50	50	49	49	50	50	50	51	51	51	49	49	50	50	50	50	50	50	50	50	51	51	51	51	51	50	50	50	50
January....	50	51	51	51	51	51	51	50	50	50	50	50	50	50	51	51	51	50	50	50	50	50	50	51	51	52	52	53	53	55	55	51	
February....	55	55	54	54	54	55	55	56	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	
March.....	53	50	50	49	48	48	48	48	49	49	48	48	48	48	50	50	50	50	50	51	52	50	51	48	49	49	50	51	50	51	49	51	50
April.....	57	50	51	50	50	49	53	50	53	57	51	52	52	51	53	53	52	53	53	52	53	53	51	50	49	50	50	50	50	51	51	52	52
May.....	51	52	53	53	54	54	54	54	54	54	54	54	55	55	55	55	55	55	55	54	54	54	54	54	54	54	54	54	54	54	54	54	54
June.....	60	60	59	60	59	60	59	60	56	56	58	60	60	63	62	63	60	61	61	60	61	62	60	61	61	61	61	62	62	63	63	63	60
July.....	61	61	62	63	63	75	65	64	65	65	66	66	67	67	67	67	65	66	66	67	68	68	70	71	71	72	71	72	71	72	72	67	67
August.....	73	73	72	71	71	72	72	71	72	73	73	73	73	73	73	73	72	72	70	70	68	68	69	69	69	70	70	70	69	70	69	71	68
September..	69	68	68	69	68	70	70	69	69	76	67	67	68	69	70	71	71	69	67	67	65	65	65	65	64	63	64	65	66	66	66	68	68

SAN JOAQUIN RIVER BASIN--Continued
11-3350. COSUMNES RIVER AT MICHIGAN BAR, CALIF.

LOCATION.--At gaging station at Michigan Bar, Sacramento County, 5.5 miles southwest of Latrobe and 12 miles downstream from confluence of North and Middle Forks. DRAINAGE AREA.--537 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 22, 1957	30	--	--	--	--	3.8	--	50	--	--	1.5	--	--	0.00	--	--	--	37	0	0.3	87	7.6
Nov. 27	44	--	--	--	--	3.7	--	41	--	--	3.6	--	--	0.00	--	--	--	31	0	0.3	78	7.5
Dec. 11	44	--	--	--	--	4.0	--	40	--	--	4.2	--	--	0.02	--	--	--	34	1	0.3	87	7.5
Jan. 24, 1958	286	--	--	--	--	4.5	--	58	--	--	2.8	--	--	0.05	--	--	--	55	7	0.3	125	7.3
Feb. 10	1,500	--	--	--	--	3.7	--	48	--	--	2.8	--	--	0.01	--	--	--	40	1	0.3	94	7.4
Mar. 3	1,200	--	--	--	--	3.2	--	40	--	--	2.5	--	--	0.04	--	--	--	35	2	0.2	81	7.8
Apr. 3	22,700	--	--	--	--	2.0	--	26	--	--	1.5	--	--	0.00	--	--	--	24	3	0.2	55	7.5
May 8	1,800	1S	0.02	6.4	1.0	2.4	1.1	22	2.4	6.7	1.8	0.1	0.2	0.01	48	0.07	20	2	0.2	43	6.8	
June 13	762	--	--	--	--	2.2	--	26	--	--	1.0	--	--	0.00	--	--	19	0	0.2	51	7.6	
July 7	174	--	--	--	--	2.7	--	31	--	--	2.5	--	--	0.00	--	--	21	0	0.3	59	7.6	
Aug. 4	61	--	--	--	--	4.0	--	38	--	--	3.0	--	--	0.00	--	--	30	0	0.3	74	7.5	
Sept. 4	27	21	.02	8.8	3.4	3.6	1.2	48	--	4.8	2.5	.0	.0	.10	69	.09	37	0	.3	86	7.5	

SAN JOAQUIN RIVER BASIN--Continued

11-3350. COSUMNES RIVER AT MICHIGAN BAR, CALIF.--Continued

Periodic determinations of suspended-sediment discharge,
water year October 1957 to September 1958

Date	Time (24 hr)	Water tem- per- ature (°F)	Discharge (cfs)	Suspended sediment	
				Mean concen- tration (ppm)	Discharge (tons per day)
Nov. 15, 1957.....	1510	55	212	5	2.9
Jan. 2, 1958.....	1045	--	182	2	1.0
Jan. 30.....	1205	50	1,880	81	411
Feb. 5.....	1245	52	3,520	98	831
Apr. 2.....	1235	46	6,220	107	1,360
Apr. 15.....	1030	59	2,250	26	141
May 7.....	0905	60	1,900	28	144

Particle-size analyses of suspended sediment, water year October 1957 to September 1958
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Sam- pling point	Water tem- per- ature (°F)	Discharge (cfs)	Sediment con- cen- tration (ppm)	Suspended sediment									Method of analysis	
						Percent finer than size indicated, in millimeters										
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250		
Jan. 30, 1958.....	1205		50	1,880	81			67	86	86	95	97	98	100	SPWC	
Feb. 5.....	1245		52	3,520	98			41	63	63	79	86	93	98	100	SPWC
Apr. 2.....	1235		46	6,220	107		20	25	29	36	44	52	61	79	98	VPWC

SAN JOAQUIN RIVER BASIN--Continued
11-3366. DELTA CROSS-CHANNEL NEAR WALNUT GROVE, CALIF.

LOCATION.--On left bank, 0.2 mile downstream from control gates, 0.5 mile north of Walnut Grove, Sacramento County, and 7.5 miles south of Courtland.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio (25°C)	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 24, 1957....		--	--	--	--	9.2	--	76		--	5.0	--	--	0.00	--	--	--	60	0	0.5	159	7.5
Nov. 23.....		--	--	--	--	7.2	--	99		--	5.0	--	--	.00	--	--	--	52	0	0.5	165	7.8
Dec. 13.....		--	--	--	--	18.1	--	66		--	6.0	--	--	.03	--	--	--	62	0	0.5	134	7.3
Jan. 13, 1958....		--	--	--	--	8.1	--	66		--	4.2	--	--	.15	--	--	--	49	5	0.3	112	7.2
Feb. 13.....		--	--	--	--	5.3	--	54		--	4.0	--	--	.03	--	--	--	49	0	0.3	120	7.4
Mar. 7.....		--	--	--	--	5.5	--	62		--		--	--		--	--	--					
Apr. 2.....		--	--	--	--	4.0	--	42		--	4.0	--	--	.00	--	--	--	39	5	0.3	94	7.2
May 19.....	17	--	0.01	8.0	4.0	5.9	1.4	42		8.6	4.5	0.0	0.5	.00	71	0.10	36	2	0.4	96	7.0	
June 11.....	--	--	--	--	--	7.3	--	57		--	7.0	--	--	.00	--	--	48	1	0.5	123	7.8	
July 9.....	--	--	--	--	--	10	--	70		--	8.6	--	--	.00	--	--	53	0	0.6	154	7.5	
Aug. 6.....	--	--	--	--	--	11	--	74		--	10	--	--	.20	--	--	64	3	0.6	159	7.7	
Sept. 2.....	20	--	.02	14	8.0	11	1.0	81		11	12	.1	.2	.10	117	.16	68	2	0.6	184	7.6	

SAN JOAQUIN RIVER BASIN--Continued

11-3368. LITTLE POTATO SLOUGH NEAR TERMINOUS, CALIF.

LOCATION.--At tidal gaging station at bridge on State Highway 12, about 0.2 mile from confluence with South Fork Mokelumne River, and about 0.5 mile north of Terminous, San Joaquin County.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--Tidal gaging station maintained and operated by State of California Department of Water Resources. No discharge records available for this station due to tidal effects from Suisun Bay.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Calcium carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	pH	
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 22, 1957.....						12		72			22			0.02				74	15	0.6	201	7.7
Nov. 27.....						12		50			27			.00				57	16	.7	182	7.7
Dec. 11.....						15		62			28			.00				80	29	.7	230	7.6
Jan. 17, 1958.....						14	1.5	60			28			.09				68	19	.7	216	7.3
Feb. 13.....						20		74			40			.18				107	46	.8	317	7.3
Mar. 4.....						9.6		50			18			.06				64	23	.5	183	7.1
Apr. 3.....						6.2		24			11			.00				46	26	.4	128	7.0
May 20.....	17		0.03	10	4.4	8.9	1.6	45		5.8	15	0.0	0.6	.04				43	6	.6	129	7.1
June 12.....						5.2		30			8.0			.00				30	5	.4	87	7.7
July 9.....						7.8		44			12			.00				39	3	.5	120	7.3
Aug. 6.....						12		76			14			.30				62	0	.7	183	7.7
Sept. 2.....	17		.04	13	9.4	14	1.4	76		11	19	.3	1.0	.10		.17		71	9	.7	195	7.5

SAN JOAQUIN RIVER BASIN--Continued
11-3372. SAN JOAQUIN RIVER AT ANTIOCH, CALIF.

LOCATION--At tidal gaging station at Antioch, Contra Costa County, and 4.5 miles from mouth.

RECORDS AVAILABLE--Chemical analyses: October 1952 to September 1958.
REMARKS--Tidal gaging station maintained and operated by State of California Department of Water Resources. No discharge records available for this station due to tidal effects from Suisun Bay.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonylate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium Magnesium	Non-carbonate			
Oct. 24, 1957....						22		82			28						70	3	1.1	248	7.5
Nov. 25.....						20		77			26						67	4	1.1	241	7.5
Dec. 13.....						48		79			83						88	23	2.2	432	7.7
Jan. 17, 1958....						22	1.9	76			30		.20				81	19	1.1	282	7.2
Feb. 13.....						24		67			36		.12				88	33	1.1	299	7.0
Mar. 5.....						26		66			38		.17				98	44	1.1	332	7.2
Apr. 2.....						22		67			30		.08				79	24	1.1	275	7.5
May 19.....						14	1.9	54		9.6	18	0.1	1.1			104	46	2	.9	172	7.0
June 31.....	17		0.23	10	5.1	10		44			14		.00				34	0	.9	156	7.4
July 1.....						53		68			18		.00				78	5	2.6	427	7.7
Aug. 6.....						66		80			44		.10				90	22	3.0	512	7.5
Sept. 3.....	14		.07	15	13	66	4.3	80		27	106	1	.9		.39	285	90	24	3.0	512	7.5

SACRAMENTO RIVER BASIN

11-3420. SACRAMENTO RIVER AT DELTA, CALIF.

LOCATION.--At gaging station, 0.2 mile downstream from Dog Creek, 0.6 mile southeast of Delta, Shasta County, and 2.8 miles south of Lamoiné.
 DRAINAGE AREA.--427 square miles.
 RECORDS AVAILABLE.--Chemical analyses: December 1953 to September 1958. 1957 (discontinued).
 Water temperatures: June to September 1951, October 1953 to September 1958 given in WSP 1565.
 REMARKS.--Records of discharge for water year 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)
													Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate		
Oct. 9, 1957.....	1,340	--	--	--	--	5.8	--	66	--	5.2	--	--	0.12	--	--	50	0	0.4	121
Nov. 14.....	2,810	--	--	--	--	3.1	--	46	--	2.5	--	--	.15	--	--	41	3	.2	86
Dec. 11.....	450	--	--	--	--	7.2	0.9	68	--	4.0	--	--	.16	--	--	50	0	.4	131
Jan. 16, 1958....	1,580	--	--	--	--	3.6	--	50	--	3.0	--	--	.09	--	--	40	0	.3	93
Feb. 12.....	10,600	--	--	--	--	1.6	--	32	--	1.5	--	--	.02	--	--	30	4	.1	56
Mar. 5.....	2,500	--	--	--	--	2.8	--	40	--	3.1	--	--	.00	--	--	32	0	.2	75
Apr. 14.....	4,510	--	--	--	--	2.7	--	40	--	1.5	--	--	.12	--	--	32	0	.2	72
May 12.....	3,850	15	0.03	3.4	5.4	1.4	.5	35	1.0	2.5	0.0	0.3	.02	47	0.06	31	2	.1	65
June 16.....	1,740	--	--	--	--	2.3	--	38	--	1.0	--	--	.00	--	--	31	0	.2	70
July 7.....	686	--	--	--	--	7.3	--	59	--	3.2	--	--	.10	--	--	42	0	.4	104
Aug. 4.....	1,124	--	--	--	--	9.4	--	68	--	8.6	.0	--	.10	--	--	48	0	.6	132
Sept. 5.....	286	32	.04	8.8	6.3	9.4	2.2	68	2.9	8.6	.0	.4	.10	104	.14	48	0	.6	132

SACRAMENTO RIVER BASIN--Continued

11-3680. McCLOUD RIVER ABOVE SHASTA LAKE, CALIF.

LOCATION --Temperature recorder at gaging station just upstream from Shasta Lake, Shasta County, 0.2 mile downstream from Big Bollibokka Creek, and 11.3 miles east of Lamona.

DRAINAGE AREA --606 square miles.

RECORDS AVAILABLE --Water temperatures: June to September 1951, October 1953 to September 1958.

EXTREMES, 1957-58 --Water temperatures: Maximum, 54°F July 5-15, 19-31; minimum, 41°F Jan. 23-25, Apr. 1, 4.

EXTREMES, 1951, 1953-58 --Water temperatures: Maximum, 58°F June 27-30, July 7-12, 24-26, 1956; minimum, 38°F Jan. 18, 1955, Feb. 19, 20, 1956.

REMARKS --Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge, (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 8, 1957.....	1,170	---	---	---	---	4.6	---	59	---	3.2	---	---	0.06	---	---	66	0.09	38	0	0.3	100	7.8
May 14, 1958.....	2,970	26	0.01	8.8	2.3	3.5	1.0	46	0.0	0.8	0.0	0.1	0.00	---	---	66	0.09	31	0	0.3	80	7.6
June 11.....	2,270	---	---	---	---	5.2	---	46	---	0.2	---	---	0.00	---	---	---	---	31	0	0.4	84	8.1
July 9.....	1,750	---	---	---	---	4.3	---	50	---	2.1	---	---	0.10	---	---	---	---	32	0	0.3	88	7.9
Aug. 6.....	1,550	---	---	---	---	4.8	---	51	---	2.8	---	---	0.00	---	---	---	---	36	0	0.4	89	7.8
Sept. 9.....	1,440	36	.07	8.0	3.6	4.4	2.5	50	1.9	1.5	.2	.8	0.00	---	---	84	.11	35	0	.3	90	7.6

SACRAMENTO RIVER BASIN--Continued
 11-3680. McCLOUD RIVER ABOVE SHASTA LAKE, CALIF.--Continued
 Temperature (°F) of water, water year October 1957 to September 1958
 [Continuous recording thermograph]

Month	Day																															Average		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
October																																		
Maximum.....	50	50	49	48	48	48	47	48	48	49	49	49	49	50	50	48	47	47	46	47	47	48	48	49	49	49	49	46	48	47	47	47	48	
Minimum.....	50	49	48	47	47	47	47	47	48	48	49	49	49	49	48	47	46	46	46	46	47	47	47	48	48	49	48	48	47	46	46	47	47	48
November																																		
Maximum.....	47	46	45	45	44	44	46	47	47	47	47	47	48	48	47	46	45	45	46	47	47	45	44	44	45	45	45	44	44	43	--	--	46	
Minimum.....	46	45	45	44	44	44	44	46	46	46	47	47	47	47	47	46	45	45	45	46	45	46	44	44	44	45	44	44	44	43	43	--	45	
December																																		
Maximum.....	43	43	43	44	45	45	46	46	44	44	44	44	44	44	44	45	45	45	45	45	45	45	44	43	43	43	44	44	43	42	42	44	44	
Minimum.....	43	43	43	43	44	45	45	44	44	44	44	42	42	43	44	44	44	45	45	45	45	45	44	43	43	43	44	44	43	42	42	42	44	
January																																		
Maximum.....	42	43	43	42	42	42	42	42	43	43	43	43	43	44	44	44	43	43	42	43	43	42	42	42	41	42	43	43	44	44	44	44	43	
Minimum.....	42	42	42	42	42	42	42	42	42	42	42	42	43	43	44	43	43	42	42	42	42	42	41	41	41	41	42	43	43	44	43	43	42	
February																																		
Maximum.....	44	43	43	44	44	44	44	44	44	44	44	44	44	44	45	45	45	45	45	45	45	45	45	45	45	44	43	43	43	--	--	44		
Minimum.....	43	42	43	44	44	44	44	44	44	44	44	44	44	44	43	42	43	45	45	45	45	45	45	45	45	44	43	43	43	--	--	44		
March																																		
Maximum.....	43	43	43	44	44	44	43	43	43	43	43	43	43	43	43	44	44	44	44	44	44	44	44	44	44	44	44	45	45	44	44	44	44	
Minimum.....	42	42	43	42	43	42	42	42	42	42	42	42	42	42	42	42	43	43	44	44	44	44	43	44	43	43	44	44	45	45	43	43	43	
April																																		
Maximum.....	43	43	43	43	43	43	44	44	45	46	46	46	46	46	46	46	46	46	46	47	47	47	47	45	45	46	46	47	47	47	--	--	45	
Minimum.....	41	42	42	41	42	42	42	43	43	44	44	44	44	44	44	44	45	45	45	45	45	45	45	43	43	44	44	44	45	45	45	45	44	
May																																		
Maximum.....	48	49	49	48	48	48	48	49	49	49	48	47	47	48	48	48	50	50	50	48	50	50	48	50	48	50	48	50	48	50	49	49	49	
Minimum.....	46	46	46	46	46	46	46	46	47	47	47	47	47	47	47	48	48	48	48	48	48	48	48	48	47	48	48	48	48	48	48	49	47	
June																																		
Maximum.....	49	48	48	48	48	48	49	49	50	50	50	50	50	50	52	52	53	53	53	52	53	53	53	52	52	52	53	53	52	52	--	51		
Minimum.....	47	48	48	48	48	48	48	48	48	48	48	48	48	48	48	50	51	51	51	51	50	51	51	51	50	50	50	50	50	50	49	--	49	
July																																		
Maximum.....	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54	53	52	53	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	
Minimum.....	51	50	51	51	51	51	52	52	52	52	52	52	52	52	52	51	51	51	51	52	51	52	53	52	52	52	52	52	52	52	52	51	52	
August																																		
Maximum.....	53	53	53	53	53	53	53	53	53	53	53	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	
Minimum.....	51	51	52	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	50	50	51	51	
September																																		
Maximum.....	52	52	51	51	51	51	51	51	52	52	51	51	50	50	50	50	51	51	50	50	50	50	50	50	50	50	50	51	51	51	51	--	51	
Minimum.....	51	51	50	50	50	50	51	51	51	51	51	51	50	50	50	50	50	50	50	50	50	50	50	50	50	48	50	51	51	51	51	50	--	

SACRAMENTO RIVER BASIN--Continued
11-3705. SACRAMENTO RIVER AT KESWICK, CALIF.

LOCATION.--At gaging station, 0.6 mile downstream from Keswick Dam, 0.6 mile upstream from Middle Creek, 1.5 miles downstream from Keswick, Shasta County, and 10 miles downstream from Shasta Dam.

DRAINAGE AREA.--6,710 square miles, approximately, excluding Goose Lake basin.

RECORDS AVAILABLE.--Chemical analyses: December 1953 to September 1958.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958.

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonylate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium, sodium	Non-carbonate			
Oct. 7, 1957.....	7,690	---	---	---	---	5.2	---	60	---	---	2.0	---	---	0.03	---	---	---	41	0	0.4	110	7.4
Nov. 13.....	9,780	---	---	---	---	6.7	---	62	---	---	3.8	---	---	.04	---	---	---	46	0	.4	119	7.0
Dec. 10.....	8,220	---	---	---	---	8.5	1.7	69	---	---	3.0	---	---	.13	---	---	---	52	0	.5	134	7.4
Jan. 16, 1958.....	10,300	---	---	---	---	7.3	---	66	---	---	3.0	---	---	.12	---	---	---	46	0	.5	124	7.7
Feb. 11.....	12,000	---	---	---	---	6.5	---	58	---	---	3.5	---	---	.04	---	---	---	42	0	.4	118	7.4
Mar. 4.....	22,500	---	---	---	---	5.5	---	52	---	---	2.2	---	---	.00	---	---	---	36	0	.4	102	7.4
Apr. 15.....	39,390	---	---	---	---	5.2	---	50	---	---	2.8	---	---	.02	---	---	---	39	0	.4	101	7.8
May 13.....	15,000	20	0.11	9.4	3.4	4.8	1.1	48	---	3.8	3.0	0.0	0.6	.01	70	0.10	---	37	0	.3	96	7.3
June 10.....	9,380	---	---	---	---	4.9	---	47	---	---	1.0	---	---	.00	---	---	---	38	0	.3	94	7.9
July 10.....	10,300	---	---	---	---	---	---	47	---	---	2.1	---	---	.00	---	---	---	38	0	.3	93	7.8
Aug. 7.....	11,900	---	---	---	---	4.3	---	48	---	---	2.5	---	---	.00	---	---	---	38	0	.3	93	7.6
Sept. 4.....	11,300	22	.07	12	1.9	4.3	1.6	52	---	2.9	2.2	.2	.8	.00	74	.10	---	38	0	.3	86	7.4

a Daily mean discharge. (cfs).

SACRAMENTO RIVER BASIN--Continued
11-3707. SACRAMENTO RIVER NEAR REDDING, CALIF.

LOCATION.--Near gaging station, 2.5 miles south of Redding, Shasta County, and 3.3 miles upstream from Clear Creek.

RECORDS AVAILABLE.--Chemical analyses: December 1953 to November 1958 (discontinued).

REMARKS.--Gaging station maintained and operated by State of California Department of Water Resources. Records of discharge for water year October 1957 to September 1958 given in State of California Bulletin No. 23.

Chemical analyses, in parts per million, October 1957 to November 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carb. sulfate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	
															Parts per million	Tons per acre-foot	Tons per day					
Oct. 7, 1957.....	7,490	---	---	---	---	5.2	---	59	---	---	2.7	---	---	0.00	---	---	---	42	0	0.4	109	7.5
Nov. 13.....	8,950	---	---	---	---	7.1	---	64	---	---	3.8	---	---	.24	---	---	---	45	0	.5	121	7.6
Dec. 10.....	8,000	---	---	---	---	8.1	1.7	70	---	---	2.0	---	---	.15	---	---	---	50	0	.5	134	6.8
Jan. 16, 1958....	10,300	---	---	---	---	7.3	---	66	---	---	3.0	---	---	.09	---	---	---	46	0	.5	124	7.7
Feb. 11.....	42,000	---	---	---	---	6.4	---	58	---	---	3.0	---	---	.02	---	---	---	44	0	.4	116	7.3
Mar. 4.....	23,000	---	---	---	---	5.0	---	52	---	---	2.2	---	---	.07	---	---	---	40	0	.3	102	7.3
Apr. 15.....	10,200	---	---	---	---	4.8	---	47	---	---	2.5	---	---	.14	---	---	---	39	0	.3	98	7.5
May 13.....	13,300	20	0.14	9.6	3.4	5.1	1.1	49	---	3.8	3.5	0.0	0.4	.06	71	0.10	---	38	0	.4	96	7.4
June 10.....	8,320	---	---	---	---	4.9	---	46	---	---	1.0	---	---	.00	---	---	---	44	6	.3	95	7.8
July 10.....	8,800	---	---	---	---	4.3	---	48	---	---	3.0	---	---	.10	---	---	---	37	0	.3	92	7.8
Aug. 7.....	10,300	---	---	---	---	4.2	---	48	---	---	2.8	---	---	.00	---	---	---	38	0	.3	92	7.7
Sept. 4.....	10,100	21	.10	9.6	3.4	3.2	1.9	48	---	3.8	2.5	.2	1	.00	70	.10	---	38	0	.2	90	7.1
Oct. 6.....	7,490	---	---	---	---	4.0	---	48	---	---	3.0	---	---	.00	---	---	---	37	0	.3	93	7.6
Nov. 5.....	6,730	---	---	---	---	4.3	---	50	---	---	3.0	---	---	.10	---	---	---	37	0	.3	95	7.7

SACRAMENTO RIVER BASIN--Continued
11-3760. COTTONWOOD CREEK NEAR COTTONWOOD, CALIF.

LOCATION.--At gaging station, 2 miles east of Cottonwood, Shasta County, and 2.4 miles upstream from mouth.
DRAINAGE AREA.--945 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate		
Oct. 23, 1957.....	315	--	--	--	--	9.2	--	120	--	--	13	--	--	0.01	--	--	--	105	7	0.4	248
Nov. 13.....	305	--	--	--	--	10	--	130	--	--	15	--	--	.00	--	--	--	112	5	.4	261
Dec. 19.....	1,570	--	--	--	--	9.0	--	108	--	--	7.0	--	--	.20	--	--	--	98	9	.4	221
Jan. 16, 1958.....	2,180	--	--	--	--	8.5	1.2	117	--	--	4.0	--	--	.14	--	--	--	98	2	.4	224
Feb. 19.....	36,300	--	--	--	--	2.9	--	50	--	--	.8	--	--	.00	--	--	--	42	0	.2	89
Mar. 12.....	1,930	--	--	--	--	8.1	--	130	--	--	5.3	--	--	.00	--	--	--	114	7	.3	252
Apr. 16.....	3,030	--	--	--	--	6.8	--	119	--	--	2.5	--	--	.05	--	--	--	97	0	.3	221
May 13.....	31,300	19	0.03	20	9.2	7.2	1.2	104	--	12	4.8	0.0	0.4	.04	125	0.17	--	88	3	.3	200
June 17.....	4,450	--	--	--	--	7.7	--	120	--	--	6.0	--	--	.00	--	--	--	101	3	.3	227
July 15.....	1,190	--	--	--	--	8.9	--	126	--	--	9.2	--	--	.10	--	--	--	93	0	.4	223
Aug. 12.....	110	--	--	--	--	7.8	--	123	--	--	9.0	--	--	.00	--	--	--	89	0	.4	223
Sept. 9.....	110	28	.03	22	6.6	7.8	2.4	103	--	4.8	6.0	.0	1.0	.00	130	.18	--	82	0	.4	184

a Daily mean discharge (cfs).

SACRAMENTO RIVER BASIN--Continued

11-3760. COTTONWOOD CREEK NEAR COTTONWOOD, CALIF.--Continued

Periodic determinations of suspended sediment discharge, water year
October 1957 to September 1958

Date	Time (24 hr)	Water tem- per- ature (°F)	Discharge (cfs)	Suspended sediment	
				Mean concentration (ppm)	Discharge (tons per day)
Oct. 3, 1957.....	1320	65	225	112	68
Oct. 17.....	0800	52	634	38	65
Nov. 15.....	0920	44	1,920	387	2,010
Dec. 19.....	1410	44	1,410	251	956
Jan. 17, 1958.....	1520	51	1,870	154	778
Feb. 19.....	0910	52	38,300	3,640	376,000
Apr. 10.....	1135	58	3,720	3,518	5,200
May 15.....	1005	62	a 1,100	18	53
June 7.....	0900	59	a 540	35	51
Aug. 14.....	0845	60	125	6	2.0
Sept. 4.....	0910	70	75	6	1.2

a Daily mean discharge.

Particle-size analyses of suspended sediment, water year October 1957 to September 1958
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Sam- pling point	Water tem- per- ature (°F)	Discharge (cfs)	Sediment con- centration (ppm)	Suspended sediment										Method of analysis	
						Percent finer than size indicated, in millimeters											
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		2.000
Nov. 15, 1957.....	0920		44	1,920	387		30	26	42		54	59	69	84	99	100	VPWC
Dec. 1.....	1410		44	1,410	251		26	34	34		45	52	66	86	98	100	VPWC
Jan. 17, 1958.....	1520		51	1,870	154		25	36	34		47	54	70	88	100	100	VPWC
Feb. 19.....	0910		52	38,300	3,640	18	26	36	48	58	68	78	90	98	99	100	VPWC

SACRAMENTO RIVER BASIN--Continued

11-3772. SACRAMENTO RIVER AT BEND, CALIF.

LOCATION.--At highway bridge at Bend, Tehama County, about 7.9 miles upstream from gaging station near Red Bluff, 0.3 mile upstream from Spring Creek, and about 9 miles north of Red Bluff.

DRAINAGE AREA.--9,300 square miles, approximately, excluding Goose Lake basin upstream from gaging station.

RECORDS AVAILABLE.--Chemical analyses: May 1955 to September 1958.

Water temperatures: May 1955 to September 1958.

EXTREMES, 1957-58.--Dissolved solids: Maximum, 122 ppm June 13; minimum, 76 ppm Aug. 16-31.

Hardness: Maximum, 59 ppm Nov. 11; minimum, 35 ppm Feb. 12.

Specific conductance: Maximum, 600 micromhos Sept. 27; minimum daily, 89 micromhos Feb. 19.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 157 micromhos Sept. 27; minimum daily, 89 micromhos Feb. 19.

Specific conductance: Maximum, 600 micromhos Sept. 27; minimum daily, 89 micromhos Feb. 19.

Hardness: Maximum, 59 ppm Nov. 11; minimum, 35 ppm Feb. 12.

Specific conductance: Maximum, 600 micromhos Sept. 27; minimum daily, 89 micromhos Feb. 19.

Water temperatures: Maximum, 82°F June 27, 1957; minimum, 41°F Jan. 27, 1957.

REMARKS.--Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for gaging station near Red Bluff for water year October 1957 to September 1958 given in WSP 1565. No appreciable inflow between sampling point and gaging station.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	pH	
															Parts per million	Tons per acre-foot	Tons per day	Calcium-Magnesium	Non-carbonate			
Oct. 1-12, 1957..	9,588	24	0.04	11	4.6	6.5	1.4	62	5.8	3.8	0.1	1.1	0.0	0	97	0.13	2,510	46	0	0.4	123	7.3
Oct. 13-31.....	21,300	--	--	11	4.3	5.5	--	56	--	--	--	--	--	--	101	14	5,810	45	0	4	121	7.2
Oct. 14-31.....	10,490	24	0.03	11	5.5	6.4	1.3	64	8.1	3.4	1.1	1.1	--	--	97	13	2,750	50	0	4	127	7.3
Nov. 1-10.....	8,788	27	0.04	13	5.2	7.1	1.6	68	9.6	4.0	0	0.4	--	--	116	16	2,750	54	0	4	131	7.4
Nov. 11-30.....	9,090	21	--	12	7.1	7.2	--	68	--	--	--	--	--	--	117	16	2,870	59	3	4	146	7.1
Nov. 12-14.....	16,890	21	0.04	12	4.1	6.1	1.5	50	11	4.5	2.2	0	--	--	93	13	4,240	47	6	4	121	6.8
Nov. 15-30.....	11,730	28	0.05	12	6.3	7.1	1.5	68	11	4.0	0	0.4	--	--	106	14	3,360	56	0	4	137	6.8
Dec. 1-15.....	8,697	28	0.02	12	5.4	6.1	1.9	76	4.8	4.0	0	0.6	1	1	108	15	2,540	52	0	5	143	7.6
Dec. 16-22.....	16,070	24	0.04	11	4.4	6.7	1.7	60	6.7	3.8	0	1.0	1	1	95	13	4,120	46	0	4	124	7.0
Dec. 23-31, 1958..	15,060	27	0.02	11	5.5	7.7	1.7	70	5.8	3.6	0	0.8	1	1	100	14	4,070	50	0	5	135	7.3
Jan. 1-9, 1958.....	14,320	28	0.04	12	5.0	7.0	1.7	72	5.8	3.7	0	0.7	1	1	102	14	3,940	50	0	4	139	7.4
Jan. 10-25.....	18,020	27	0.05	11	5.4	7.0	1.6	68	6.7	3.2	0	0.7	1	1	104	14	5,060	50	0	4	131	7.1
Jan. 26-31.....	48,900	--	--	9.2	3.6	5.1	--	48	--	--	--	--	--	--	93	13	12,280	38	0	4	100	7.0
Jan. 27-31.....	40,060	23	0.03	11	4.1	5.7	1.4	60	6.7	2.9	0	0.7	2	2	91	12	9,840	44	0	4	118	7.1
Feb. 1-11.....	64,830	23	0.10	9.6	5.4	6.0	1.3	57	3.8	5.5	1	0.4	0	0	92	13	16,100	46	0	4	122	7.3
Feb. 12-18.....	95,830	--	--	9.2	2.9	3.9	--	40	--	--	--	--	--	--	84	13	18,760	35	2	3	97	7.0
Feb. 19-22.....	76,950	22	0.08	11	3.6	5.4	1.3	55	6.7	3.5	0	0.6	1	1	94	13	19,530	43	0	4	114	7.3
Feb. 23-28.....	125,000	--	--	8.8	3.4	3.6	--	39	--	--	--	--	--	--	81	11	27,340	36	4	3	89	7.0
Feb. 29-Mar. 4....	68,760	21	0.09	10	4.3	5.2	1.3	55	7.3	3.0	0	0.3	0	0	82	11	15,220	43	0	4	111	7.4

SACRAMENTO RIVER BASIN--Continued

11-3772. SACRAMENTO RIVER AT BEND, CALIF.--Continued

Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Mar. 5-19, 1958...	15,150	23	0.13	12	5.1	5.8	1.3	65	5.8	3.7	0.0	0.5	0.0	97	0.13	3,970	51	0	0.4	130	7.5
Mar. 20-31.....	28,920	20	0.15	10	3.9	4.6	1.1	51	4.8	2.7	0.0	0.4	0.0	84	0.11	6,560	41	0	0.3	106	7.2
Apr. 1-9.....	65,920	23	0.10	9.2	5.8	5.0	1.3	50	12	3.5	0.1	0.4	0.0	96	0.13	17,090	47	6	0.3	104	7.0
Apr. 10-20.....	20,880	23	0.07	11	6.0	5.5	1.3	59	12	3.5	0.0	0.4	0.1	100	0.14	5,640	52	4	0.3	124	6.9
Apr. 21-30.....	14,950	24	0.06	12	4.9	5.6	1.3	59	12	3.0	0.0	0.4	0.1	99	0.13	4,000	50	2	0.3	130	7.0
May 1-10.....	12,920	23	0.05	10	6.6	6.1	1.4	59	12	4.0	0.0	0.3	0.1	91	0.12	3,170	52	4	0.4	118	7.1
May 11-20.....	17,360	22	0.04	8.8	6.3	5.0	1.4	53	12	3.5	0.1	0.5	0.1	86	0.12	4,030	48	5	0.3	107	6.8
May 21-31.....	15,280	22	0.04	9.2	6.1	4.7	1.3	54	12	3.0	0.1	0.2	0.1	84	0.11	3,470	48	4	0.3	106	7.0
June 1-12.....	13,100	26	0.00	10	4.6	5.6	1.3	56	7.7	3.0	0.1	0.4	0.1	95	0.13	3,360	44	0	0.4	112	7.1
June 13.....	13,000	26	0.00	12	5.4	6.5	1.4	59	7.7	3.0	0.1	0.4	0.1	122	0.17	4,280	52	4	0.4	140	6.9
June 14-30.....	10,350	26	0.00	10	4.1	5.5	1.1	57	5.8	2.2	0.1	0.4	0.1	87	0.12	2,430	42	0	0.4	112	6.9
July 1-14.....	10,430	28	0.00	10	4.6	5.7	1.1	59	6.7	2.8	0.1	0.3	0.1	91	0.12	2,560	44	0	0.4	111	7.0
July 15-31.....	10,910	27	0.00	10	4.4	4.9	1.1	55	6.7	3.0	0.1	0.7	0.1	87	0.12	2,560	43	0	0.3	106	7.0
Aug. 1-15.....	17,800	23	0.02	10	3.9	5.3	0.7	55	2.9	3.8	0.0	0.5	0.0	78	0.11	1,640	41	0	0.4	104	7.6
Aug. 16-31.....	11,800	23	0.00	9.6	4.4	4.7	0.9	57	2.9	3.6	0.0	0.3	0.0	76	0.10	2,420	42	0	0.3	104	7.3
Sept. 1-14.....	11,280	23	0.00	9.6	4.1	4.6	0.8	58	2.3	4.9	0.0	0.3	0.0	82	0.11	2,500	41	0	0.3	103	7.3
Sept. 15-30.....	9,399	28	0.01	9.6	4.7	5.1	0.6	58	1.9	4.8	0.0	0.6	0.0	82	0.11	2,060	43	0	0.3	111	7.4
Weighted average	20,330	23	0.06	10	4.8	5.6	1.3	57	7.1	3.5	0.0	0.5	0.0	91	0.12	5,000	44	0	0.4	115	--
Jan 23, 1958....	13,000	27	0.12	13	5.6	7.1	1.4	72	8.1	3.5	0.0	0.0	0.0	105	0.14	--	56	0	0.4	135	7.6

Analysis of additional sample

SACRAMENTO RIVER BASIN--Continued

11-3772. SACRAMENTO RIVER AT BEND, CALIF.--Continued

Temperature (°F) of water, water year October 1957 to September 1958
 /Once-daily measurement, generally between 5 p.m. and 6 p.m./

Month	Day																															Aver- age		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
October.....	57	57	56	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	54	53	55	
November.....	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	51	51	52	52
December.....	51	51	50	50	50	50	52	50	51	50	49	48	50	51	52	50	51	50	49	50	48	45	42	42	42	42	42	48	48	48	48	48	50	50
January.....	47	44	47	47	45	46	45	46	45	46	46	45	46	46	46	47	48	47	46	46	45	46	45	45	45	45	46	46	47	50	47	48	46	
February.....	48	48	49	49	49	49	49	50	49	50	49	51	49	49	49	50	52	50	50	51	52	49	50	50	51	50	49	49	49	49	49	49	50	50
March.....	50	50	50	50	50	49	47	50	49	49	49	48	49	47	49	49	51	51	51	50	49	50	50	50	51	51	51	51	50	48	50	49	50	
April.....	49	48	49	49	49	50	51	51	54	49	49	55	51	55	55	57	54	55	55	57	57	54	54	54	54	55	55	55	55	56	58	53	53	
May.....	54	57	57	59	58	58	58	58	58	55	52	53	55	58	58	58	58	58	58	58	58	58	56	57	58	58	58	58	57	58	57	58	57	
June.....	58	57	56	57	56	56	56	60	58	58	58	57	--	--	60	--	60	--	57	60	57	58	60	60	60	60	60	59	59	59	--	58	58	
July.....	58	58	60	60	60	60	60	60	58	58	58	59	58	57	57	57	57	56	58	57	58	57	58	58	60	60	59	58	58	58	59	58	58	
August.....	58	57	57	58	59	58	58	58	58	58	58	57	58	58	56	56	57	57	57	58	58	58	58	58	57	57	58	58	57	58	58	59	58	
September.....	58	58	58	58	58	58	58	58	58	58	56	56	57	57	58	58	58	58	58	58	58	58	59	56	55	58	57	58	--	60	--	58	58	

SACRAMENTO RIVER BASIN--Continued
11-3785. SACRAMENTO RIVER AT RED BLUFF, CALIF.

LOCATION.--At bridge on U. S. Highway 99E, at Red Bluff, Tehama County, about 5 miles downstream from gaging station near Red Bluff.
DRAINAGE AREA.--9,300 square miles, approximately, excluding Goose Lake basin upstream from gaging station.
RECORDS AVAILABLE.--Water temperatures: October 1957 to September 1958.
Sediment records: October 1957 to September 1958.
EXTREMES, 1957-58.--Water temperatures: Maximum, 61°F May 15, July 5; minimum, 44°F Jan. 6.
Sediment concentrations: Maximum daily, 998 ppm Jan. 26; minimum daily, 6 ppm on several days.
Sediment loads: Maximum daily, 270,000 tons Feb. 19; minimum daily, 133 tons Dec. 13.
REMARKS.--Records of discharge for gaging station near Red Bluff for water year October 1957 to September 1958 given in WSP 1565. No appreciable inflow between sampling point and gaging station except for heavy local runoff.

Temperature (°F) of water, water year October 1957 to September 1958
/Once-daily measurement, generally between 11 a.m. and 8 p.m./

Month	Day																															Aver- age	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October.....	--	--	56	56	56	56	56	56	55	56	57	56	56	58	57	56	56	56	56	55	55	55	55	56	56	57	56	56	56	56	56	56	
November.....	55	53	53	53	53	54	54	55	53	53	54	54	54	54	53	52	51	50	53	55	53	53	52	52	53	53	52	52	52	51	--	53	
December.....	53	52	52	50	51	50	52	50	51	50	49	49	49	48	50	51	50	49	49	50	48	45	47	--	--	50	48	48	49	48	48	50	
January.....	47	49	--	--	49	44	46	48	46	47	48	48	47	47	--	48	49	49	48	47	--	47	45	--	47	--	--	49	--	--	--	--	
February.....	--	48	48	49	--	--	50	--	49	50	49	52	49	48	50	54	50	50	--	54	52	50	52	--	50	49	--	48	--	--	--	--	
March.....	49	--	50	--	50	49	48	--	49	--	50	49	49	48	49	50	52	54	52	50	50	50	50	51	52	51	49	49	50	49	50	49	
April.....	48	47	49	48	49	50	50	50	52	53	54	55	55	55	56	57	54	54	55	57	56	53	53	53	54	54	55	55	55	56	--	53	
May.....	57	56	57	57	58	58	57	57	58	55	52	53	55	55	56	58	58	58	58	58	58	55	56	55	57	58	57	57	56	58	57	57	
June.....	56	--	55	--	56	--	56	--	57	--	58	58	--	--	60	--	60	--	60	60	--	60	--	60	--	60	--	60	--	60	--	--	
July.....	60	--	60	--	61	--	60	--	60	--	60	--	60	--	58	--	56	--	58	--	60	--	60	--	60	--	60	--	60	--	60	--	--
August.....	59	--	58	--	59	--	59	--	59	--	59	--	60	--	58	--	55	--	58	--	58	--	59	--	58	--	58	--	58	--	57	--	--
September..	59	--	58	59	58	--	58	--	58	--	58	--	58	--	58	--	59	--	59	--	59	--	56	--	55	--	59	--	59	--	60	--	--

SACRAMENTO RIVER BASIN--Continued

11-3785. SACRAMENTO RIVER AT RED BLUFF, CALIF.--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December		
	Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment	
		Mean concen-tration (ppm)	Tons per day		Mean concen-tration (ppm)	Tons per day		Mean concen-tration (ppm)	Tons per day
1...	8,900	13	a380	9,520	9	231	9,180	9	223
2...	8,840	16	a380	9,370	9	228	9,150	8	198
3...	8,650	16	374	9,400	9	228	9,120	8	197
4...	8,650	16	374	8,540	7	161	9,120	8	197
5...	9,090	16	393	8,560	8	185	9,150	8	198
6...	9,350	18	454	9,430	8	204	9,150	8	198
7...	9,430	19	484	9,400	9	228	9,090	9	221
8...	8,930	14	338	8,930	7	169	7,830	8	169
9...	9,210	18	448	7,350	7	139	7,430	11	221
10...	12,500	115	3,880	7,380	10	199	9,090	10	245
11...	11,500	73	2,270	9,090	13	319	9,090	8	196
12...	10,000	32	864	9,460	12	307	8,560	8	185
13...	21,300	703	s51,600	11,800	179	s9,260	8,240	6	133
14...	16,000	110	4,750	29,400	942	s88,200	8,210	8	177
15...	12,200	61	2,010	16,000	100	4,320	8,050	15	326
16...	11,100	25	749	12,900	40	1,390	12,800	312	s13,000
17...	10,600	19	544	11,300	22	671	15,200	269	s11,800
18...	10,200	15	413	11,300	18	549	18,100	356	s18,300
19...	9,980	14	377	12,000	18	583	13,300	80	2,870
20...	9,780	12	317	11,900	18	578	13,500	40	1,460
21...	9,720	11	289	12,500	20	675	18,400	284	s22,500
22...	9,690	10	262	12,400	16	536	21,200	382	s26,600
23...	9,750	17	448	12,300	14	465	14,200	92	3,530
24...	11,600	68	2,130	12,200	12	395	13,400	44	1,590
25...	9,980	28	754	12,100	13	425	12,700	28	960
26...	9,460	20	511	11,300	13	397	12,800	23	795
27...	9,980	13	350	11,100	13	390	14,000	24	907
28...	9,810	11	291	9,720	12	315	18,000	261	s17,200
29...	9,720	12	315	9,370	10	253	19,600	240	12,700
30...	9,660	11	a290	9,290	7	176	16,000	53	2,290
31...	9,600	9	233	--	--	--	14,800	32	1,280
Total	325,180	--	77,272	335,310	--	112,176	378,460	--	140,866
Day	January			February			March		
	Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment	
		Mean concen-tration (ppm)	Tons per day		Mean concen-tration (ppm)	Tons per day		Mean concen-tration (ppm)	Tons per day
1...	14,100	23	876	50,400	180	24,500	64,200	170	29,500
2...	17,700	47	2,250	48,900	130	17,200	53,700	120	17,400
3...	15,700	31	1,310	62,900	479	s83,000	43,200	110	12,800
4...	14,500	20	783	79,300	589	s131,000	34,700	100	9,370
5...	14,000	17	643	77,700	624	s136,000	26,600	78	5,600
6...	13,500	16	583	63,000	230	39,100	20,100	83	4,500
7...	13,300	15	539	69,100	440	sa86,000	17,600	80	a3,800
8...	13,100	15	531	68,800	440	81,700	16,100	65	2,830
9...	13,000	16	562	67,000	334	s62,100	14,700	60	2,380
10...	19,200	234	s13,100	67,300	622	s115,000	14,300	65	2,510
11...	19,000	140	7,180	58,700	220	34,900	14,000	60	2,270
12...	20,300	157	s13,100	85,800	634	s164,000	13,700	50	1,850
13...	29,400	425	s39,300	72,600	350	68,600	13,600	55	2,020
14...	19,100	60	3,090	82,500	295	65,700	13,300	100	3,590
15...	17,100	56	2,590	75,000	310	62,800	15,100	185	7,540
16...	16,800	48	2,180	69,700	325	61,200	12,800	56	1,940
17...	15,500	25	1,050	75,500	370	75,400	12,100	45	1,470
18...	14,800	25	999	86,400	300	70,000	11,800	46	1,470
19...	13,900	20	751	125,000	790	sa270,000	11,400	41	1,260
20...	12,700	19	652	93,200	470	118,000	15,800	255	s15,000
21...	13,700	18	666	102,000	530	146,000	32,800	780	69,100
22...	13,400	18	651	97,400	495	130,000	36,500	820	s87,200
23...	13,000	28	983	72,900	230	45,300	26,400	340	24,200
24...	22,300	196	s15,800	82,900	820	sa220,000	28,900	475	37,100
25...	28,100	270	s23,600	93,900	690	a170,000	33,900	525	s51,600
26...	48,900	998	s163,000	81,700	470	a100,000	25,200	162	11,000
27...	25,700	180	12,500	73,900	330	65,800	22,600	125	7,630
28...	25,200	168	s13,800	69,000	230	42,800	21,200	115	6,580
29...	36,600	358	s43,100	--	--	--	23,600	185	s12,600
30...	58,500	654	s107,000	--	--	--	39,600	445	s53,100
31...	54,300	280	41,100	--	--	--	40,500	330	36,100
Total	666,400	--	514,269	2,152,500	--	2,686,100	770,000	--	525,310

s Computed by subdividing day.

a Computed from estimated-concentration graph.

SACRAMENTO RIVER BASIN--Continued

11-3785. SACRAMENTO RIVER AT RED BLUFF, CALIF.--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1...	52,200	456	s67,000	12,000	21	680	11,600	14	438
2...	58,100	525	s93,100	12,100	20	653	13,100	28	a990
3...	71,500	500	96,500	12,100	22	719	16,600	84	3,760
4...	72,500	300	58,700	12,000	22	713	14,500	52	a2,000
5...	69,500	230	43,200	12,200	23	758	12,600	21	714
6...	68,400	621	s119,000	12,500	24	810	11,600	15	a470
7...	74,700	435	87,700	13,100	29	1,030	11,700	14	442
8...	73,100	280	55,300	14,000	34	1,290	11,700	15	a470
9...	53,300	160	23,000	14,600	31	1,220	14,600	116	s4,900
10...	39,400	130	13,800	14,600	28	1,100	12,700	36	a1,200
11...	31,600	133	11,300	15,700	38	1,610	12,100	25	817
12...	24,700	110	7,340	18,800	78	3,960	14,400	120	s4,970
13...	21,000	86	4,880	18,300	51	2,520	13,000	70	a2,500
14...	20,500	85	4,700	17,700	39	1,860	12,100	25	a820
15...	18,600	77	3,870	17,300	37	1,730	11,800	16	510
16...	15,900	65	2,790	17,300	36	1,680	11,500	--	450
17...	15,000	58	2,350	17,200	36	1,670	11,400	15	
18...	14,900	57	2,290	17,000	31	1,420	11,200	--	
19...	14,300	54	2,080	17,200	30	1,390	10,600	15	
20...	13,800	49	1,830	17,100	35	1,620	10,300	--	340
21...	15,000	60	2,430	16,900	33	1,510	10,000	--	
22...	18,000	84	4,080	16,900	34	1,550	9,920	--	
23...	17,600	64	3,040	17,200	32	1,490	9,890	13	
24...	17,000	52	2,390	17,100	32	1,480	9,890	--	
25...	16,700	45	2,030	16,900	24	1,100	9,840	14	
26...	15,400	36	1,500	16,500	22	980	9,720	--	160
27...	13,200	32	1,140	14,900	19	764	9,550	14	
28...	12,300	28	930	14,700	18	714	9,430	--	200
29...	12,200	27	889	13,400	16	579	9,400	11	
30...	12,100	28	915	12,000	16	518	9,430	--	215
31...	--	--	--	11,600	16	501	--	--	
Total	972,500	--	720,074	470,900	--	39,619	346,170	--	30,651
Day	July			August			September		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1...	10,300	14	389	11,700	12	379	11,500	7	217
2...	11,100	16	a480	11,900	--	340	11,300	6	a180
3...	10,400	14	393	11,900	10		11,300	6	183
4...	9,810	--	270	11,800	--		11,300	7	214
5...	9,780	11		11,800	--		11,400	7	215
6...	9,720	--		11,800	--	410	11,400	--	200
7...	9,780	9		11,800	11		11,400	6	
8...	10,400	--	300	11,800	--		11,400	--	
9...	10,800	11		11,800	14		11,400	7	
10...	10,800	--		11,800	--		11,400	--	160
11...	10,800	10	340	11,800	13	280	11,400	7	
12...	10,800	--		11,800	--		11,400	--	
13...	10,800	12		11,800	11		10,900	--	
14...	10,700	--		11,800	7		10,500	6	
15...	10,800	11	300	11,700	9	284	9,780	--	160
16...	10,800	--		11,800	--	220	9,230	6	
17...	10,800	9		11,800	10		9,230	--	
18...	10,800	--		11,800	--		9,230	6	
19...	10,800	10	340	11,800	9		9,230	--	160
20...	10,800	--		11,800	--		9,280	--	
21...	10,700	12		11,800	10	280	9,260	--	
22...	10,600	--		11,800	--		9,370	--	
23...	10,900	12	340	11,800	8		9,400	--	
24...	11,000	--		11,800	--		9,400	8	
25...	10,900	14		11,800	9		9,350	--	
26...	10,800	--	340	11,800	--	220	9,210	6	160
27...	10,700	10		11,800	8		9,230	--	
28...	11,000	--		11,800	--		9,290	6	
29...	11,200	11		11,800	7		9,290	--	
30...	11,400	--	340	11,800	--	220	9,180	6	160
31...	11,500	--		11,800	--		--	--	
Total	331,490	--	9,952	365,800	--	9,566	306,940	--	5,369
Total discharge for year (cfs-days)									7,421,650
Total load for year (tons)									4,871,224

s Computed by subdividing day.

a Computed from estimated-concentration graph.

SACRAMENTO RIVER BASIN--Continued

11-3785. SACRAMENTO RIVER AT RED BLUFF, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Sam- pling point	Water tem- per- ature (° F)	Discharge (cfs)	Sediment concen- tration (ppm)	Suspended sediment											Method of analysis
						Percent finer than size indicated, in millimeters											
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Oct. 13, 1957.....	1300		56	27,900	1,050	--	45	--	67	--	88	94	100	--	--	VPWC	
Nov. 14.....	1300		54	26,900	1,725	39	52	62	69	86	89	92	96	99	100	SPWC	
Dec. 29.....	1400		49	18,400	156	--	--	--	--	--	84	92	97	100	--	S	
Jan. 10, 1958.....	1345		47	22,100	331	--	--	--	--	--	86	92	97	100	--	S	
Jan. 26.....	1315		47	64,200	1,720	--	41	--	56	--	76	83	93	100	--	VPWC	
Jan. 31.....	1245		--	53,400	261	--	--	--	--	--	56	69	91	99	100	V	
Feb. 4.....	1415		49	76,000	384	--	--	--	--	--	56	68	86	100	--	V	
Feb. 12.....	1230		52	108,000	1,080	--	26	--	36	--	83	78	90	99	100	VPWC	
Feb. 22.....	1400		50	99,600	493	--	--	--	--	--	36	46	59	88	100	V	
Mar. 22.....	1330		50	42,600	1,010	16	23	27	36	48	60	80	98	100	--	VPWC	
Mar. 30.....	1315		50	34,600	389	--	--	--	--	--	67	83	98	100	--	V	
Apr. 10.....	0830		57	40,300	131	--	--	--	--	--	42	61	87	100	--	V	

SACRAMENTO RIVER BASIN--Continued

11-3916.2. MILL CREEK AT MOUTH, NEAR LOS MOLINOS, CALIF.

LOCATION.--At bridge on U.S. Highway 99, 0.8 mile upstream from confluence with Sacramento River, 4.5 miles below gaging station near Los Molinos, Tehama

DRAINAGE AREA.--134 square miles upstream from gaging station.

RECORDS AVAILABLE.--Chemical analyses October 1953 to September 1958.

REMARKS.--Records of discharge for gaging station near Los Molinos for water year October 1957 to September 1958 given in WSP 1565. Considerable diversion between gaging station and sampling point.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Cal- cium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Po- tas- sium (K)	Bi-car- bon- ate (HCO ₃)	Car- bon- ate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		So- dium ad- orp- tion ratio	pH	Specific con- duc- tance micro- mhos at 25°C
															Parts per million	Tons per acre- foot	Tons per day	Cal- cium, Mag- ne- sium	Non- car- bon- ate			
Oct. 23, 1957....	145	--	--	--	--	15	--	62	--	--	14	--	--	0.4	--	--	--	60	9	0.8	187	7.6
Nov. 13.....	160	--	--	--	--	17	--	56	--	--	22	--	--	.5	--	--	--	56	10	1.0	203	7.9
Dec. 19.....	512	--	--	--	--	8.0	--	49	--	--	8.5	--	--	.2	--	--	--	48	8	.5	113	7.0
Jan. 16, 1958....	294	--	--	--	--	10	--	58	--	--	10	--	--	.3	--	--	--	44	0	.7	138	7.6
Feb. 19.....	1,380	--	--	--	--	4.7	--	37	--	--	2.8	--	--	.2	--	--	--	29	0	.4	74	7.4
Mar. 12.....	386	--	--	--	--	10	--	50	--	--	10	--	--	.2	--	--	--	40	0	.7	129	7.4
Apr. 16.....	622	--	--	--	--	4.1	--	44	--	--	2.5	--	--	.0	--	--	--	31	0	.3	78	7.6
May 13.....	833	26	0.01	6.8	1.8	5.6	1.6	29	--	8.6	4.0	0.0	0.1	.1	69	0.09	--	24	0	.5	78	7.1
June 17.....	646	--	--	--	--	5.6	--	25	--	--	4.0	--	--	.0	--	--	--	25	5	.5	81	7.5
July 15.....	286	--	--	--	--	8.3	--	39	--	--	8.4	--	--	.1	--	--	--	35	3	.6	121	7.6
Aug. 12.....	164	--	--	--	--	11	2.5	50	--	--	12	--	--	.2	--	--	--	46	5	.7	143	7.9
Sept. 9.....	137	36	.04	13	4.0	11	2.5	57	--	7.7	15	.0	.5	.3	118	.16	--	49	2	.7	164	7.5

SACRAMENTO RIVER BASIN--Continued

11-3837. DEER CREEK AT HIGHWAY 99E BRIDGE NEAR VINA, CALIF.

LOCATION.--At gaging station downstream from U.S. Highway 99E, 1 mile north of Vina, Tehama County, and 2.6 miles from mouth.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958. Records of discharge for water year October 1957 to September 1958 given in State of California Bulletin No. 23 as Deer Creek at Highway 99E. Water-stage recorder removed January 1958.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio (micro-mhos at 25°C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 23, 1957....	120	--	--	--	--	9.9	--	95	--	4.0	--	--	0.03	--	--	--	64	0	0.5	162	7.7
Nov. 13.....	133	--	--	--	--	11	--	84	--	5.9	--	--	.06	--	--	--	55	0	.6	168	7.9
Dec. 19.....	624	--	--	--	--	7.2	--	54	--	3.0	--	--	.01	--	--	--	38	0	.4	156	7.4
Jan. 16, 1958....	--	--	--	--	--	2.8	--	66	--	2.5	--	--	.14	--	--	--	48	0	.4	116	7.6
Feb. 19.....	--	--	--	--	--	5.3	--	39	--	1.5	--	--	.10	--	--	--	29	0	.2	71	7.5
Mar. 12.....	--	--	--	--	--	--	--	57	--	--	--	--	.10	--	--	--	40	0	.4	98	7.4
Apr. 16.....	--	--	--	--	--	7.2	--	44	--	6.8	--	--	.00	--	--	--	36	0	.5	104	7.5
May 13.....	--	24	0.01	6.2	2.3	3.3	1.1	36	2.9	1.4	0.1	0.2	.04	--	0.08	59	25	0	.3	60	7.6
June 17.....	--	--	--	--	--	4.6	--	50	--	1.5	--	--	.00	--	--	--	33	0	.5	88	7.8
July 15.....	--	--	--	--	--	8.1	--	85	--	4.9	--	--	.00	--	--	--	56	0	.5	144	7.8
Aug. 12.....	--	--	--	--	--	9.7	2.8	192	--	5.5	--	--	.30	--	--	--	74	0	.5	175	7.8
Sept. 9.....	--	38	.03	16	12	9.7	2.8	120	6.7	6.0	.0	.20	.20	150	.20	--	88	0	.4	210	7.5

SACRAMENTO RIVER BASIN--Continued
11-3838. SACRAMENTO RIVER NEAR HAMILTON CITY, CALIF.

LOCATION.--At gaging station on bridge on State Highway 32, 1.3 miles northeast of Hamilton City, Glenn County, and 2.4 miles above Pine Creek.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.
REMARKS.--Gaging station maintained and operated by State of California Department of Water Resources. Records of discharge for water year October 1957 to September 1958 given in State of California Bulletin No. 23 as Sacramento River at Hamilton City.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonyl Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio (micro-mhos at 25°C)	Specific conductance (micro-mhos at 25°C)	
														Parts per million	Tons per acre-foot	Tons per day	Calcium magnesium	Non-carbonate			
Oct. 23, 1957	10,600	---	---	---	---	5.9	---	66	---	4.0	---	---	0.03	---	---	---	49	0	0.4	128	7.6
Nov. 13	8,640	---	---	---	---	7.1	---	70	---	4.5	---	---	.05	---	---	---	52	0	.4	132	7.9
Dec. 19	18,200	---	---	---	---	6.5	---	59	---	4.0	---	---	.04	---	---	---	44	0	.4	118	7.7
Jan. 16, 1958	20,500	---	---	---	---	7.3	---	70	---	4.0	---	---	.05	---	---	---	55	0	.4	136	7.7
Feb. 20	137,000	---	---	---	---	4.9	---	50	---	.8	---	---	.08	---	---	---	41	0	.3	95	7.7
Mar. 12	19,700	---	---	---	---	6.4	---	77	---	4.3	---	---	.00	---	---	---	62	0	.4	155	7.4
Apr. 16	24,700	---	---	---	---	5.7	---	72	---	9.0	---	---	.07	---	---	---	58	0	.3	135	7.5
May 13	21,100	20	0.13	10	4.1	5.1	1.2	56	1.0	4.2	0.0	0.7	.08	74	0.10	42	0	.3	108	7.5	
June 17	18,600	---	---	---	---	5.3	---	58	---	2.0	---	---	.00	---	---	---	40	2	.3	113	7.8
July 15	8,680	---	---	---	---	5.3	---	58	---	2.1	---	---	.10	---	---	---	50	0	.4	107	7.7
Aug. 12	9,390	---	---	---	---	5.0	---	55	---	3.5	---	---	.00	---	---	---	42	0	.3	104	7.7
Sept. 9	10,000	24	.07	6.8	5.6	4.9	2.1	54	2.9	2.7	.2	.1	.00	76	.10	40	0	.3	100	7.2	

SACRAMENTO RIVER BASIN--Continued
11-3840. BIG CHICO CREEK NEAR CHICO, CALIF.

LOCATION.--At gaging station in Arroyo Chico Grant, 1.8 miles upstream from golf clubhouse in Bidwell Park, 2.6 miles upstream from Lindo Channel, and 7 miles northeast of Chico, Butte County.

DRAINAGE AREA.--67.9 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 23, 1957....	43	---	---	---	---	9.6	---	97	---	---	9.0	---	---	0.03	---	---	---	71	0	0.5	188	7.7
Nov. 12.....	43	---	---	---	---	13	---	103	---	---	12	---	---	.14	---	---	---	74	0	.7	200	8.2
Dec. 19.....	375	---	---	---	---	4.6	---	48	---	---	4.0	---	---	.00	---	---	---	48	9	.3	94	7.4
Jan. 15, 1958....	248	---	---	---	---	5.4	---	54	---	---	4.0	---	---	.00	---	---	---	41	0	.4	98	7.5
Feb. 19.....	1,720	---	---	---	---	2.6	---	38	---	---	1.2	---	---	.07	---	---	---	28	0	.2	68	7.7
Mar. 12.....	171	---	---	---	---	5.8	---	60	---	---	3.5	---	---	.00	---	---	---	43	0	.4	109	7.4
Apr. 15.....	394	---	---	---	---	3.4	---	46	---	---	3.5	---	---	.00	---	---	---	35	0	.3	84	7.7
May 13.....	123	35	0.00	11	4.9	7.0	1.4	70	---	1.9	3.0	0.0	0.1	.07	98	0.13	48	0	.4	119	7.7	
June 17.....	61	---	---	---	---	8.6	---	82	---	---	7.2	---	---	.00	---	---	61	0	.5	156	8.1	
July 15.....	40	---	---	---	---	11	---	97	---	---	9.3	---	---	.00	---	---	67	0	.6	182	8.0	
Aug. 12.....	34	---	---	---	---	12	---	104	---	---	10	---	---	.20	---	---	72	0	.6	193	8.0	
Sept. 9.....	33	38	.00	16	7.9	13	1.4	105	---	3.8	9.9	.0	.2	.10	142	.19	73	0	.7	196	7.8	

SACRAMENTO RIVER BASIN--Continued

11-3880. STONY CREEK AT BLACK BUTTE DAMITE, NEAR ORLAND, CALIF.

LOCATION--At gaging station, 120 feet downstream from diversion dam and 8.7 miles northwest of Orland, Glenn County.

RAINAGE AREA--1,400 square miles.

RECORDS AVAILABLE--Chemical analyses: October 1957 to September 1958.

REMARKS--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge, (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonyl Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Specific conductance (micro-mhos at 25° C)	
														Parts per million	Tons per acre-foot	Tons per day	Calcium Magnesium	Non-carbonate		
Oct. 23, 1957.....	53	--	--	--	--	18	--	192	--	29	--	--	0.12	--	--	--	180	23	0.6	414 8.1
Nov. 13.....	43	--	--	--	--	17	--	192	--	31	--	--	.16	--	--	--	187	30	.6	436 8.2
Feb. 20, 1958....	13,600	--	--	--	--	7.2	--	102	--	6.0	--	--	.12	--	--	--	88	4	.3	194 7.7
Mar. 12.....	4,954	--	--	--	--	14	--	176	--	14	--	--	.04	--	--	--	160	16	.5	364 7.8
Apr. 16.....	1,170	--	--	--	--	10	--	129	--	7.0	--	--	.06	--	--	--	114	8	.4	267 7.9
May 13.....	1,010	13	0.08	26	14	12	1.1	141	23	9.5	0.1	0.3	.10	168	0.23	--	123	7	.5	292 7.8
June 17.....	95	--	--	--	--	13	--	160	--	12	--	--	.0	--	--	--	159	28	.5	312 8.5
July 15.....	169	--	--	--	--	12	--	169	--	11	--	--	.1	--	--	--	138	0	.4	299 8.2
Aug. 12.....	152	--	--	--	--	14	--	172	--	13	--	--	.3	--	--	--	146	5	.5	333 8.1
Sept. 9.....	54	18	.04	35	17	15	2.1	184	17	15	.0	.2	.2	211	.29	--	156	5	.5	349 7.9

a Daily mean discharge (cfs)
b Includes equivalent of 5 parts per million of carbonate (CO₃).

a Daily mean discharge (cfs)

b Includes equivalent of 5 parts per million of carbonate (CO₃).

SACRAMENTO RIVER BASIN--Continued
11-3880. STONY CREEK AT BLACK BUTTE DAMSITE, NEAR ORLAND, CALIF.--Continued
Periodic determinations of suspended sediment discharge, water year
October 1957 to September 1958

Date	Time (24 hr)	Water tem- per- ature (°F)	Discharge (cfs)	Suspended sediment	
				Mean con- cen- tration (ppm)	Discharge (tons per day)
Nov. 12, 1957.....	1225	56	41	2	0.2
Dec. 16.....	1230	57	368	1,260	1,250
Jan. 6, 1958.....	1515	--	468	68	86
Jan. 20.....	1610	42	636	45	77
Feb. 18.....	1420	57	9,280	3,110	77,900
Feb. 25.....	1420	53	17,200	3,440	160,000
Apr. 13.....	0905	56	2,480	296	1,980
May 15.....	1510	68	930	68	171
June 7.....	1243	82	128	21	7.3
Aug. 14.....	1345	80	132	60	21

Particle-size analyses of suspended sediment, water year October 1957 to September 1958
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Samp- ling point (° F)	Water tem- per- ature (° F)	Discharge (cfs)	Sediment con- cen- tration (ppm)	Suspended sediment										Method of analysis
						Percent finer than size indicated, in millimeters										
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500		1.000
Dec. 16, 1957.....	1230		57	368	1,260	--	--	37	--	67	--	91	96	100	--	VPNC
Feb. 18, 1958.....	1420		57	9,280	3,110	19	27	37	35	46	60	73	86	95	99	100
Feb. 25.....	1420		53	17,200	3,440	26	37	50	58	68	78	89	95	99	100	VPNC
Apr. 13.....	0905		56	2,480	296	38	41	58	67	72	78	82	83	93	99	100

SACRAMENTO RIVER BASIN--Continued

11-3885. STONY CREEK NEAR HAMILTON CITY, CALIF.

LOCATION.--At gaging station in Capay Grant, 2.3 miles southwest of Hamilton City, 6 miles upstream from mouth, and 8 miles east of Orland, Glenn County.
 DRAINAGE AREA.--764 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carb- onate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Ni- trate (NO ₃)	Dissolved solids (calculated)			Hardness as CaCO ₃		So- dium ad- sorp- tion ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 23, 1957.....	42	--	--	--	--	17	--	182	--	--	27	--	--	--	--	--	167	18	0.6	396	8.2
Dec. 19, 1957.....	1,130	--	--	--	--	18	--	136	--	--	28	--	--	0.11	--	--	126	14	.7	330	7.6
Jan. 16, 1958.....	1,752	--	--	--	--	15	--	134	--	--	22	--	--	.10	--	--	121	11	.6	303	7.8
Feb. 20, 1958.....	18,900	--	--	--	--	6.8	--	101	--	--	5.5	--	--	.30	--	--	81	0	.3	188	7.8
Mar. 12, 1958.....	18,987	--	--	--	--	13	--	170	--	--	11	--	--	.00	--	--	143	4	.5	339	7.9
Apr. 16, 1958.....	1,560	--	--	--	--	11	--	150	--	--	2.0	--	--	.09	--	--	129	6	.4	301	7.8
May 13, 1958.....	752	14	0.03	30	14	12	1.1	149	22	--	12	0.0	0.8	.07	179	0.24	134	12	.4	306	8.1
June 17, 1958.....	62	--	--	--	--	15	--	180	--	--	13	--	--	.10	--	--	148	0	.5	345	8.4
July 15, 1958.....	12	--	--	--	--	16	--	178	--	--	15	--	--	.20	--	--	149	3	.6	357	8.0
Aug. 12, 1958.....	8.3	--	--	--	--	16	--	184	--	--	16	--	--	.20	--	--	154	3	.6	367	7.9
Sept. 9, 1958.....	18	18	.03	40	15	17	2.3	190	18	--	16	.0	.1	.10	220	.30	162	6	.6	355	7.8

^a Includes equivalent of 8 parts per million of carbonate (CO₃).

SACRAMENTO RIVER BASIN--Continued
11-3890. SACRAMENTO RIVER AT BUTTE CITY, CALIF.

LOCATION.--At highway bridge just below gaging station and 0.5 mile south of Butte City, Glenn County.

RECORDS AVAILABLE.--Chemical analyses: May 1955 to September 1958.

Water temperatures: May 1955 to September 1958.

EXTREMES, 1957-58.--Dissolved solids: Maximum, 123 ppm Nov. 20-30; minimum, 74 ppm Mar. 21-23.

Sardness: Maximum, 67 ppm Mar. 17-20; minimum, 42 ppm Nov. 16-17, Jan. 23-27.

Specific conductance: Maximum, 125 micromhos Nov. 25; minimum daily, 106 micromhos Jan. 27.

Water temperatures: Maximum, 68° F.

EXTREMES 1955-58 Dissolved solids: Maximum, 128 ppm Jan. 23, 26-31, 1957; minimum, 74 ppm Mar. 21-23, 1958.

Hardness: Maximum, 70 ppm June 30, 1958; minimum, 55 ppm Dec. 19-21, 1955.

Water temperatures: Maximum daily, 194 micromhos Nov. 25, 1957; minimum daily, 81.1 micromhos Dec. 7, 1955.

Water temperatures: Maximum, 74° F. June 5, 7, 1955; minimum (1955-57), 43° F. Jan. 28-31, 1957.

REMARKS.--Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1957 to September 1958 given in WSP 1585.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃	Sodium adsorption ratio (micro-mhos at 25°C)	pH		
														Parts per million	Tons per acre-foot	Tons per day					
Oct. 1-12, 1957..	10,420	25	0.02	9.2	6.3	7.4	1.9	66	4.8	5.0	0.1	0.7	0.0	93	0.13	2,620	49	0	0.5	133	6.9
Oct. 13-14.....	21,400	21	--	8.0	5.8	5.9	1.7	56	4.8	4.5	1.1	1.9	.1	--	--	--	44	0	.4	--	7.0
Oct. 15-31.....	11,870	25	.02	8.8	7.5	7.7	2.0	68	5.8	5.5	.2	1.4	.0	103	.14	3,300	53	0	.5	142	6.8
Nov. 1-13.....	9,680	29	.00	12	5.4	8.0	1.9	73	5.8	4.3	0	1.0	.1	111	.15	2,900	52	0	.5	144	7.2
Nov. 14-15.....	20,350	--	--	13	4.7	7.6	--	68	--	--	--	--	--	105	.14	5,770	52	0	.5	146	7.3
Nov. 16-17.....	15,650	--	--	8.8	4.9	6.2	--	52	--	--	--	--	--	97	.13	4,100	42	0	.4	118	7.1
Nov. 18-19.....	12,700	--	--	15	5.5	8.1	--	72	--	--	--	--	--	115	.16	3,940	60	1	.5	161	6.9
Nov. 20-30.....	12,260	31	.02	13	5.7	8.3	1.9	75	2.9	8.0	.0	1.4	.0	123	.17	4,070	56	0	.5	161	6.9
Dec. 1-17.....	10,320	32	.02	14	6.1	8.5	1.8	72	8.6	8.0	.1	.0	.0	119	.16	3,320	60	1	.5	161	7.2
Dec. 18-31.....	19,240	28	.08	11	6.0	7.3	1.7	68	9.6	3.0	.2	.9	.0	108	.15	5,610	52	0	.4	139	7.0
Jan. 1-10, 1958..	18,210	31	.04	13	6.2	8.1	1.7	76	8.6	5.0	.2	.9	.0	110	.15	5,410	58	0	.5	152	7.1
Jan. 11-14.....	28,500	26	.09	12	5.4	6.8	1.5	66	9.6	4.0	--	1.0	.0	99	.13	7,620	52	0	.4	132	7.2
Jan. 15-24.....	18,310	28	.06	13	6.4	7.8	1.7	76	9.6	5.0	.1	.9	.0	111	.15	5,490	59	0	.4	156	7.3
Jan. 25-27.....	50,400	--	--	--	9.6	4.4	5.2	54	--	--	--	--	--	104	.14	14,150	42	0	.4	108	7.5
Jan. 28-31.....	50,180	26	.14	14	6.1	7.8	2.1	66	16	7.0	--	.4	.0	113	.15	15,310	60	6	.4	146	7.2
Feb. 1-3.....	65,030	17	.03	13	5.0	6.2	1.7	64	3.8	8.4	--	.4	.0	93	.13	16,330	53	1	.4	141	7.3
Feb. 4.....	91,400	--	--	10	5.1	6.2	--	61	--	--	--	--	--	81	.11	19,990	46	0	.4	122	7.2
Feb. 5-6.....	115,000	14	.05	12	4.7	6.1	1.4	60	3.8	7.4	--	.2	.0	90	.12	28,260	49	0	.4	128	7.5
Feb. 7-17.....	98,460	21	.04	13	4.6	6.8	1.6	62	7.7	6.8	.0	.9	.0	89	.12	23,680	51	0	.4	132	7.1
Feb. 18-28.....	120,500	19	.07	13	4.6	5.6	1.6	63	8.6	4.5	0	1.2	.0	94	.13	30,580	51	0	.3	126	7.2
Mar. 1-6.....	59,370	22	.02	13	6.2	7.2	1.8	73	9.6	4.0	.0	1.5	.0	106	.14	16,990	58	0	.4	145	7.3
Mar. 7-20.....	20,990	24	.02	16	6.6	7.8	1.6	86	9.6	5.3	.0	1.5	.0	114	.16	6,460	67	0	.4	171	7.2
Mar. 21-23.....	55,500	--	--	11	4.7	5.8	--	60	--	--	--	--	--	74	.10	11,090	47	0	.4	118	7.2
Mar. 24-31.....	42,580	23	.05	12	6.2	7.1	1.5	69	9.6	4.3	.0	.8	.0	102	.14	11,730	55	0	.4	138	7.3

SACRAMENTO RIVER BASIN--Continued

11-3890. SACRAMENTO RIVER AT BUTTE CITY, CALIF.--Continued

Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonylate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Borates (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium-Magnesium	Non-carbonate			
Apr. 1-10, 1958..	80,170	22	0.04	12	5.4	5.6	1.3	62		6.7	3.7	0.1	0.9	0.1	88	0.12	19,050	52	0	0.3	128	7.4
Apr. 11-27.....	27,850	25	.03	15	6.2	6.6	1.3	75		9.2	4.5	.1	1.2	.0	102	.14	7,670	63	1	.4	154	7.3
Apr. 28-30.....	16,050	26	.03	14	6.3	7.0	1.6	64		9.0	4.0	.1	1.3	.1	105	.14	5,510	61	0	.4	150	7.2
May 1-19.....	16,510	23	.03	13	4.8	6.6	1.6	68		5.7	3.6	.1	1.1	.1	82	.13	4,300	51	0	.4	136	7.5
May 1-19.....	13,510	24	.02	11	4.6	5.6	1.3	59		5.7	2.4	.1	.7	.1	82	.13	4,300	47	0	.4	136	7.4
May 30-31.....	13,600	25	--	13	5.0	5.6	1.3	67		6.7	2.4	--	.5	.1	90	.12	3,300	53	0	.4	132	7.4
June 1-10.....	12,800	27	.07	9.2	7.1	5.8	1.2	64		5.8	4.5	.0	.8	.0	95	.13	3,280	52	0	.3	125	7.2
June 11-19.....	11,940	28	.07	12	4.9	5.4	1.2	64		3.8	4.5	.0	.7	.0	94	.13	3,030	50	0	.3	125	7.1
June 20-30.....	8,688	27	.07	9.2	7.5	6.4	1.6	66		9.6	5.0	.0	.8	.1	100	.14	2,350	54	0	.4	133	6.8
July 1-15.....	8,083	26	.04	9.6	6.8	5.6	1.2	64		5.8	4.5	.0	.6	.2	93	.13	2,030	52	0	.3	126	6.9
July 16-31.....	8,492	27	.01	10	5.6	5.4	.9	62		3.8	4.0	.0	1.0	.1	92	.13	2,110	48	0	.3	121	6.7
Aug. 1-15.....	9,561	25	.01	11	4.4	5.3	.8	60		4.8	3.3	.0	1.4	.0	88	.12	2,270	46	0	.3	119	7.0
Aug. 16-31.....	9,724	25	.01	9.9	4.9	5.6	.8	61		4.2	2.7	.0	.6	.1	82	.11	2,150	45	0	.4	117	7.1
Sept. 1-15.....	9,778	25	.00	11	4.5	6.1	1.2	62		4.8	3.8	.0	1.5	.1	82	.11	2,160	46	0	.4	121	7.3
Sept. 16-30.....	8,403	26	.00	10	5.6	5.4	1.1	66		2.3	4.4	.0	.6	.0	85	.12	1,930	48	0	.3	120	7.3
Weighted average	24,980	23	0.04	12	5.4	6.5	1.5	66		7.5	4.8	0.0	0.9	0.0	96	0.13	6,470	52	0	0.4	135	--
Analysis of additional sample																						
Jan. 23, 1958...	16,100	26	0.12	14	5.8	8.9	1.4	79		9.6	4.0	0.2	0.1	0.0	119	0.16	--	59	0	0.5	150	7.4

SACRAMENTO RIVER BASIN--Continued
 11-3890. SACRAMENTO RIVER AT BUTTE CITY, CALIF.--Continued

Temperature (°F) of water, water year October 1957 to September 1958
 /Once-daily measurement, generally between 4 p.m. and 7 p.m./

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October.....	47	48	49	48	47	--	48	--	47	46	47	46	46	47	56	50	50	55	48	--	50	47	46	47	47	48	47	48	46	46	46	48
November.....	46	43	45	46	45	--	39	45	45	--	45	44	43	45	43	44	--	41	41	40	41	--	39	40	39	40	38	39	40	38	--	42
December.....	39	37	38	37	--	--	--	--	--	--	--	--	--	--	--	--	--	37	--	41	34	33	33	35	36	34	34	34	35	35	35	--
January.....	--	34	35	--	34	34	34	35	36	34	--	--	34	32	33	33	34	34	33	34	35	34	34	--	35	34	35	39	36	--	34	
February.....	35	36	38	--	40	39	39	40	--	36	38	37	38	37	39	--	--	--	38	40	39	38	--	37	37	--	37	37	--	--	38	
March.....	--	--	37	37	37	37	37	--	50	--	50	--	51	50	51	50	--	52	53	55	55	--	52	--	52	52	53	53	51	--	--	
April.....	--	--	--	--	--	--	51	53	56	55	56	56	56	56	58	58	58	58	59	60	60	--	56	--	56	57	56	58	59	60	--	--
May.....	60	61	62	--	66	64	--	--	64	59	--	56	--	58	59	62	62	--	63	62	62	58	59	--	56	59	--	60	61	--	59	58
June.....	--	60	--	59	57	60	58	59	61	60	60	62	61	63	65	64	--	63	--	64	--	65	64	64	64	64	63	--	64	63	--	62
July.....	--	63	64	64	65	66	64	63	65	63	61	--	60	61	59	59	59	59	59	63	62	60	60	61	62	63	63	59	59	59	62	62
August.....	59	62	62	58	58	58	57	56	55	56	54	--	52	54	54	53	52	52	50	52	--	--	--	--	54	50	51	--	54	56	--	55
September.....	56	54	53	53	53	53	51	52	50	--	49	59	43	49	51	--	49	50	50	--	48	--	46	--	47	47	--	--	48	48	--	--

SACRAMENTO RIVER BASIN--Continued
11-3900. BUTTE CREEK NEAR CHICO, CALIF.

LOCATION.--At gaging station, 0.7 mile downstream from Little Butte Creek and 7.5 miles east of Chico, Butte County.
DRAINAGE AREA.--148 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.
REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F) (NO ₃) (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (microhmhos at 25°C)
												Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate		
Oct. 23, 1957....	202	--	--	--	--	3.6	--	67	--	0.5	--	--	--	--	51	0	0.2	109
Nov. 12.....	166	--	--	--	--	4.4	--	68	--	1.5	--	--	--	--	48	0	0.3	111
Dec. 20.....	581	--	--	--	--	3.8	--	46	--	1.5	--	--	--	--	50	12	0.2	98
Jan. 15, 1958....	486	--	--	--	--	2.9	--	52	--	2.0	--	--	--	--	40	0	0.2	90
Feb. 18.....	2,020	--	--	--	--	1.9	--	34	--	1.0	--	--	--	--	28	0	0.2	62
Mar. 11.....	630	--	--	--	--	2.8	--	44	--	1.0	--	--	--	--	31	0	0.2	71
Apr. 15.....	1,120	--	--	--	--	2.0	--	35	--	1.0	--	--	--	--	28	0	0.2	63
May 12.....	964	19	0.03	6.4	2.2	1.0	32	37	4.8	0.2	0.2	1	53	0.07	23	0	0.2	84
June 17.....	486	--	--	--	--	2.3	--	37	--	1.0	--	--	--	--	28	0	0.2	89
July 14.....	275	--	--	--	--	3.7	--	60	--	2.2	--	--	--	--	38	0	0.2	98
Aug. 18.....	175	--	--	--	--	3.7	--	60	--	2.2	--	--	--	--	38	0	0.2	104
Sept. 8.....	163	23	.00	.11	4.0	3.5	1.2	62	1.0	2.0	.0	.0	.77	.10	44	0	0.2	102

SACRAMENTO RIVER BASIN--Continued
11--3907. COLUSA TROUGH NEAR COLUSA, CALIF.

LOCATION.--At gaging station, 3 miles west of Colusa, Colusa County, on State Highway 20, and 6 miles northeast of Williams.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--Gaging station maintained and operated by State of California Department of Water Resources. This water is the drainage from Colusa Basin passing down the Back Barrow Pit and entering the Sacramento River just above Knights Landing gaging station. Records of discharge for Colusa basin drain at Highway 20 for water year October 1957 to September 1958 given in State of California Bulletin No. 23.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Specific conductance (microhm-cm at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium magnesium	Non-carbonate		
Oct. 7, 1957.....	382	23	--	25	24	62	3.0	310	0	70	33	0.4	1.7	0.2	345	0.47	160	0	2.1	555	8.2
Oct. 12.....	1,370	18	--	20	15	128	2.6	300	14	186	72	0.4	1.0	0.2	368	.92	308	33	2.4	1,590	8.4
Oct. 14.....	1,600	16	--	23	15	59	5.0	148	0	74	37	2.2	3.2	0.2	308	.92	133	0	2.0	509	7.9
Oct. 16.....	1,490	18	--	40	34	53	3.1	180	0	135	28	4	2.9	0.4	540	.73	238	0	2.9	839	8.4
Oct. 22.....	337	21	0.02	40	34	103	3.1	274	10	135	64	5	1.6	0.3	608	.82	258	0	3.2	879	8.1
Oct. 27.....	219	17	--	46	35	119	3.0	317	0	164	54	5	1.6	0.3	608	.82	320	49	3.2	1,100	8.4
Nov. 18.....	108	--	--	--	--	131	--	316	7	--	92	--	--	3	720	.98	320	30	3.4	1,160	8.2
Nov. 25.....	91	17	--	24	63	141	3.0	354	0	215	80	2	2.3	0.4	--	--	242	48	3.4	1,160	7.2
Dec. 18.....	425	--	--	--	--	153	--	237	0	--	102	--	--	4	--	--	320	30	3.4	1,160	8.2
Dec. 23.....	240	16	--	46	39	150	3.8	297	0	217	85	6	2.0	0.4	706	.96	276	32	3.9	1,160	8.2
Jan. 6, 1958.....	257	18	--	48	40	146	3.4	300	0	232	92	4	2.3	0.4	730	.99	286	40	3.8	1,200	8.0
Jan. 21.....	313	--	--	--	--	153	--	317	0	--	98	--	--	4	--	--	270	10	4.1	1,180	8.0
Feb. 20.....	4,000	--	--	--	--	49	--	118	0	--	32	--	--	3	--	--	99	2	2.1	438	7.4
Mar. 13.....	784	--	--	--	--	99	--	284	0	--	64	--	--	3	--	--	241	8	2.8	884	7.8
Mar. 17.....	912	13	--	49	37	112	3.2	305	0	154	76	4	1.7	0.4	597	.81	276	26	2.9	985	8.0
Mar. 31.....	2,420	10	--	53	22	42	3.9	410	0	83	38	2	1.9	0.4	358	.49	176	4	2.0	601	8.0
Apr. 12, 9:20 a.m.	1,460	16	0.00	52	15	90	2.5	308	0	129	58	3	3.3	0.2	550	.34	123	0	1.6	499	7.6
Apr. 14 11:45 a.m.	1,420	--	--	50	33	90	2.5	299	0	123	58	6	3.3	0.2	525	.71	260	14	2.4	898	7.9
Apr. 28.....	1,718	16	--	34	24	57	2.4	174	6	108	30	4	1.8	0.2	365	.50	182	29	1.8	543	8.3
May 27.....	2,020	15	--	22	13	38	1.5	156	0	41	16	2	1.1	0.1	225	.31	110	0	1.6	376	7.6
June 10.....	1,270	18	--	20	13	37	1.8	151	0	35	18	5	7	0.3	218	.30	105	0	1.6	369	7.2
July 7.....	828	23	--	24	15	36	1.4	176	0	36	16	3	0	0.2	239	.33	122	0	1.4	388	8.1
Aug. 4.....	894	22	--	23	15	36	1.5	179	0	32	16	5	1.0	0.2	239	.33	120	0	1.4	389	7.9
Sept. 1.....	1,100	19	.03	23	16	37	1.6	178	0	31	18	2	0.6	0.3	235	.32	122	0	1.5	388	7.6
Sept. 21.....	499	24	--	26	16	36	2.2	169	4	38	18	2	1.1	0.1	247	.34	131	0	1.6	407	8.4
Sept. 29.....	346	24	--	26	17	37	2.8	177	3	43	20	2	1.5	0.1	262	.36	133	0	1.4	421	8.3

a Daily mean discharge (cfs).

SACRAMENTO RIVER BASIN--Continued

11-3910. SACRAMENTO RIVER AT KNIGHTS LANDING, CALIF.

LOCATION--At Southern Pacific Railroad bridge, at Knights Landing, Yolo County, just downstream from gaging station, and about 34 miles upstream from Sacramento.

RECORDS AVAILABLE--Chemical analyses: March 1951 to May 1958 (discontinued).

Water temperatures: March 1951 to May 1958 (discontinued).

EXTREMES, 1957-58--Water temperatures: Minimum, 40°F Jan. 24, Apr. 29, May 2.

EXTREMES, 1951-58--Dissolved solids (1951-57): Maximum, 244 ppm May 12, 19, 1953; minimum, 78 ppm Dec. 8-10, 1956.

Hardness (1951-57): Maximum, 115 ppm Aug. 26-28, 1955; minimum, 31 ppm Dec. 8-10, 1955.

Specific conductance (1951-57): Maximum daily, 447 micromhos Sept. 9, 1952; minimum daily, 83.7 micromhos Dec. 9, 1955.

Water temperatures: Maximum, 78°F July 23, 1952; minimum, 40°F Jan. 24, Apr. 29, May 2, 1958.

REMARKS--Records of specific conductance of daily samples available in district office in Sacramento, Calif. Records of discharge for water year October 1957 to September 1958 given in WSP 1565. Considerable inflow during irrigation season of irrigation waste water from drainage canal about 0.3 mile above sampling site.

Chemical analyses, in parts per million, October 1957 to May 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Specific conductance (microhmohms at 25°C)
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-sorp-carbonate	
Oct. 1-10, 1957...	10,360	26	0.03	12	6.8	11	1.8	75	12	8.7	0.0	1.1	0.0	0	122	0.17	3,410	58	0	0.6
Oct. 11-16, 1957...	11,700	26	0.03	10	5.4	8.0	1.5	56	8.8	4.0	0.0	1.8	0.0	0	118	0.16	6,020	47	0	0.4
Oct. 12-16, 1957...	18,880	27	0.08	13	6.1	9.7	1.6	76	9.6	5.7	0.0	0.4	0.0	0	118	0.16	6,020	47	0	0.4
Oct. 17-19, 1957...	16,330	22	0.08	11	4.5	6.2	1.5	58	5.8	4.8	0.0	1.7	0.0	0	99	0.13	4,370	46	0	0.4
Oct. 20-31, 1957...	12,170	25	0.02	13	6.2	9.8	1.5	74	9.6	6.5	0.0	0.6	0.0	0	120	0.16	3,940	58	0	0.6
Nov. 1-11, 1957...	10,410	26	0.01	13	6.2	9.6	1.5	79	8.6	6.8	0.0	0.3	0.0	0	117	0.16	3,290	58	0	0.6
Nov. 12-27, 1957...	14,560	27	0.00	13	6.4	8.5	1.5	76	12	5.0	0.0	0.2	0.0	0	117	0.16	4,800	59	0	0.5
Nov. 28-30, 1957...	12,770	29	0.00	14	7.1	11	1.5	85	11	7.5	0.0	0.4	0.0	0	129	0.18	4,450	64	0	0.6
Dec. 1-17, 1957...	10,350	28	0.02	14	6.0	10	1.7	85	1.9	7.7	0.0	0.6	0.0	0	121	0.16	3,380	60	0	0.6
Dec. 18-31, 1957...	19,340	26	0.06	12	5.6	8.0	1.6	70	5.8	5.4	0.0	0.7	0.0	0	106	0.14	5,540	53	0	0.5
Jan. 1-6, 1958...	20,520	28	0.04	14	7.1	12	1.6	86	9.6	8.0	0.0	0.7	0.0	0	132	0.18	7,310	64	0	0.6
Jan. 7-17, 1958...	20,540	22	0.10	12	4.9	7.2	1.5	67	4.8	6.0	0.0	0.5	0.0	0	95	0.13	5,270	50	0	0.4
Jan. 18-22, 1958...	19,000	25	0.08	14	6.8	8.2	1.5	76	8.6	5.3	0.0	0.2	0.0	0	117	0.16	5,000	43	0	0.4
Jan. 23-26, 1958...	21,060	29	0.09	10	5.5	7.2	1.7	68	5.8	4.3	0.0	0.2	0.0	0	99	0.13	7,230	53	0	0.4
Feb. 1-6, 1958...	21,060	22	0.07	15	5.1	7.2	1.6	73	6.7	4.3	0.0	0.2	0.0	0	102	0.14	7,370	59	0	0.5
Feb. 27-Mar. 4, 1958...	27,470	22	0.08	15	5.1	7.2	1.6	73	6.7	5.3	0.0	0.2	0.0	0	102	0.14	7,370	59	0	0.5
Mar. 5-14, 1958...	22,350	26	0.05	17	7.5	9.2	1.5	89	7.7	7.3	0.0	0.9	0.0	0	131	0.18	7,910	73	0	0.5
Mar. 15-31, 1958...	21,840	22	0.09	13	5.7	7.3	1.5	67	8.6	5.5	0.0	0.9	0.0	0	107	0.15	6,310	56	0	0.4
Apr. 1-30, 1958...	23,170	26	0.01	15	7.2	7.8	1.9	81	11	6.5	0.0	1.6	0.0	0	119	0.16	7,440	67	0	0.5
May 1-6, 1958...	13,700	23	0.00	14	6.6	8.4	1.3	78	11	5.8	0.0	1.1	0.0	0	108	0.15	3,990	62	0	0.5
May 7-14, 1958...	14,860	22	0.01	13	5.0	7.8	1.7	67	6.7	5.9	0.0	1.4	0.0	0	99	0.13	3,970	53	0	0.5

SACRAMENTO RIVER BASIN--Continued

11-3911. SACRAMENTO SLOUGH NEAR KNIGHTS LANDING, CALIF.

LOCATION.--At gaging station on levee near Reclamation District 1,500 pumping plant, 1 mile upstream from mouth, and 5.4 miles southeast of Knights Landing, Sutter County.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--Gaging station maintained and operated by State of California Department of Water Resources. This water is the entire outflow of the Sutter By-Pass area and the Reclamation District 1,500. Records of discharge for Sacramento Slough to Sacramento River for water year October 1957 to September 1958 given in State of California Bulletin No. 23.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonyl (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate		
Oct. 16, 1957.....	1,080	--	--	--	--	20	--	168	--	--	16	--	--	0.0	--	--	--	117	0	0.8	315
Nov. 18.....	1,230	--	--	--	--	25	--	188	--	--	24	--	--	0.0	--	--	--	137	0	0.9	372
Dec. 23.....	691	--	--	--	--	17	--	106	--	--	20	--	--	0.2	--	--	--	84	0	0.8	229
Jan. 17, 1958....	4,170	--	--	--	--	14	2.4	99	--	--	10	--	--	0.2	--	--	--	72	0	0.7	206
Feb. 17.....	(a)	--	--	--	--	5.9	--	66	--	--	3.3	--	--	0.0	--	--	--	58	4	0.3	128
Mar. 13.....	2,950	--	--	--	--	13	--	115	--	--	9.7	--	--	0.0	--	--	--	88	0	0.6	227
Apr. 14.....	(a)	--	--	--	--	5.8	--	70	--	--	4.2	--	--	0.0	--	--	--	58	1	0.3	140
May 9.....	1,720	19	0.08	18	13	26	1.4	104	--	7.7	44	0.2	0.5	0.1	181	0.25	--	97	12	1.1	323
June 16.....	1,820	--	--	--	--	66	--	223	--	--	114	--	--	0.1	--	--	--	212	29	2.0	729
July 16.....	1,785	--	--	--	--	23	--	197	--	--	12	--	--	0.0	--	--	--	138	0	0.9	347
Aug. 4.....	82	--	--	--	--	23	--	207	--	--	14	--	--	0.0	--	--	--	148	0	0.8	361
Sept. 12.....	1,090	31	.04	26	19	23	2.9	200	--	8.6	16	.2	.2	.0	225	.31	--	144	0	0.8	352

a. Flooded.

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SACRAMENTO RIVER BASIN---Continued

11-4070. FEATHER RIVER NEAR OROVILLE, CALIF.

LOCATION.--At gaging station, 75 feet upstream from bridge on Feather River Highway, 1.9 miles downstream from North Fork, and 4 miles northeast of Oroville business district, Butte County.

DRAINAGE AREA. ---3,611 square miles.

RECORDS AVAILABLE: ---Chemical analyses: October 1953 to September 1958.

Water temperatures: October 1953 to September 1954, November 1956 to September 1958.

Sediment records: November 1956 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 70°F July 27, 28; minimum, 43°F Dec. 23-26, Jan. 8, 9.

Sediment concentrations: Maximum daily, 966 ppm Feb. 25; minimum daily, 2 ppm Jan. 7, 21, 22.

Sediment loads: Maximum daily, 197,000 tons Feb. 25; minimum daily, 21 tons Jan. 21, 22.
 Water temperatures (1953-54, 1957-58): Maximum, 72°F July 27-29, Aug. 2, 3, 1954; minimum, 39°F Dec. 30, 31, 1953, Jan. 14, 1954.
 EXTREMES, 1953-54, 1956-58.---Water temperatures (1953-54, 1957-58): Maximum, 72°F July 27-29, Aug. 2, 3, 1954; minimum, 39°F Dec. 30, 31, 1953, Jan. 14, 1954.

Sediment concentrations (1956-58): Maximum daily, 1,680 ppm Feb. 24, 1957; minimum daily, 2 ppm Jan. 7, 21, 22, 1958.

Sediment loads (1956-58): Maximum daily, 282,000 tons Feb. 24, 1957; minimum daily, 13 tons Jan. 5, 6, 1957.

REMARKS—Samples of suspended sediment collected at bridge on Orville-Chico Road, 0.4 miles northeast of Orville business district, and 5.2 miles below gaging station. Records of discharge for water year 1957 to September 1958 given in WSP 1565. No appreciable inflow between sampling point and gaging station except during periods of heavy rainfall.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	
															Parts per million	Tons per acre-foot	Tons per day					
Oct. 22, 1957	3,080	---	---	---	---	4.4	---	69	---	---	1.6	---	---	0.14	---	---	---	47	0	0.3	116	7.6
Nov. 12, 1957	3,090	---	---	---	---	4.9	---	59	---	---	1.0	---	---	---	---	---	---	50	2	0.3	103	7.0
Dec. 20, 1957	7,750	---	---	---	---	3.2	---	50	---	---	2.2	---	---	---	---	---	---	32	0	0.2	78	7.3
Jan. 13, 1958	4,650	---	---	---	---	4.0	---	52	---	---	2.5	---	---	---	---	---	---	40	0	0.3	89	7.4
Feb. 13, 1958	17,800	---	---	---	---	3.5	---	34	---	---	1.2	---	---	---	---	---	---	38	0	0.3	77	7.3
Mar. 11, 1958	7,690	---	---	---	---	3.2	---	44	---	---	2.1	---	---	---	---	---	---	35	0	0.3	82	7.3
Apr. 15, 1958	21,300	---	---	---	---	2.9	---	43	---	---	5	---	---	---	---	---	---	31	0	0.2	77	7.6
May 12, 1958	19,700	14	0.07	5.6	1.9	2.2	0.8	30	---	1.9	1.0	0.2	0.2	0.03	---	---	22	0	0.2	55	7.1	
June 16, 1958	11,200	---	---	---	---	2.6	---	36	---	---	1.8	---	---	---	---	---	24	0	0.2	65	7.8	
July 14, 1958	3,530	---	---	---	---	3.4	---	60	---	---	1.9	---	---	---	---	---	36	0	0.3	89	7.9	
Aug. 11, 1958	2,540	---	---	---	---	4.4	---	61	---	---	2.9	---	---	---	---	---	44	0	0.3	101	7.9	
Sept. 8, 1958	2,420	16	.02	10	4.4	3.8	2.2	61	---	2.9	1.5	.0	.8	---	---	---	43	0	0.3	103	7.6	

SACRAMENTO RIVER BASIN--Continued
 11-4070. FEATHER RIVER NEAR OROVILLE, CALIF.--Continued
 Temperature (°F) of water, water year October 1957 to September 1958
 (Continuous-recording thermometer)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum.....	62	62	62	61	60	58	58	58	56	58	58	56	56	56	58	58	58	58	57	56	56	56	56	56	56	56	56	56	56	56	56	58
Minimum.....	62	62	62	61	60	56	58	58	58	58	58	58	58	56	58	58	58	57	56	56	56	56	56	56	56	56	56	56	56	56	55	58
November																																
Maximum.....	55	55	55	54	53	53	52	52	52	52	52	52	52	52	52	51	50	49	49	49	49	49	49	49	48	48	46	48	47	47	47	51
Minimum.....	55	55	54	53	53	52	52	52	52	52	52	52	52	52	51	50	49	49	49	49	49	49	49	49	48	48	48	48	47	47	47	51
December																																
Maximum.....	47	46	46	45	45	45	45	45	45	45	45	45	45	45	45	47	46	45	45	45	45	45	44	43	43	44	44	44	44	44	44	45
Minimum.....	46	46	45	45	45	45	45	45	45	45	45	45	45	45	44	44	45	44	44	44	45	44	43	43	43	43	43	44	44	44	44	45
January																																
Maximum.....	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	45	45	45	45	45	45	44	44	44	44	45	46	46	46	46	45	45
Minimum.....	44	44	44	44	44	44	44	43	44	44	44	44	44	44	44	44	45	45	45	45	45	44	44	44	44	44	45	46	46	46	45	44
February																																
Maximum.....	45	45	45	45	46	46	47	47	47	47	47	48	47	46	47	46	46	46	47	47	48	48	49	49	49	49	45	45	45	45	45	47
Minimum.....	45	45	45	45	45	45	46	47	47	47	47	47	47	47	47	47	47	47	47	47	48	48	48	48	48	48	45	45	45	45	45	46
March																																
Maximum.....	45	44	45	45	45	45	45	45	45	45	45	45	45	45	45	46	47	47	47	47	47	47	47	47	47	48	48	48	48	47	46	46
Minimum.....	44	44	44	45	45	45	44	45	44	45	45	45	45	44	44	44	45	45	46	47	47	47	47	47	47	47	47	47	47	47	47	47
April																																
Maximum.....	47	46	46	46	46	47	49	49	50	51	51	52	51	51	51	51	51	51	52	52	52	51	50	51	50	50	51	51	53	53	53	50
Minimum.....	46	46	46	45	45	46	47	48	4	50	50	51	51	51	51	51	51	50	51	51	51	51	51	50	49	50	51	51	52	51	52	49
May																																
Maximum.....	52	53	53	53	53	54	53	54	55	54	53	53	52	52	52	54	55	55	56	56	56	55	54	55	54	54	55	56	57	57	58	55
Minimum.....	51	51	52	52	52	52	52	52	52	52	53	51	51	51	52	54	55	55	55	56	56	55	54	54	54	54	55	56	56	57	57	54
June																																
Maximum.....	56	58	55	55	56	56	57	57	57	56	57	57	56	59	61	62	63	63	64	64	65	66	66	66	66	66	66	66	65	64	61	61
Minimum.....	57	55	54	53	55	56	55	56	54	55	56	53	56	59	60	61	62	62	62	61	62	63	64	63	63	61	62	64	63	62	59	59
July																																
Maximum.....	64	61	63	64	65	66	66	66	66	66	66	66	66	67	67	66	66	65	65	66	67	68	68	68	68	69	69	70	69	69	68	67
Minimum.....	59	60	60	61	63	64	64	64	64	64	64	64	64	66	66	65	64	64	64	65	66	67	67	67	67	67	68	68	68	66	66	65
August																																
Maximum.....	68	67	68	68	68	68	67	66	67	68	68	69	69	69	66	68	68	68	69	69	69	69	69	69	69	69	68	67	66	66	66	68
Minimum.....	66	66	66	67	67	66	65	65	65	66	66	67	67	67	67	67	67	66	67	67	67	67	67	67	67	67	67	67	66	65	64	65
September																																
Maximum.....	66	66	66	66	64	65	65	65	65	64	64	63	63	63	63	63	64	64	63	63	63	63	62	61	61	60	60	61	62	61	61	64
Minimum.....	65	65	64	64	63	63	64	64	64	64	63	62	62	61	62	62	62	62	62	62	62	62	61	61	61	60	58	59	60	60	60	62

SACRAMENTO RIVER BASIN--Continued

11-4070. FEATHER RIVER NEAR OROVILLE, CALIF.--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1...	2,840	--	160	3,080	7	46	3,090	3	31
2...	2,820	--		3,000	--		3,060	--	
3...	2,890	20		2,980	--		3,010	3	
4...	2,920	--		2,970	4		3,000	--	
5...	3,330	--		2,950	--		3,020	3	
6...	3,620	--	64	2,940	6	53	2,800	--	63
7...	3,120	--		2,940	--		3,000	--	
8...	3,020	8		2,910	5		3,000	4	
9...	2,950	--		2,950	--		3,040	--	
10...	2,910	--		2,960	--		3,010	3	
11...	2,910	7	sa390 s474	3,160	8	68	3,020	--	s207
12...	2,900	--		3,100	9	75	3,000	5	
13...	4,330	29		4,120	24	s427	3,030	--	
14...	4,720	35		13,100	137	s5,170	3,000	--	
15...	3,360	--		6,210	38	637	3,660	17	
16...	3,160	--	58	4,360	10	a120	14,600	386	s18,900
17...	3,060	8		4,130	--	53	14,900	140	s5,870
18...	3,000	--		3,900	7		15,100	159	s6,640
19...	2,970	--		3,640	--		8,690	33	774
20...	2,970	--		3,450	5		7,710	22	458
21...	2,970	--	a120	3,370	--	53	9,680	40	s1,240
22...	3,020	5		3,250	6		10,400	32	899
23...	3,020	--		3,210	--		7,570	15	307
24...	3,990	22		3,190	--		6,040	9	a150
25...	4,070	20		3,160	4		5,530	--	63
26...	3,640	12	54	3,140	--	53	5,110	3	
27...	3,540	--		3,100	6		5,000	--	
28...	3,450	--		3,090	--		5,190	4	
29...	3,450	5		3,070	5		5,530	6	
30...	3,450	--		3,060	--		5,200	--	
31...	3,210	6		--	--	--	4,860	--	
Total	101,680	--	3,577	110,490	--	7,699	176,850	--	36,320
January			February			March			
1...	4,560	4	49	10,400	32	899	17,600	90	4,280
2...	5,300	17	243	10,300	35	a970	14,900	60	2,410
3...	4,870	7	92	15,500	107	s4,530	13,600	40	1,470
4...	4,470	--	34	15,000	60	2,430	12,300	35	1,160
5...	4,230	4		18,000	104	s5,130	11,300	30	915
6...	4,000	--		15,000	35	1,420	10,400	22	618
7...	4,020	2		15,200	50	2,050	9,490	17	436
8...	3,960	--		19,600	190	sa10,000	9,400	15	381
9...	3,880	4	42	19,000	120	sa6,100	8,750	13	307
10...	5,270	23	s382	16,800	45	s2,100	7,730	14	292
11...	6,520	19	s352	14,100	28	1,070	7,910	12	256
12...	5,760	21	s332	29,700	306	s26,400	7,600	12	246
13...	5,760	25	s408	25,600	151	s11,000	7,910	13	278
14...	5,130	9	125	20,300	65	a3,600	8,730	13	306
15...	4,740	10	128	24,300	80	5,250	8,910	16	385
16...	4,590	9	112	28,900	210	sa17,000	8,170	11	243
17...	4,390	8	95	23,800	72	s4,700	8,360	14	316
18...	4,200	7	a79	20,600	60	s3,420	7,520	11	223
19...	4,040	6	a65	35,900	311	s31,900	7,600	10	205
20...	4,330	7	82	29,200	137	s11,100	10,100	60	s1,900
21...	3,890	2	21	22,400	80	4,840	25,400	131	s8,690
22...	3,830	2	a21	19,000	42	2,150	22,900	150	9,270
23...	3,680	4	40	16,900	30	a1,400	21,500	110	6,390
24...	4,840	18	235	41,900	397	s79,800	20,800	30	1,680
25...	5,650	20	305	71,400	966	s197,000	17,300	30	1,400
26...	13,200	194	s7,800	40,400	435	s48,800	15,200	45	1,850
27...	8,180	28	618	28,200	238	s18,500	13,700	25	925
28...	6,220	18	302	21,600	142	8,280	12,600	25	850
29...	15,000	251	s15,400	--	--	--	12,500	45	s1,770
30...	20,700	189	s11,900	--	--	--	21,800	121	s7,380
31...	12,900	75	2,610	--	--	--	17,600	90	4,280
Total	192,110	--	42,008	669,000	--	511,839	399,580	--	61,112

s Computed by subdividing day.

a Computed from estimated-concentration graph.

SACRAMENTO RIVER BASIN--Continued

11-4070. FEATHER RIVER NEAR OROVILLE, CALIF.--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1...	23,200	227	s14,800	16,900	29	1,320	11,800	10	319
2...	26,700	228	s17,600	17,400	37	1,740	12,900	11	383
3...	25,100	94	s6,650	17,600	42	2,000	12,900	10	348
4...	19,200	55	a2,800	18,100	46	2,250	10,900	10	a290
5...	16,900	29	a1,300	19,000	39	2,000	10,300	9	250
6...	16,800	17	771	19,700	45	2,390	10,000	--	220
7...	15,300	22	909	18,900	30	1,530	9,700	--	
8...	14,600	27	1,060	18,400	25	1,240	8,960	--	
9...	15,100	31	1,260	19,100	32	1,650	9,080	--	
10...	15,400	29	1,210	19,700	40	2,130	8,810	--	
11...	16,100	39	1,700	20,300	35	1,920	8,720	8	190
12...	18,300	68	3,360	20,200	32	1,750	10,600	--	
13...	19,100	55	2,840	17,600	28	1,330	12,900	6	
14...	20,400	71	3,910	16,200	18	787	12,200	--	
15...	21,300	73	4,200	15,900	21	902	11,600	6	
16...	21,300	69	a4,000	17,100	24	1,110	11,500	--	150 *
17...	22,000	64	3,800	17,900	31	1,500	11,300	6	
18...	21,200	47	2,690	19,100	33	1,700	10,600	--	
19...	21,400	44	2,540	18,900	33	1,680	10,500	6	
20...	21,900	42	2,480	18,200	24	1,180	9,170	--	
21...	22,900	48	2,970	17,500	18	850	8,860	7	130
22...	24,100	53	3,450	17,100	17	785	8,320	--	
23...	21,900	43	2,540	17,300	16	747	8,090	7	
24...	19,200	37	1,920	16,600	16	717	7,500	--	
25...	17,500	22	1,040	15,900	13	558	7,050	7	
26...	16,700	22	992	15,300	12	496	6,160	--	130
27...	16,300	23	1,010	15,100	12	489	6,220	9	
28...	16,300	22	968	14,100	14	533	5,160	--	
29...	16,700	22	992	12,900	11	383	4,820	9	
30...	17,200	26	1,210	12,500	10	338	5,000	--	
31...	--	--	--	12,400	8	268	--	--	--
Total	580,100	--	96,972	532,900	--	38,273	281,620	--	5,980
Day	July			August			September		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1...	4,670	9	110	3,100	--	54	2,840	8	52
2...	4,980	--		3,100	7		2,840	--	
3...	4,790	10		3,090	--		2,860	7	
4...	4,780	--		3,070	--		2,850	8	
5...	4,560	7		3,040	--		2,850	--	
6...	4,160	--	84	3,030	--	57	2,820	--	55
7...	4,360	11		3,030	--		2,810	6	
8...	4,260	--		2,960	--		2,600	--	
9...	3,930	11		2,960	--		2,480	7	
10...	3,880	--		2,590	8		2,530	--	
11...	3,580	7	84	2,540	--	61	2,650	7	56
12...	3,500	--		2,510	9		2,770	--	
13...	3,520	12		2,500	--		2,770	8	
14...	3,510	--		2,480	7		2,340	--	
15...	3,440	8		2,450	--		2,750	8	
16...	3,460	--	e70	2,480	9	61	2,330	--	56
17...	3,460	7		2,510	--		2,640	8	
18...	3,460	--		2,510	9		2,550	--	
19...	3,420	10		2,510	--		2,220	9	
20...	3,430	--		2,480	9		2,410	--	
21...	3,410	--	e70	2,480	--	61	2,580	8	56
22...	3,300	--		2,480	9		2,410	--	
23...	3,350	--		2,480	--		2,590	--	
24...	3,290	--		2,480	8		2,740	--	
25...	3,240	--		2,480	--		2,340	7	
26...	3,220	--	e70	2,470	8	61	2,090	--	56
27...	3,200	--		2,470	--		2,450	10	
28...	3,210	--		2,570	11		2,240	--	
29...	3,180	--		2,670	--		2,270	11	
30...	3,190	--		2,860	8		2,160	--	
31...	3,150	--		2,840	--		--	--	--
Total	114,890	--	2,710	83,360	--	1,781	76,780	--	1,630

Total discharge for year (cfs-days)..... 3,319,360

Total load for year (tons)..... 809,901

e Estimated.

a Computed from estimated-concentration graph.

s Computed by subdividing day.

SACRAMENTO RIVER BASIN--Continued

11-4070. FEATHER RIVER NEAR OROVILLE, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Sam- pling point	Water tem- per- ature (° F)	Discharge (cfs)	Sediment concent- ration (ppm)	Suspended sediment										Method of analysis	
						Percent finer than size indicated, in millimeters											
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500		1.000
Dec. 16, 1957.....	1450		47	16,800	553		22	33	45	56	70	77	82	90	98	100	VPWC
Feb. 25, 1958.....	0815		45	81,900	1,090			25	--	47	--	75	86	95	99	100	VPWC
Feb. 26.....	0820		53	44,800	493			33	45	56	64	74	81	91	98	100	VPWC

SACRAMENTO RIVER BASIN--Continued
11-4075. SOUTH HONCUT CREEK NEAR BANGOR, CALIF.

LOCATION.--At gaging station, 2.3 miles southeast of Bangor, Butte County, and 3.3 miles upstream from Tennessee Creek. DRAINAGE AREA.--30.5 square miles.

RECORDS AVAILABLE.--Chemical analyses: November 1955 to August 1958 (discontinued).

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, October 1957 to August 1958

Chemical analysis, in parts per million, October 1957 to August 1958																						
Date of collection	Discharges (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	pH	
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 22, 1957....	0.6					21		80			13			0.0				74	8	1.1	246	7.6
Nov. 12.....	2.0					18		78			11			.0				68	4	.9	216	8.0
Dec. 20.....	46					8.0		50			4.5			.0				43	2	.5	103	7.2
Jan. 15, 1958....	27					6.2		57			4.0			.0				40	0	.4	107	7.7
Feb. 18.....	110					4.9		46			2.0			.0				35	0	.4	90	7.6
Mar. 11.....	45					6.5		58			3.0			.0				42	0	.4	105	7.4
Apr. 15.....	65					6.2		58		5.8	4.0			.0				47	0	.4	107	7.7
May 12.....	27	30	0.04	12	4.4	9.0	0.8	71			3.5		0.0	0.2		0.14		56	0	.7	132	7.5
June 16.....	5.0					11		81			5.5			.0				54	0	.7	155	8.1
July 14.....	1.2					15		92			8.5			.0				63	0	.8	183	7.9
Aug. 11.....	.1					25		118			16			.1				86	0	1.2	280	8.1

SACRAMENTO RIVER BASIN--Continued
11-4196. YUBA RIVER NEAR SMARTVILLE, CALIF.

LOCATION.--About 0.5 mile downstream from bridge on State Highway 20, 2.3 miles northwest of Smartville, 4 miles below Deer Creek, and 5 miles below Englebright Dam, Yuba County.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--Discharge records for gaging station at Englebright Dam and Deer Creek near Smartville are combined to give the flow at this station. Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 22, 1957.....	591	---	---	---	---	3.5	---	64	---	---	2.0	---	---	0.0	---	---	---	52	0	0.2	121	7.6
Nov. 12,	530	---	---	---	---	3.4	---	54	---	---	1.5	---	---	0	---	---	49	5	0	0.2	107	7.2
Dec. 20,	2,110	---	---	---	---	3.7	---	52	---	---	2.5	---	---	.2	---	---	47	4	0	0.2	103	7.5
Jan. 15, 1958....	1,690	---	---	---	---	2.7	---	43	---	---	1.0	---	---	0	---	---	36	1	0	0.2	83	7.1
Feb. 18,	9,860	---	---	---	---	2.9	---	27	---	---	2.5	---	---	0	---	---	22	0	0.3	56	7.1	
Mar. 11,	3,230	---	---	---	---	1.8	---	33	---	---	2.6	---	---	0	---	---	28	1	0.2	63	7.6	
Apr. 15,	8,740	---	---	---	---	1.8	---	35	---	---	3.5	---	---	0	---	---	29	0	0.1	66	7.5	
Apr. 29,	6,300	15	---	7.4	1.8	3.6	0.8	32	---	7.7	1.5	0.0	0.0	0	---	0.54	26	0	0.3	60	7.8	
May 12,	11,500	12	0.07	5.6	1.0	1.7	.7	24	---	1.9	1.0	1.1	.2	0	---	0.36	18	0	0.2	46	7.1	
June 16,	7,190	---	---	---	---	1.9	---	23	---	---	1.0	---	---	0	---	0.05	18	0	0.2	43	7.6	
July 14,	977	---	---	---	---	1.6	---	29	---	---	1.4	---	---	0	---	---	22	0	0.1	56	7.5	
Aug. 11,	693	---	---	---	---	2.5	---	44	---	---	2.8	---	---	0	---	---	38	2	0.2	87	7.7	
Sept. 8,	675	16	.00	14	4.4	2.9	1.8	62	---	5.8	2.0	0	.1	0	78	.11	53	2	0.2	114	7.8	

SACRAMENTO RIVER BASIN--Continued

11-4215. YUBA RIVER AT MARYSVILLE, CALIF.

LOCATION (revised) --On Simpson Lane Bridge in Marysville, Yuba County, 800 feet upstream from site of former gaging station, and about 2 miles upstream from mouth.

DRAINAGE AREA --1,340 square miles.

RECORDS AVAILABLE --October 1953 to September 1958.

REMARKS --Gaging station discontinued Sept. 30, 1957. No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium, Sodium	Non-carbonate			
Oct. 22, 1957.....	---	---	---	---	---	3.8	---	68	---	---	1.5	---	---	0.0	---	---	---	59	4	0.2	130	7.5
Nov. 12.....	---	---	---	---	---	3.5	---	62	---	---	2.5	---	---	---	---	---	---	55	4	.2	121	7.7
Dec. 20.....	---	---	---	---	---	3.3	---	52	---	---	2.5	---	---	---	---	---	---	46	3	.2	103	7.5
Jan. 17, 1958.....	---	---	---	---	---	2.9	0.7	49	---	---	1.0	---	---	.2	---	---	---	39	0	.2	99	7.4
Feb. 18.....	---	---	---	---	---	4.1	---	30	---	---	1.2	---	---	.0	---	---	---	26	1	.4	62	7.3
Mar. 11.....	---	---	---	---	---	2.0	---	33	---	---	2.0	---	---	.0	---	---	---	28	1	.2	67	7.3
Apr. 15.....	---	---	---	---	---	2.2	---	35	---	---	1.0	---	---	.0	---	---	---	30	1	.2	67	7.4
May 12.....	12	---	0.08	6.0	---	1.5	1.8	7	24	3.8	1.0	0.1	0.3	.0	39	0.05	21	1	.2	48	7.1	
June 16.....	---	---	---	---	---	1.6	---	24	---	---	1.0	---	---	.0	---	---	---	21	1	.2	46	7.4
July 14.....	---	---	---	---	---	1.9	---	33	---	---	1.8	---	---	.1	---	---	---	26	0	.2	70	7.5
Aug. 11.....	---	---	---	---	---	2.7	---	48	---	---	3.0	---	---	.0	---	---	---	43	4	.2	99	7.6
Sept. 8.....	17	---	.00	14	4.4	3.0	1.8	62	---	5.8	2.1	.0	.2	.1	79	.11	---	53	2	.2	114	7.8

SACRAMENTO RIVER BASIN--Continued
11-4240. BEAR RIVER NEAR WHEATLAND, CALIF.

LOCATION.--Near gaging station on downstream side of bridge on U.S. Highway 99E, 1 mile southeast of Wheatland, Yuba County, and 6.5 miles downstream from Rock Creek.

DRAINAGE AREA.--295 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge, (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio (micro-mhos at 25°C)	pH	
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 22, 1957....	28	---	---	---	---	6.7	---	116	---	---	6.5	---	---	0.0	---	---	---	93	0	0.3	218	7.9
Nov. 12.....	34	---	---	---	---	6.8	---	96	---	---	8.2	---	---	.0	---	---	---	91	12	.3	203	8.1
Dec. 20.....	395	---	---	---	---	3.1	---	37	---	---	3.0	---	---	.0	---	---	---	41	11	.2	97	7.2
Jan. 13, 1958....	1,275	---	---	---	---	3.2	---	48	---	---	4.0	---	---	.0	---	---	---	44	5	.2	174	7.2
Feb. 18.....	1,622	---	---	---	---	3.1	---	31	---	---	2.0	---	---	.0	---	---	---	34	6	.2	76	7.4
Mar. 11.....	622	---	---	---	---	3.1	---	38	---	---	2.0	---	---	.0	---	---	---	34	3	.2	80	7.3
Apr. 15.....	1,540	---	---	---	---	2.3	---	34	---	---	2.5	---	---	.0	---	---	---	36	8	.2	82	7.3
May 12.....	590	14	0.05	6.0	3.2	2.2	0.8	31	---	5.8	2.5	0.0	0.6	.0	50	0.07	28	3	.2	72	7.1	
June 16.....	77	---	---	---	---	3.2	---	57	---	---	3.2	---	---	.0	---	---	50	3	.2	124	7.9	
July 14.....	8.2	---	---	---	---	5.5	---	124	---	---	5.4	---	---	.0	---	---	117	15	.2	260	8.0	
Aug. 11.....	8.6	---	---	---	---	6.5	---	138	---	---	9.0	---	---	.1	---	---	138	25	.2	296	8.0	
Sept. 8.....	11	23	.00	32	16	7.4	1.2	149	---	28	8.5	.0	.1	.1	189	.26	144	22	.3	305	7.8	

SACRAMENTO RIVER BASIN--Continued
11-4250. FEATHER RIVER AT NICOLAUS, CALIF.

LOCATION.--At gaging station at Nicolaus, Sutter County, at highway bridge (revised), and 2.9 miles downstream from Bear River.
RECORDS AVAILABLE.--Chemical analyses: March 1951 to September 1958.

Water temperatures: March 1951 to September 1958.

EXTREMES, 1957-58.--Dissolved solids: Maximum, 165 ppm Oct. 8-14; minimum 28 ppm May 19-31.

Hardness: Maximum, 110 ppm Oct. 8-14; minimum 43 ppm May 19-31.

Specific conductance: Maximum daily, 291 micromhos July 26; minimum daily, 55 micromhos May 21.

Water temperatures: Maximum, 79°F July 13; minimum, 42°F Jan. 1, 5, 9, 21-23, Feb. 1, Mar. 5.

EXTREMES, 1951-56.--Dissolved solids (1951-55, 1956-58): Maximum, 165 ppm Oct. 8-14, 1957; minimum, 43 ppm May 19-31, 1958.

Hardness (1951-55, 1956-58): Maximum, 114 ppm June 21, 1954; minimum, 22 ppm June 1-3, 8, 10, 1952.

Specific conductance (1951-55, 1956-58): Maximum daily, 291 micromhos July 26, 1957; minimum daily, 50.0 micromhos May 28, 1952.

Water temperatures: Maximum, 79°F July 13, 1954; minimum, 42°F Jan. 1, 5, 9, 21-23, Feb. 1, Mar. 5, 1952.

REMARKS.--Minimum observed during water year: Dissolved solids, 40 ppm May 12; hardness, 22 ppm May 12. Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonyl Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio (micro-mhos at 25°C)	Specific conductance (micro-mhos at 25°C)	
														Parts per million	Tons per acre-foot	Tons per day	Calcium Magnesium	Non-carbonate			
Oct. 1-7, 1957....	2,821	19	0.00	14	4.6	5.6	1.6	74	4.8	3.3	0.0	0.7	0.0	94	0.13	716	54	0	0.3	135	7.5
Oct. 8-14.....	2,913	19	.01	27	10	5.1	2.1	132	8.6	3.2	.0	1.1	.0	165	.22	1,300	110	2	.2	236	7.9
Oct. 15-17.....	4,473	16	.01	11	5.0	4.8	1.5	63	4.4	3.5	.0	.8	.0	83	.11	1,000	48	0	.3	119	7.2
Oct. 18-24.....	3,519	18	.00	24	9.6	4.9	1.8	121	8.3	3.8	.0	.5	.0	150	.20	1,430	100	1	.2	215	7.4
Oct. 25-28.....	4,188	16	.00	13	4.9	5.0	1.4	66	4.8	6.4	.0	.2	.0	94	.13	1,060	52	0	.3	134	7.2
Oct. 29-Nov. 3....	3,528	15	.00	18	6.6	5.0	1.5	80	4.4	11	.0	1.1	.0	119	.16	1,130	72	6	.3	170	7.4
Nov. 4-14.....	3,180	16	.01	16	6.0	4.8	1.6	79	4.8	5.7	.0	1.3	.0	110	.15	947	64	0	.3	137	7.1
Nov. 15-17.....	4,000	--	--	10	4.4	4.6	--	58	5.2	3.7	--	1.7	--	80	.11	648	43	0	.3	114	7.1
Nov. 18-30.....	3,762	--	--	11	6.0	3.7	--	58	--	--	--	--	--	78	.11	792	52	4	.2	111	6.9
Dec. 1-17.....	4,258	--	--	12	5.4	4.2	--	61	--	--	--	--	--	84	.11	966	52	2	.2	120	6.7
Dec. 18, 19.....	17,900	--	--	7.6	5.4	2.9	--	35	--	--	--	--	--	57	.08	2,750	41	12	.2	82	6.9
Dec. 20-31.....	9,519	--	--	8.8	4.4	3.3	--	44	--	--	--	--	--	67	.09	1,720	40	4	.2	96	6.7
Jan. 1-24, 1958....	7,176	--	--	10	4.6	3.9	--	55	--	--	--	--	--	74	.10	1,430	44	0	.3	106	6.8
Jan. 25, 26.....	11,920	--	--	10	5.6	3.7	--	47	--	--	--	--	--	70	.10	2,250	48	9	.2	100	6.8
Jan. 27-28.....	22,150	--	--	6.8	3.6	3.2	--	36	--	--	--	--	--	57	.08	3,410	32	2	.2	81	7.0
Jan. 29-31.....	21,330	--	--	8.0	3.4	3.6	--	39	--	--	--	--	--	61	.08	3,510	34	2	.3	87	7.0
Feb. 1-12.....	27,330	--	--	7.8	3.5	3.2	--	37	--	--	--	--	--	61	.08	4,500	34	4	.2	87	7.2
Feb. 13-24.....	42,670	--	--	7.8	3.3	3.6	--	36	--	--	--	--	--	59	.08	6,800	33	3	.3	84	7.1
Feb. 25-28.....	71,250	--	--	8.6	3.2	3.6	--	38	--	--	--	--	--	62	.08	11,930	34	3	.3	88	7.0

Mar. 1-5, 1958.....	28,200	--	--	8.0	3.6	3.6	3.6	--	38	--	--	--	60	0.08	4,570	35	4	0.3	85 7.2
Mar. 6-21.....	15,030	--	--	9.2	3.6	3.3	3.3	--	43	--	--	--	64	.09	2,600	38	3	.2	92 7.2
Mar. 22-31.....	34,800	--	--	7.6	3.3	3.1	3.1	--	35	--	--	--	56	.08	5,260	32	3	.2	80 7.0
Apr. 1-8.....	47,880	--	--	7.0	3.3	3.8	3.8	--	32	--	--	--	53	.07	6,930	31	5	.3	76 6.8
Apr. 9-15.....	27,860	--	--	9.6	3.6	3.7	3.7	--	42	--	--	--	69	.09	5,190	39	5	.3	99 6.8
Apr. 16-30.....	30,290	--	--	7.6	4.9	3.2	3.2	--	42	--	--	--	59	.08	4,830	39	5	.2	84 7.2
May 1-10.....	25,840	19	0.02	7.8	3.3	2.7	2.7	1.1	36	4.8	2.5	0.0	59	.07	3,830	33	2	.2	75 6.8
May 11-18.....	27,140	--	--	6.8	3.4	2.4	2.4	--	34	--	--	--	42	.06	3,370	33	3	.2	66 6.7
May 19-31.....	26,680	--	--	6.4	2.9	2.2	2.2	--	30	--	--	--	43	.06	3,100	28	3	.2	61 6.7
June 1-30.....	14,080	--	--	7.6	2.6	2.6	2.6	--	34	--	--	--	53	.07	2,010	30	2	.2	76 6.6
July 1-11.....	3,584	--	--	9.6	4.1	3.7	3.7	--	51	--	--	--	69	.09	668	41	0	.2	98 7.5
July 12-15.....	2,032	--	--	14	6.0	4.1	4.1	--	76	--	--	--	93	.13	510	59	0	.2	133 7.0
July 16-31.....	1,866	--	--	13	5.7	4.6	4.6	--	72	--	--	--	92	.13	484	56	0	.3	132 7.0
Aug. 1-31.....	1,341	--	--	14	5.8	5.1	5.1	--	75	--	--	--	98	.13	355	59	0	.3	140 7.3
Sept. 1-30.....	2,288	--	--	13	5.2	4.6	4.6	--	69	--	--	--	88	.12	544	54	0	.3	126 7.1
Weighted average	13,860	--	--	8.4	3.7	3.3	3.3	--	41	--	--	--	61	0.08	2,280	36	2	0.2	87

Analyses of additional samples

Oct. 22, 1957.....	3,380	--	--	--	--	4.8	--	--	70	--	0.5	--	88	0.12	--	55	0	0.3	125 7.3
Nov. 12.....	3,240	--	--	--	--	5.0	--	--	72	--	2.0	--	82	.11	--	56	0	.3	117 8.0
Dec. 23.....	13,800	--	--	--	--	3.6	--	--	36	--	2.0	--	56	.08	--	36	6	.3	80 7.4
Jan. 15, 1958.....	9,110	--	--	--	--	3.8	--	--	49	--	3.0	--	69	.09	--	38	0	.3	99 7.2
Jan. 27.....	26,300	14	0.20	8.4	2.8	2.9	1.0	35	35	6.7	2.0	0.2	55	.08	--	33	4	.2	78 7.1
Feb. 18.....	41,000	--	--	--	--	2.7	--	--	36	--	2.0	--	53	.07	--	33	3	.2	76 7.4
Mar. 11.....	13,000	--	--	--	--	3.2	--	--	43	--	2.2	--	62	.08	--	38	3	.2	89 7.3
Mar. 15.....	30,000	--	--	--	--	3.1	--	--	42	--	1.5	--	58	.08	--	35	1	.2	57 7.4
Apr. 12.....	29,000	14	.07	5.6	1.9	2.2	.8	39	39	1.9	1.0	.1	40	.08	--	32	0	.2	63 7.8
June 16.....	16,990	--	--	--	--	3.8	--	--	60	--	2.4	--	74	.10	--	42	0	.3	106 7.7
July 1.....	1,400	--	--	--	--	3.8	--	--	70	--	4.0	--	86	.12	--	56	0	.3	125 7.6
Aug. 11.....	2,280	16	.02	12	4.9	4.2	2.2	64	64	5.8	2.5	.1	80	.11	--	50	0	.3	114 7.6

SACRAMENTO RIVER BASIN--Continued
 11-4250. FEATHER RIVER AT NICOLAUS, CALIF.--Continued
 Temperature (°F) of water, water year October 1957 to September 1958
 (Once-daily measurement, generally between 7 a.m. and 8 a.m.)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October....	63	63	63	62	60	60	59	61	62	66	61	61	60	61	58	59	58	56	58	57	56	56	58	56	59	57	57	56	56	56	56	59
November...	55	50	50	48	50	50	50	54	52	53	50	52	54	53	49	48	47	48	50	48	49	46	47	45	45	43	43	43	45	45	45	49
December...	46	46	45	46	45	45	46	47	45	44	45	43	44	45	43	49	44	46	46	48	48	45	45	45	43	43	43	43	45	45	45	45
January....	42	45	43	45	42	43	43	42	44	45	45	43	44	43	43	44	43	43	43	43	42	42	42	44	44	47	46	48	50	49	46	44
February....	42	47	48	50	48	49	50	50	50	50	50	51	52	50	51	52	53	52	52	53	52	53	53	53	50	50	50	50	46	--	50	47
March.....	46	46	47	47	42	46	--	46	45	46	45	46	45	46	45	47	47	46	46	50	50	48	51	50	50	50	50	50	--	49	50	47
April.....	50	48	48	47	49	49	50	52	53	52	55	55	56	55	56	56	56	55	56	56	56	--	58	53	52	53	54	54	55	55	--	53
May.....	56	55	57	57	57	57	57	56	56	57	55	54	54	55	56	60	59	59	60	60	59	59	57	57	59	59	60	60	59	61	58	60
June.....	60	60	56	59	59	56	60	60	59	60	60	60	60	60	63	65	65	65	62	64	65	65	65	63	68	67	65	68	65	68	--	63
July.....	65	67	67	70	69	68	70	72	76	77	75	78	79	73	70	69	68	70	72	72	71	70	71	71	74	74	75	74	74	75	72	72
August.....	76	75	75	77	77	77	76	74	75	75	74	77	78	77	78	76	76	77	76	76	78	77	77	74	75	76	73	73	74	75	76	68
September..	75	73	71	70	70	71	72	72	70	69	68	66	61	67	68	66	69	68	68	69	66	68	66	62	63	66	66	66	66	67	--	68

SACRAMENTO RIVER BASIN--Continued
11-4465. AMERICAN RIVER AT FAIR OAKS, CALIF.

LOCATION (revised).--At old highway bridge, 2.2 miles downstream from gaging station, 1,500 feet upstream from new highway bridge at Fair Oaks, Sacramento County, 2.6 miles downstream from Nimbus Dam, and 10 miles downstream from South Fork.

DRAINAGE AREA.--1,689 square miles (revised).

RECORDS AVAILABLE.--Chemical analyses: January to December 1906, March 1951 to September 1958.

EXTREMES: 1957-58 Disolved solids: Maximum, 161 ppm Nov. 24; minimum, 27 ppm June 4-30, Aug. 2-31.

Hardness: Maximum, 34 ppm Nov. 24; minimum, 12 ppm May 24-31.

Specific conductance: Maximum daily, 87 micromhos Nov. 24; minimum daily, 36 micromhos on many days during summer months.

Water temperatures: Maximum, 66°F Sept. 28-30; minimum, freezing point Nov. 25-29.

EXTREMES, 1951-58.--Disolved solids: Maximum, 83 ppm Aug. 11-20, 1954; minimum, 27 ppm June 4-30, Aug. 2-31, 1958.

Hardness: Maximum, 41 ppm Aug. 1 to Sept. 10, 1951, Nov. 21-30, 1952, Aug. 11-20, 1954; minimum, 12 ppm May 24-31, 1958.

Specific conductance: Maximum daily, 112 micromhos Aug. 28, 1951; minimum daily, 29.1 micromhos June 3, 1952.

Water temperatures: Maximum, 81°F July 27, Aug. 3, 1954; minimum, freezing point Nov. 25-29, 1957.

REMARKS.--Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 1-3, 1957..	2,467			6.0	1.5	2.1	--	24							39	0.05	260	21	1	0.2	56	6.7
Oct. 4-23.....	1,558			6.4	2.4	2.3	--	28							42	.06	177	26	3	.2	60	6.9
Oct. 24-31.....	2,329			6.8	2.2	2.6	--	30							48	.07	302	26	1	.2	69	6.8
Nov. 1-23.....	2,489			6.7	2.2	2.1	--	30							45	.06	302	25	0	.2	64	6.7
Nov. 24.....	1,660			11	1.7	2.6	--	31							61	.08	273	34	9	.2	87	6.6
Nov. 25-30.....	1,237			7.0	2.1	2.2	--	30							46	.06	154	26	1	.2	65	6.9
Dec. 1-17.....	976			7.1	2.3	2.4	--	30							47	.06	124	27	2	.2	67	6.8
Dec. 18-31.....	1,376			7.3	2.3	2.4	--	31							48	.07	178	28	3	.2	68	6.7
Jan. 1-9, 1958..	1,326			8.0	2.9	2.5	--	30							53	.07	190	32	7	.2	76	7.1
Jan. 10-26.....	2,165			7.6	3.2	2.5	--	30							51	.07	298	32	7	.2	73	6.7
Jan. 27, 28.....	2,230			8.4	2.4	2.5	--	31							55	.07	331	31	6	.2	79	6.8
Jan. 29-31.....	2,907			8.8	2.4	2.6	--	31							57	.08	447	32	7	.2	82	6.6
Feb. 1-18.....	6,131			7.2	2.7	2.6	--	31							50	.07	828	29	4	.2	72	7.1
Feb. 19-21.....	16,300			7.6	2.2	2.8	--	32							51	.07	2,240	28	2	.2	73	6.9
Feb. 22-24.....	6,780			6.8	2.3	2.6	--	30							48	.07	879	26	1	.2	69	7.1
Feb. 25-Mar. 3..	14,260			6.4	2.3	2.6	--	31							48	.07	1,850	25	0	.2	68	6.8
Mar. 4-23.....	5,549			6.5	1.9	2.2	--	28							46	.06	1,689	24	1	.2	65	7.1
Mar. 24-31.....	14,100			6.6	2.2	2.4	--	32							48	.07	1,830	25	0	.2	68	7.7

SACRAMENTO RIVER BASIN--Continued
 11-4465. AMERICAN RIVER AT FAIR OAKS, CALIF.--Continued
 Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	
													Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Apr. 1-10, 1958..	26,760			6.2	2.6	2.7	--	31					48	0.07	3,470	26	1	0.2	69	7.3	
Apr. 11-16.....	11,260			6.3	2.7	2.7	--	33					40	.06	1,842	24	0	.2	61	7.3	
Apr. 17-30.....	7,630			6.7	1.8	2.2	--	26					38	.05	789	18	0	.2	55	7.2	
May 1-13.....	7,694			5.7	1.5	2.0	--	28					33	.04	977	16	0	.2	47	7.0	
May 14-23.....	10,970			4.8	1.0	2.1	--	22					33	.04	977	16	0	.2	47	7.0	
May 24-31.....	10,610			4.6	1.2	1.7	--	20					29	.04	1,300	12	0	.2	42	6.9	
June 1-3.....	13,830			4.4	1.7	2.0	0.4	17					34	.05	1,270	18	4	.2	48	6.3	
June 4-30.....	7,625			3.2	1.5	2.0	4	18					27	.04	556	14	0	.2	39	6.6	
July 1-31.....	3,734			4.4	1.3	2.1	4	18					32	.04	323	16	1	.2	45	--	
Aug. 1.....	3,770			4.0	2.1	4.6	6	34					44	.06	448	18	0	.7	63	8.0	
Aug. 2-31.....	3,640			4.8	1.5	2.1	6	16					27	.04	265	14	1	.2	39	6.7	
Sept. 1-16.....	3,163			2.8	1.9	1.7	6	18					28	.04	239	15	0	.2	40	6.5	
Sept. 17, 18.....	3,100			4.4	2.1	3.6	6	28					40	.05	335	20	0	.4	57	6.7	
Sept. 19-30.....	3,147			4.4	1.2	1.7	6	18					29	.04	246	16	1	.2	41	6.5	
Weighted average	5,722			5.6	1.8	2.3	--	26					40	0.05	618	22	1	0.2	58	--	
Analysis of additional sample																					
Feb. 3, 1958....	3,560	12	0.05	8.2	2.3	2.6	1.0	34	4.8	1.8	0.2	0.9	0.0	49	0.07	--	30	2	0.2	70	7.5

SACRAMENTO RIVER BASIN--Continued

11-4465. AMERICAN RIVER AT FAIR OAKS, CALIF.--Continued

Temperature (°F) of water, water year October 1957 to September 1958
 /Once-daily measurement, generally between 7 a.m. and 4 p.m./

Month	Day																															Aver- age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October....	45	44	43	43	43	44	43	43	44	43	43	43	43	43	43	40	42	42	43	43	43	41	41	41	43	43	43	41	40	41	41	43
November....	41	40	38	38	38	38	38	38	38	38	38	38	38	38	38	36	35	36	35	34	34	34	34	34	32	32	32	32	32	32	32	37
December....	52	54	49	49	55	54	54	54	54	52	52	52	51	51	51	53	53	52	54	53	52	50	50	51	51	50	51	51	56	50	52	52
January....	56	50	51	57	50	49	49	50	49	50	50	50	51	49	50	50	55	50	50	50	50	49	49	50	51	51	51	51	--	51	50	51
February....	51	50	51	51	51	51	51	51	51	51	51	51	51	51	51	54	51	52	52	53	53	52	52	52	52	52	54	52	--	--	52	52
March....	52	53	51	52	52	50	50	50	50	51	51	--	--	51	51	51	50	51	51	51	51	53	51	53	53	54	50	53	53	52	52	51
April....	52	53	54	54	54	55	54	54	55	55	55	55	55	55	54	55	55	55	53	55	55	55	55	55	56	55	55	55	55	55	--	55
May....	55	55	55	56	56	55	56	55	55	55	55	55	55	55	56	58	56	58	61	--	56	56	58	59	59	58	58	56	56	57	56	56
June....	58	56	58	58	56	56	56	56	56	56	56	56	56	58	58	56	55	55	55	55	57	56	--	--	55	55	56	55	57	58	58	--
July....	57	58	58	58	58	58	58	58	58	58	58	58	58	57	58	57	57	58	58	58	56	58	58	58	59	58	60	58	58	58	60	58
August....	60	59	60	58	60	60	59	60	60	60	61	61	--	--	60	60	60	60	60	60	60	60	60	60	60	60	60	60	64	63	60	60
September..	63	60	61	63	64	64	62	64	64	62	64	64	63	63	63	64	63	63	64	65	65	64	63	62	64	65	65	66	66	66	--	--

SACRAMENTO RIVER BASIN--Continued
11-4470. AMERICAN RIVER AT SACRAMENTO, CALIF.

LOCATION.--At gaging station at H Street Bridge, just east of Sacramento, Sacramento County, and 6.5 miles upstream from mouth.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.
REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (microhm-cm at 25 C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium Magnesium	Non-carbonate			
Oct. 21, 1957....	1,440	--	--	--	--	2.2	--	32	--	2.0	--	--	0.04	--	--	--	24	0	0.2	58	7.0
Nov. 27, 1957....	1,670	--	--	--	--	2.5	--	32	--	2.5	--	--	.00	--	--	--	20	4	.2	58	9.8
Dec. 20, 1957....	1,240	--	--	--	--	2.2	--	32	--	3.6	--	--	.00	--	--	--	30	4	.2	68	9.4
Jan. 17, 1958....	2,070	--	--	--	--	2.3	--	30	--	2.6	--	--	.00	--	--	--	26	1	.2	67	7.0
Feb. 14, 1958....	7,380	--	--	--	--	2.5	--	32	--	2.0	--	--	.00	--	--	--	32	6	.2	70	7.0
Mar. 7, 1958....	6,050	--	--	--	--	1.8	--	29	--	2.8	--	--	.00	--	--	--	24	0	.2	58	7.2
Apr. 4, 1958....	27,500	--	--	--	--	1.9	--	32	--	3.5	--	--	.00	--	--	--	28	2	.2	66	7.2
May 20, 1958....	10,300	13	0.04	4.8	0.7	1.9	0.9	22	0.0	1.0	0.0	0.3	.00	34	0.05	--	15	0	.2	41	6.9
June 19, 1958....	11,300	--	--	--	--	2.3	--	18	--	1.3	--	--	.00	--	--	--	10	0	.3	34	7.4
July 16, 1958....	3,520	--	--	--	--	1.3	--	16	--	1.8	--	--	.10	--	--	--	12	0	.2	33	7.3
Aug. 4, 1958....	3,670	--	--	--	--	1.3	--	17	--	2.5	--	--	.00	--	--	--	14	0	.2	34	7.2
Sept. 5, 1958....	2,960	10	.01	3.7	1.0	1.4	.5	16	.0	1.5	.0	.4	.00	27	.04	--	13	0	.2	35	7.0

SACRAMENTO RIVER BASIN--Continued
11-4475. SACRAMENTO RIVER AT SACRAMENTO, CALIF.

LOCATION.--At Tower Bridge, 0.6 mile downstream from gaging station at Sacramento, Sacramento County, and approximately 1.3 miles downstream from confluence in Rich River.

RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1958.

Water temperatures: May 1955 to September 1958.

Sediment records: October 1956 to September 1958.

EXTREMES 1957-58.--Dissolved solids: Maximum, 129 ppm July 21-31; minimum, 69 ppm Feb. 21-28.

Hardness: Maximum, 70 ppm Sept. 1-14; minimum, 31 ppm May 21-31.

Specific conductance: Maximum daily, 221 micromhos Sept. 4; minimum daily, 66 micromhos Feb. 25.

Water temperatures: Maximum, 74°F July 9, 10, Sept. 1, 2; minimum, 40°F Dec. 28.

Sediment concentrations: Maximum daily, 570 ppm Oct. 16; minimum daily, 30 ppm Dec. 7.

Sediment loads: Maximum daily, 58,600 tons Apr. 3; minimum daily, 1,210 tons Dec. 7.

EXTREMES 1954-58.--Dissolved solids (1955-58): Maximum, 156 ppm Sept. 11-19, 1957; minimum, 41 ppm Feb. 26-28, 1957.

Hardness (1955-58): Maximum, 74 ppm Sept. 1-10, 11-19, 1957; minimum, 22 ppm Dec. 22-31, 1955.

Specific conductance (1955-58): Maximum daily, 247 micromhos Sept. 7, 1957; minimum daily, 47.2 micromhos Dec. 26, 1955.

Water temperatures: Maximum, 78°F June 21, 1957; minimum, 38°F Jan. 30, 31, Feb. 1, 1957.

REMARKS.--Minimum observed during water year: Hardness, 29 ppm Apr. 4. Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1957 to September 1958 given in WSP 1565. No appreciable inflow between gage and sampling point except during periods of high local runoff.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carb- onate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃) (B)	Dissolved solids (residue at 180° C)			Hardness as CaCO ₃		So- dium ad- sorp- tion (micro- mhos at 25° C)	pH		
														Parts per million	Tons per acre- foot	Tons per day	Cal- cium, Mag- ne- sium	Non- car- bon- ate				
Oct. 1-6, 1957....	16,130	19	0.01	14	6.8	13	2.1	80		9.6	9.5	0.1	1.9	0.37	121	0.16	5,270	63	0	0.7	180	7.5
Oct. 7-13.....	16,160	24	.00	12	6.3	11	1.8	78		6.7	7.5	.0	1.2	.37	109	.15	4,760	56	0	.6	159	7.6
Oct. 14-21.....	21,810	24	.04	13	6.7	11	2.0	77		12	9.0	.0	1.2	.26	113	.16	6,650	60	0	.6	168	7.8
Oct. 22-31.....	18,020	23	.00	13	6.0	9.5	1.5	73		7.7	7.0	.0	.3	.28	102	.14	4,960	57	0	.5	154	7.5
Nov. 1-10.....	16,380	24	.01	13	6.9	9.2	1.5	72		12	6.0	.2	.4	.03	122	.17	5,400	61	2	.5	152	7.2
Nov. 11-14.....	15,880	25	.01	14	5.6	10	1.5	74		11	7.2	.2	.2	.08	124	.17	5,320	58	0	.6	159	7.1
Nov. 15-18.....	27,300	21	.04	10	4.6	6.1	1.8	54		8.6	3.6	.2	.5	.02	88	.12	6,490	44	0	.4	112	6.8
Nov. 19-26.....	19,550	25	.03	13	5.5	9.0	1.5	69		11	4.7	.2	.5	.07	116	.16	6,120	55	0	.5	143	7.2
Nov. 27-30.....	17,550	26	.01	13	6.9	11	1.6	78		11	8.0	.2	.3	.02	120	.16	5,690	61	0	.6	167	7.1
Dec. 1-10.....	15,110	25	.02	17	7.2	10	1.7	81		3.8	7.0	.2	.6	.04	108	.15	4,410	60	0	.6	157	7.5
Dec. 11-17.....	15,400	25	.02	10	8.0	10	1.9	80		6.7	6.0	.2	.6	.08	105	.14	4,370	58	0	.6	159	7.1
Dec. 18-23.....	35,380	20	.05	2.4	8.8	6.2	1.5	55		5.8	4.0	.2	.7	.00	97	.13	9,270	42	0	.4	112	7.0
Dec. 24-31.....	30,640	22	.05	6.4	8.5	7.5	1.6	68		7.7	5.0	.2	.6	.03	100	.14	8,270	51	0	.5	135	7.0

SACRAMENTO RIVER BASIN--Continued
11-4475. SACRAMENTO RIVER AT SACRAMENTO, CALIF.--Continued

Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium magnesium	Non-carbonate			
Jan. 1-16, 1958..	31,510	23	0.05	8.4	7.8	7.7	1.6	69	5.8	5.0	0.2	0.6	0.05	101	0.14	8,590	53	0	0.5	142	7.0
Jan. 17-25.....	30,340	24	.02	10	8.0	8.5	1.6	77	3.8	6.0	.2	.5	.00	99	.13	8,110	58	0	.5	153	7.2
Jan. 26-31.....	51,550	20	.15	8.4	5.8	7.0	1.8	59	5.8	5.0	.3	.7	.03	94	.13	13,080	45	0	.4	122	6.9
Feb. 1-12.....	66,780	21	.05	9.8	5.2	5.7	1.5	59	5.8	3.5	.0	.7	.08	96	.13	17,310	46	0	.4	112	7.3
Feb. 13-20.....	73,400	18	.03	8.0	4.1	4.3	1.4	50	1.9	2.4	.0	.7	.09	72	.10	14,270	37	0	.3	95	7.2
Feb. 21-28.....	79,680	18	.04	7.8	3.2	3.5	1.3	44	1.9	2.4	.0	.6	.06	69	.09	14,840	33	0	.3	85	7.1
Mar. 1-6.....	71,850	17	.10	9.1	4.0	4.4	1.3	52	2.9	3.2	.0	1.0	.00	84	.11	16,300	39	0	.3	101	7.2
Mar. 7-21.....	48,850	27	.08	13	6.0	7.1	1.3	71	7.7	6.7	.0	.8	.00	104	.14	14,010	57	0	.4	148	7.5
Mar. 22-31.....	69,330	27	.08	13	6.0	7.1	1.3	71	7.7	6.7	.0	.8	.00	104	.14	14,010	57	0	.4	148	7.5
Apr. 1-10.....	85,530	15	.07	7.6	3.6	4.2	1.1	44	2.9	4.7	.0	.6	.00	83	.11	15,540	43	0	.4	118	7.2
Apr. 11-20.....	69,050	20	.05	11	4.4	5.5	1.1	59	2.9	5.8	.0	1.0	.00	92	.10	16,930	34	1	.3	189	7.2
Apr. 21-30.....	59,510	20	.04	11	4.5	5.4	1.0	59	3.8	5.8	.0	.6	.10	89	.12	17,300	46	0	.3	118	7.3
May 1-12.....	47,350	19	.02	10	3.8	6.4	1.1	52	4.8	6.1	.0	.6	.00	83	.11	10,610	31	0	.4	91	7.1
May 13-20.....	53,540	18	.03	8.0	3.4	4.6	.8	41	2.9	5.8	.0	.6	.10	74	.10	10,700	34	0	.3	91	7.1
May 21-31.....	60,520	16	.02	7.4	3.2	4.5	.8	39	4.4	5.5	.0	.6	.10	77	.10	12,580	31	0	.4	86	7.3
June 1-8.....	44,250	18	.00	9.5	4.3	6.8	1.1	51	5.2	6.3	.1	.5	.10	75	.10	8,960	41	0	.5	113	7.0
June 9-13.....	35,080	20	.01	10	4.9	8.1	1.1	58	6.7	7.2	.1	.5	.00	85	.12	8,050	45	0	.5	129	7.3
June 14-23.....	36,770	18	.01	9.2	4.3	6.8	1.3	52	4.8	5.3	.1	.4	.10	76	.10	7,550	40	0	.5	113	7.0
June 24-30.....	22,170	20	.00	11	5.1	8.6	1.3	60	6.7	6.4	.1	.5	.10	88	.12	5,270	49	0	.5	134	7.8
July 1-10.....	15,650	22	.00	14	5.6	10	1.3	71	9.6	9.0	.1	.4	.10	122	.17	5,160	58	0	.6	161	7.3
July 11-20.....	13,930	22	.00	13	6.4	11	1.3	74	12	9.0	.1	.5	.10	126	.17	4,740	59	0	.6	165	7.3
July 21-31.....	13,860	24	.00	13	6.7	12	1.3	78	8.6	9.0	.1	.2	.10	129	.18	4,760	60	0	.7	170	7.3
Aug. 1-10.....	13,810	23	.03	9.6	8.5	11	.9	76	7.7	9.5	.0	.4	.20	110	.15	4,100	59	0	.6	167	6.6
Aug. 11-20.....	13,820	23	.01	9.0	9.0	11	.9	74	11	10	.0	.6	.30	115	.16	4,290	62	1	.6	169	6.7
Aug. 21-31.....	14,890	11	.01	12	8.3	11	.9	79	9.6	10	.0	.4	.20	108	.15	4,340	64	0	.6	173	6.8
Sept. 1-14.....	16,560	11	.01	13	9.1	13	.9	85	11	12	.0	.4	.10	120	.16	5,370	70	1	.7	192	6.9
Sept. 15-21.....	16,110	10	.01	12	7.3	9.6	.9	72	9.6	8.0	.0	.7	.20	105	.14	4,570	60	1	.5	155	6.9
Sept. 22-30.....	14,830	23	.01	10	5.8	7.0	.9	66	3.8	6.5	.0	.4	.10	92	.13	3,680	49	0	.4	133	6.9
Weighted average	35,750	19	0.04	9.8	5.3	6.7	1.3	59	5.5	5.6	0.1	0.7	0.07	91	0.12	8,780	46	0	0.4	122	--

Analyses of additional samples

Oct. 21, 1957	17,900	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---</
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a Calculated from determined constituents.

Temperature (°F) of water, water year October 1957 to September 1958
/Once-daily measurement at approximately 12:15 p.m.7

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October.....	65	64	62	63	61	61	61	62	60	60	59	58	60	60	61	62	62	61	59	59	59	58	60	60	61	60	62	61	60	61	60	
November.....	59	56	60	55	54	54	54	54	54	54	55	55	56	55	54	52	51	52	50	52	50	52	51	50	51	52	50	49	50	52	53	
December.....	49	50	50	47	48	48	48	48	48	48	47	47	46	46	48	49	50	49	48	47	48	47	47	47	47	46	40	41	48	46	47	
January.....	47	47	47	42	43	46	45	41	45	46	46	47	47	47	47	46	46	47	47	47	47	46	45	47	46	48	48	49	49	49	46	
February.....	48	48	49	50	50	50	51	50	50	51	51	52	50	50	52	50	52	51	52	52	51	52	53	52	50	52	52	51	51	51	50	
March.....	48	48	49	50	50	50	49	50	50	50	50	49	49	49	49	50	51	51	52	51	52	51	51	52	51	52	52	51	51	51	50	
April.....	50	49	49	50	49	50	51	52	53	54	55	52	53	58	59	60	59	58	56	57	59	58	57	56	56	51	51	57	59	54		
May.....	59	59	60	60	60	60	61	60	60	58	56	58	56	60	61	61	62	62	61	60	60	60	60	61	62	62	62	61	60	60	60	
June.....	62	60	62	62	62	61	62	62	63	63	61	62	64	65	65	66	66	66	66	66	67	67	67	69	69	67	69	70	69	69	65	
July.....	69	69	69	69	70	70	70	72	74	74	73	71	72	70	68	67	69	68	68	68	69	69	70	70	71	71	72	71	71	71	70	
August.....	72	70	71	72	72	72	71	69	70	72	71	72	71	71	69	69	69	69	69	71	72	70	71	71	71	70	71	70	70	71	69	
September.....	74	74	--	73	73	72	71	--	71	70	69	69	69	68	69	68	--	70	70	67	69	67	67	66	66	63	65	69	69	69	69	

SACRAMENTO RIVER BASIN--Continued

11-4475. SACRAMENTO RIVER AT SACRAMENTO, CALIF.--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	18,100	106	5,180	17,100	70	a3,200	16,100	54	2,350
2...	17,300	111	5,180	17,000	70	a3,200	15,700	40	1,700
3...	16,600	90	4,030	16,800	64	2,900	15,500	35	a1,500
4...	15,500	62	2,590	16,700	52	2,340	15,100	35	1,430
5...	14,800	58	2,320	16,700	43	1,940	14,900	34	a1,400
6...	14,500	62	2,430	16,400	49	2,170	14,900	34	1,370
7...	15,300	77	3,180	15,700	46	1,950	14,900	30	1,210
8...	15,700	75	3,180	15,700	40	a1,700	15,100	46	1,880
9...	15,300	73	3,020	15,800	36	1,540	14,700	54	2,140
10...	14,700	68	2,700	15,900	41	1,760	14,200	44	1,690
11...	15,300	80	a3,300	15,400	33	1,370	13,600	38	1,400
12...	17,700	110	a5,300	15,300	33	1,360	14,000	48	1,810
13...	19,100	150	a7,700	16,000	47	2,030	14,100	48	1,830
14...	19,700	187	9,950	16,800	50	2,270	14,100	45	1,710
15...	24,400	310	20,400	24,400	140	9,220	14,700	40	1,590
16...	27,000	570	41,600	29,600	280	22,400	14,500	45	1,760
17...	24,500	330	21,800	29,300	310	a25,000	22,800	197	12,100
18...	21,800	100	5,890	25,900	220	15,400	31,800	434	37,300
19...	20,100	87	4,720	22,400	152	9,190	36,600	488	46,200
20...	19,100	90	4,640	20,300	110	6,030	38,000	260	26,700
21...	17,900	82	3,960	19,600	87	4,600	36,200	226	22,100
22...	17,400	79	3,710	19,500	82	4,320	34,200	204	18,800
23...	17,100	68	3,140	18,900	73	3,730	35,500	182	17,400
24...	17,700	60	2,870	18,900	70	3,570	36,700	210	20,800
25...	18,000	70	3,400	18,700	59	2,980	35,100	208	19,700
26...	19,000	75	3,850	18,100	59	2,880	32,200	192	16,700
27...	19,100	82	4,230	18,100	76	3,710	29,100	134	10,500
28...	18,400	85	4,220	17,900	73	3,530	27,000	90	a6,600
29...	18,000	75	3,640	17,500	56	2,650	26,200	70	a5,000
30...	18,000	75	3,640	16,700	50	2,250	27,800	106	7,960
31...	17,500	72	3,400	--	--	--	31,000	160	a13,000
Total	564,600	--	199,170	563,100	--	151,190	716,300	--	307,630
Day	January			February			March		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	31,400	160	13,600	61,600	210	34,900	79,200	220	47,000
2...	31,000	143	12,000	61,700	245	40,800	76,800	210	43,500
3...	30,700	129	10,700	64,000	300	51,800	74,200	220	44,100
4...	32,500	178	15,600	66,100	260	46,400	68,900	210	39,100
5...	32,600	194	17,100	65,400	240	42,400	66,600	180	32,400
6...	30,800	136	11,300	65,800	250	44,400	65,400	170	30,000
7...	28,400	92	7,050	67,300	240	43,600	63,300	190	32,500
8...	28,900	82	5,960	69,000	240	44,700	61,600	190	31,600
9...	26,000	71	4,980	69,800	240	45,200	59,700	190	30,600
10...	26,700	82	5,910	70,100	220	41,600	57,500	200	31,100
11...	28,200	129	9,820	69,700	190	a36,000	54,300	210	30,800
12...	32,800	160	14,200	70,900	180	34,500	50,700	210	28,700
13...	35,400	215	20,500	72,600	230	45,100	47,400	200	25,600
14...	36,400	238	23,400	72,200	240	46,800	44,900	185	22,400
15...	37,200	280	28,100	71,500	220	42,500	45,100	180	21,900
16...	37,200	228	22,900	70,600	220	41,900	47,400	177	22,700
17...	36,500	154	15,200	70,500	190	36,200	47,300	155	19,800
18...	35,300	140	a13,000	71,800	160	31,000	45,400	135	16,200
19...	33,300	134	12,000	77,300	150	31,300	42,600	140	16,100
20...	31,300	116	9,800	80,000	155	33,800	40,100	195	21,100
21...	29,300	127	10,000	80,700	170	37,000	41,100	204	22,600
22...	27,300	150	11,100	76,400	200	41,300	52,100	200	28,100
23...	26,100	128	9,020	73,200	210	41,500	63,300	192	32,800
24...	26,300	92	6,530	72,400	260	50,800	74,600	192	38,700
25...	27,700	130	a9,700	78,900	250	53,300	77,400	184	38,500
26...	35,600	290	27,900	85,500	240	55,400	76,400	160	a33,000
27...	46,100	428	53,300	87,100	240	56,400	75,200	125	25,400
28...	52,300	355	50,100	83,200	210	47,200	71,500	140	27,000
29...	55,200	376	56,000	--	--	--	66,400	131	23,500
30...	58,500	265	41,900	--	--	--	65,700	122	21,600
31...	61,600	318	52,900	--	--	--	70,700	112	21,400
Total	1,086,600	--	601,570	2,028,000	--	1,197,800	1,872,800	--	899,800

a Computed from estimated-concentration graph.

SACRAMENTO RIVER BASIN--Continued

11-4475. SACRAMENTO RIVER AT SACRAMENTO, CALIF.--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1...	77,700	113	23,700	49,900	135	18,200	51,700	--	13,000
2...	82,700	165	36,800	48,100	120	15,600	49,400	105	
3...	86,800	250	58,600	46,600	100	13,000	46,900	--	
4...	87,300	235	55,400	46,000	105	13,000	45,700	95	
5...	87,600	210	50,000	45,500	114	14,000	43,500	--	
6...	87,500	180	43,000	46,000	82	10,100	40,900	102	9,100
7...	88,800	168	40,300	47,100	92	11,700	39,000	--	
8...	86,200	143	33,300	47,500	106	13,600	36,900	--	
9...	85,600	118	27,300	47,300	93	11,900	35,500	80	
10...	85,100	110	25,300	47,100	87	11,000	35,000	--	
11...	81,300	108	23,700	48,100	100	13,000	34,900	77	7,800
12...	73,400	97	19,200	49,000	128	16,900	35,000	--	
13...	70,000	95	18,000	51,100	107	14,800	35,000	90	
14...	68,900	99	18,400	53,000	108	15,500	36,700	--	
15...	68,000	82	15,100	53,600	108	15,600	38,000	73	
16...	67,400	90	16,400	53,300	115	16,500	38,600	--	6,400
17...	67,100	82	14,900	53,000	115	16,500	38,400	62	
18...	66,600	87	15,600	53,600	101	14,600	38,700	--	
19...	64,700	95	16,600	54,800	92	13,600	38,900	59	
20...	63,100	95	16,200	55,900	84	12,700	38,100	--	
21...	62,500	93	15,700	56,600	80	12,200	36,000	--	6,100
22...	62,300	105	17,700	58,400	65	13,400	33,500	70	
23...	62,100	108	18,100	59,200	100	16,000	30,800	--	
24...	62,300	118	19,800	61,600	190	31,600	28,600	80	
25...	61,800	113	18,900	64,900	190	33,000	26,200	79	
26...	60,500	90	14,700	65,900	140	25,000	23,700	--	4,300
27...	59,000	87	13,900	64,200	100	17,300	21,900	83	
28...	57,200	95	14,700	62,906	77	13,100	19,900	--	
29...	55,000	110	16,300	60,600	63	10,300	18,000	77	
30...	52,400	120	17,000	57,100	92	14,200	16,900	--	
31...	--	--	--	54,300	115	16,900	--	--	--
Total	2,140,900	--	734,600	1,662,200	--	484,700	1,052,300	--	233,500
Day	July			August			September		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1...	16,200	57	2,100	13,700	--	1,900	15,800	--	2,900
2...	15,800	--		13,700	--		14,300	63	
3...	15,700	--		14,100	57		14,800	--	
4...	16,300	49		14,300	--		15,600	75	
5...	16,500	--		14,200	50		16,000	--	
6...	15,700	50	1,700	14,100	--	1,500	16,200	70	3,400
7...	15,600	--		14,100	49		16,700	--	
8...	15,200	50		13,800	--		16,900	--	
9...	14,900	--		13,900	42		17,600	62	
10...	14,600	40		12,200	--		16,600	--	
11...	14,100	--	1,600	13,300	42	1,800	17,400	79	1,800
12...	14,100	46		13,900	--		17,800	--	
13...	14,200	--		13,600	40		16,000	75	
14...	14,200	44		13,800	--		18,100	--	
15...	13,500	--		13,400	38		16,000	67	
16...	13,900	42	1,600	14,300	--	1,800	17,300	--	1,800
17...	13,700	--		12,800	39		16,800	--	
18...	13,700	55		13,900	--		16,000	75	
19...	14,000	--		14,400	41		15,300	--	
20...	13,900	50		14,600	--		15,000	78	
21...	14,100	--	1,600	14,700	53	1,800	14,600	--	1,800
22...	14,200	41		14,700	--		14,600	37	
23...	14,000	--		14,400	40		15,300	--	
24...	13,500	--		14,600	--		14,800	44	
25...	13,400	--		14,600	--		14,900	--	
26...	13,700	--	1,600	14,700	--	1,800	15,600	65	1,800
27...	13,600	40		15,100	41		14,900	--	
28...	13,500	--		15,000	--		14,700	38	
29...	13,600	42		15,000	48		14,400	--	
30...	13,300	--		15,200	--		14,300	30	
31...	13,400	53		15,800	55		--	--	--
Total	446,100	--	55,600	440,100	--	53,800	478,100	--	81,000
Total discharge for year (cfs-days).....									
Total load for year (tons).....									
13,049,100									
5,000,360									

a Computed from estimated-concentration graph.

SACRAMENTO RIVER BASIN--Continued

11-4475. SACRAMENTO RIVER AT SACRAMENTO, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;

P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Samp- ling point	Water tem- per- ature (°F)	Discharge (cfs)	Sediment con- cen- tration (ppm)	Suspended sediment											Method of analysis
						Percent finer than size indicated, in millimeters											
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Jan. 13, 1958.....	1020		50	35,300	215		29	37	--	56	66	73	85	100	--		VPWC
Jan. 27.....	1420		--	47,200	434		--	33	--	51	--	70	81	100	--		VPWC
Feb. 3.....	1345		51	64,200	312		30	34	39	41	43	44	52	86	100		VPWC
Feb. 17.....	1350		55	70,400	182		--	38	--	48	--	53	59	86	100		VPWC
Mar. 3.....	1055		52	74,900	218		43	53	59	61	64	66	69	90	100		VPWC
Mar. 15.....	1325		50	45,000	180		--	30	--	49	--	75	83	97	100		VPWC
Apr. 4.....	1350		53	86,700	231		--	28	--	38	--	42	45	71	99	100	VPWC

SACRAMENTO RIVER BASIN--Continued
 11-4478. SACRAMENTO RIVER AT SNODGRASS SLOUGH, NEAR COURTLAND, CALIF.

LOCATION.--At tidal gaging station, 2 miles north of Courtland, Sacramento County, and approximately 1.5 miles south of Hood.
 RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1958.
 REMARKS.--Tidal gaging station maintained and operated by State of California Department of Water Resources. No discharge records available for this station due to tidal effects from Suisun Bay.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 24, 1957						8.6		90			4.5			0.00				64	0	0.5	136	8.0
Nov. 13						11.4		80			8.9			.00				32	0	.4	135	7.9
Dec. 13						8.2		82			5.5			.12				50	0	.6	162	7.8
Jan. 17, 1958						8.5	1.4	62			5.5			.13				42	0	.4	144	7.8
Feb. 13						5.2		60			3.8			.03				42	0	.4	140	7.7
Mar. 7						5.5		62			4.0			.03				50	0	.3	120	7.5
Apr. 2						3.6		40			3.0			.00				37	4	.3	87	7.2
May 19		17	0.01	8.8	3.5	6.7	1.4	43		9.6	5.2	0.0	0.3	.06	74	0.10		37	2	.5	99	6.9
June 11						6.6		55			4.8			.00				40	0	.5	113	7.8
July 9						11		74			9.8			.00				55	0	.6	163	7.5
Aug. 6						11		74			10			.20				62	1	.6	163	7.7
Sept. 2		21	.02	14	6.6	10	.9	79		8.6	10	.0	.0	.10	110	.15		62	0	.6	175	7.4

SACRAMENTO RIVER BASIN--Continued
11-4500. CLEAR LAKE AT LAKEPORT, CALIF.

LOCATION ---At foot of Third Street near municipal wharf in Lakeport, Lake County.
DRAINAGE AREA 928 square miles, including Lakeport (65 square miles).
RECORDS AVAILABLE ---Chemical analyses October 1953 to September 1958 given in WSP 1565.
REMARKS ---Records of gage height for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate		
Oct. 16, 1957....		--	--	--	--	12	--	150	--	--	7.0	--	--	0.82	--	--	--	125	2	0.5	271
Nov. 19.....		--	--	--	--	11	--	155	--	--	7.0	--	--	.88	--	--	--	126	0	.4	278
Dec. 18.....		--	--	--	--	11	--	139	--	--	6.5	--	--	.78	--	--	--	115	1	.4	252
Jan. 22, 1958....		--	--	--	--	9.6	--	142	--	--	6.0	--	--	.43	--	--	--	110	0	.4	249
Feb. 21.....		--	--	--	--	7.5	--	114	--	--	4.3	--	--	.49	--	--	--	90	0	.3	208
Mar. 11.....		--	--	--	--	7.3	--	110	--	--	4.5	--	--	.33	--	--	--	90	0	.3	199
Apr. 15.....		--	--	--	--	6.4	--	106	--	--	4.2	--	--	.26	--	--	--	82	0	.3	187
May 14.....	14	0.04	17	10	--	7.3	1.9	109	5.8	--	3.8	0.1	0.4	.50	113	0.16	--	89	0	.3	189
June 17.....		--	--	--	--	7.7	--	118	--	--	4.2	--	--	.30	--	--	--	90	0	.3	202
July 11.....		--	--	--	--	8.3	--	120	--	--	5.0	--	--	.20	--	--	--	86	0	.4	203
Aug. 11.....		--	--	--	--	8.3	--	120	--	--	5.0	--	--	.20	--	--	--	96	0	.4	217
Sept. 11.....	14	.05	23	10	--	7.6	2.9	126	8.6	--	5.2	.1	2.0	.50	136	.18	--	99	0	.3	220

a Includes equivalent* of 4 parts per million of carbonate (CO₃).

SACRAMENTO RIVER BASIN--Continued

11-4501. CLEAR LAKE NEAR CLEAR LAKE OAKS, CALIF.

LOCATION.--At boat pier at Glen Haven Fish Harbor Motel, 3.6 miles above Clear Lake Oaks, Lake County.
 RECORDS AVAILABLE.--Chemical analyses: October 1953 to October 1958 (discontinued).

Chemical analyses, in parts per million, October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium, Sodium	Non-carbonate			
Oct. 16, 1957	---	---	---	---	---	10	---	180	---	---	6.5	---	---	0.83	---	---	---	124	0	0.4	277	7.9
Nov. 19	---	---	---	---	---	11	---	161	---	---	7.5	---	---	.89	---	---	---	127	0	.4	281	7.9
Dec. 18	---	---	---	---	---	12	---	154	---	---	6.5	---	---	.85	---	---	---	129	3	.5	279	7.8
Jan. 22, 1958	---	---	---	---	---	12	---	156	---	---	7.0	---	---	1.1	---	---	---	123	0	.5	281	7.9
Feb. 20	---	---	---	---	---	8.8	---	129	---	---	5.5	---	---	.59	---	---	---	103	0	.4	234	7.9
Mar. 11	---	---	---	---	---	7.8	---	117	---	---	5.0	---	---	.49	---	---	---	98	2	.3	215	7.8
Apr. 15	---	---	---	---	---	7.1	---	112	---	---	5.0	---	---	.30	---	---	---	88	0	.3	199	8.0
May 14	13	0.07	16	---	11	7.5	1.7	108	---	9.6	4.0	0.2	0.3	.54	117	0.16	84	0	.3	197	7.6	
June 17	---	---	---	---	---	7.3	---	113	---	---	3.2	---	---	.50	---	---	---	87	0	.3	198	8.2
July 11	---	---	---	---	---	8.0	---	117	---	---	4.2	---	---	.30	---	---	---	90	0	.4	203	7.9
Aug. 11	---	---	---	---	---	7.6	2.5	127	---	---	5.5	---	---	.60	---	---	---	101	0	.4	217	7.9
Sept. 11	---	---	.02	20	---	8.0	---	127	---	11	4.9	1	2.0	.60	137	.19	---	101	0	.3	225	7.6
Oct. 20	---	---	---	---	---	8.0	---	130	---	---	6.0	---	---	.5	---	---	---	104	0	.3	235	7.7

a Includes equivalent of 7 parts per million of carbonate (CO₃).

SACRAMENTO RIVER BASIN--Continued
11--4510. CACHE CREEK NEAR LOWER LAKE, CALIF.

LOCATION.--At gaging station, 500 feet downstream from Clear Lake Dam, 1.9 miles downstream from Copsey Creek, and 2.5 miles northeast of Lower Lake, Lake County.
DRAINAGE AREA.--528 square miles, including water surface of Clear Lake (65 square miles).
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.
REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)		Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)
															Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate		
Oct. 15, 1957.....	1.6	--	--	--	--	9.5	--	121	--	--	6.0	--	--	0.63	--	--	100	1	0.4	226 7.7
Nov. 19.....	1.1	--	--	--	--	11	--	129	--	--	7.0	--	--	--	--	--	114	8	0.4	255 7.5
Dec. 18.....	1.5	--	--	--	--	7.6	--	56	--	--	4.5	--	--	0.08	--	--	56	10	0.4	140 7.1
Jan. 22, 1958.....	1.9	--	--	--	--	12	--	122	--	--	6.5	--	--	0.21	--	--	104	4	0.5	258 7.6
Feb. 21.....	3,800	--	--	--	--	10	--	147	--	--	6.5	--	--	0.88	--	--	117	0	0.4	269 7.8
Mar. 11.....	3,680	--	--	--	--	9.8	--	139	--	--	6.5	--	--	0.77	--	--	114	0	0.4	255 7.8
Apr. 15.....	3,790	--	--	--	--	8.3	--	128	--	--	6.5	--	--	0.64	--	--	98	0	0.4	231 7.8
May 14.....	33	21	0.01	22	13	12	2.9	138	12	--	7.0	0.1	1.2	0.58	160	0.22	108	0	0.5	269 7.8
June 17.....	285	--	--	--	--	9.1	--	139	--	--	5.2	--	--	0.60	--	--	101	0	0.4	228 8.2
July 11.....	407	--	--	--	--	8.4	--	131	--	--	4.7	--	--	0.50	--	--	98	0	0.4	228 7.7
Aug. 11.....	382	--	--	--	--	8.8	--	130	--	--	6.0	--	--	0.50	--	--	98	0	0.4	229 7.6
Sept. 11.....	136	9.8	0.02	17	16	--	3.0	134	5.8	5.8	5.8	1.1	2.3	0.70	135	0.18	107	0	0.4	243 7.4

SACRAMENTO RIVER BASIN--Continued

11-4515. NORTH FORK CACHE CREEK NEAR LOWER LAKE, CALIF.

LOCATION---At bridge on State Highway 20, 3 miles below gaging station, 2 miles above confluence with Cache Creek, and 6.5 miles northeast of Lower Lake, Lake County. 198 square miles upstream from gaging station.

REMARKS---Records of discharge for water year October 1957 to September 1958. Some inflow between gaging station and sampling point during rainy season.

RECORDS AVAILABLE---Chemical analyses October 1953 to September 1958.

REMARKS---Records of discharge for water year October 1957 to September 1958. Some inflow between gaging station and sampling point during rainy season.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium, strontium	Non-carbonate			
Oct. 16, 1957....	122	---	---	---	---	25	---	198	0	---	36	---	---	3.0	---	---	---	159	0	0.9	416	8.0
Nov. 19.....	68	---	---	---	---	29	---	183	9	---	37	---	---	2.9	---	---	---	166	1	1.0	436	8.4
Dec. 18.....	1,590	---	---	---	---	8.7	---	98	0	---	9.0	---	---	.53	---	---	---	76	0	.4	181	7.2
Jan. 22, 1958....	2,186	---	---	---	---	16	1.1	170	0	---	12	---	---	1.0	---	---	---	131	0	.6	317	8.2
Feb. 20.....	2,980	---	---	---	---	7.2	---	104	0	---	4.0	---	---	.16	---	---	---	79	0	.3	183	7.9
Mar. 11.....	1,000	---	---	---	---	12	---	188	0	---	9.0	---	---	.50	---	---	---	150	0	.4	326	8.0
Apr. 15.....	560	---	---	---	---	10	---	162	0	---	8.2	---	---	.34	---	---	---	126	0	.4	281	8.1
May 14.....	142	22	0.00	30	29	15	1.5	232	8	12	16	0.0	0.5	1.79	241	0.33	193	3	.5	414	8.1	
June 17.....	60	---	---	---	---	23	---	225	8	---	25	---	---	1.8	---	---	---	202	4	.7	459	8.4
July 11.....	22	---	---	---	---	26	---	215	11	---	37	---	---	2.3	---	---	---	184	0	.8	477	8.5
Aug. 11.....	8.0	---	---	---	---	30	---	218	4	---	46	---	---	1.3	---	---	---	196	11	.9	502	8.3
Sept. 11.....	4.4	23	.00	33	27	31	2.1	216	0	12	52	.0	.0	3.3	289	.39	194	17	1.0	507	8.2	

SACRAMENTO RIVER BASIN--Continued
11-4515. NORTH FORK CACHE CREEK NEAR LOWER LAKE, CALIF.--Continued

Periodic determinations of suspended-sediment discharge,
water year October 1957 to September 1958

Date	Time (24 hr)	Water tem- per- ature (°F)	Discharge (cfs)	Suspended sediment	
				Mean concen- tration (ppm)	Discharge (tons per day)
Oct. 20, 1957.....	1730	57	55	2	0.3
Oct. 23.....	1435	--	67	14	2.5
Nov. 20.....	1335	57	60	2	.3
Dec. 24.....	0940	43	368	42	42
Jan. 13, 1958.....	1400	46	1,030	143	398
Feb. 10.....	1415	53	2,910	1,130	8,880
Feb. 26.....	1155	53	3,660	1,170	11,600
Mar. 10.....	1430	50	1,010	23	63
Apr. 7.....	0950	51	1,480	489	1,950
May 12.....	1015	57	162	7	3.1
June 9.....	1340	63	85	5	1.1
Aug. 1.....	1145	65	8.0	3	.1
Sept. 2.....	1200	80	5.6	4	.1

Particle size analyses of suspended sediment, water year October 1957 to September 1958
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Sam- pling point (° F)	Water tem- per- ature (° F)	Discharge (cfs)	Sediment concen- tration (ppm)	Percent finer than size indicated, in millimeters										Method of analysis	
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		2.000
Jan. 13, 1958.....	1400		46	1,030	143		--	--			79	82	86	97	100		V
Feb. 10.....	1415		53	2,910	1,130		29		47		68	79	89	96	100		VPWC
Feb. 26.....	1155		53	3,660	1,170		34		54		73	84	93	98	100		VPWC
Apr. 7.....	0950		51	1,480	489		26		59		79	85	91	98	100		VPWC

SACRAMENTO RIVER BASIN--Continued
11-4520. CACHE CREEK NEAR CAPAY, CALIF.

LOCATION.--At gaging station, 1.8 miles upstream from Clear Lake Water Co.'s diversion dam, 3.2 miles northwest of Capay, Yolo County, and 5.4 miles northwest of Esparto.

DRAINAGE AREA.--1,052 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1958.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carb. bicarbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium, sodium	Non-carbonate			
Oct. 28, 1957....	75	--	--	--	--	69	--	276	--	--	104	--	--	3.1	--	--	--	235	9	2.0	766	8.1
Nov. 13.....	86	--	--	--	--	56	--	246	--	--	86	--	--	2.8	--	--	--	217	15	1.7	663	8.4
Dec. 23.....	285	--	--	--	--	35	--	218	--	--	31	--	--	1.0	--	--	--	120	3	1.0	339	8.0
Jan. 23, 1958....	6,680	--	--	--	--	24	--	169	--	--	9.5	--	--	.58	--	--	--	123	0	1.2	272	8.1
Feb. 17.....	4,690	--	--	--	--	12	--	169	--	--	12	--	--	.88	--	--	--	126	0	.4	272	8.0
Mar. 11.....																						
Apr. 14.....	5,380	--	--	--	--	15	--	168	--	--	12	--	--	.61	--	--	--	135	0	.6	328	8.1
May 14.....	347	20	0.02	16	58	46	2.7	320	56	--	48	0.1	1.5	1.6	408	0.55	280	18	1.2	722	8.1	
June 16.....	335	--	--	--	--	33	--	b236	--	--	34	--	--	1.5	--	--	204	10	1.0	516	8.4	
July 11.....	402	--	--	--	--	21	--	179	--	--	20	--	--	1.0	--	--	138	0	.8	365	8.2	
Aug. 11.....	360	--	--	--	--	18	--	* 168	--	--	18	--	--	1.6	--	--	130	0	.7	331	8.2	
Sept. 11.....	175	13	.00	28	19	23	2.4	186	13	--	24	.0	.5	1.0	216	.29	149	0	.8	379	8.0	

a Includes equivalent of 7 parts per million of carbonate (CO₃).
b Includes equivalent of 8 parts per million of carbonate (CO₃).

a Includes equivalent of 7 parts per million of carbonate (CO₃).
b Includes equivalent of 8 parts per million of carbonate (CO₃).

SACRAMENTO RIVER BASIN--Continued
11-4540. PUTAH CREEK NEAR WINTERS, CALIF.

LOCATION ---At gaging station, 1 mile downstream from Monticello Dam (revised), 6 miles west of Winters, Yolo County, and 8 miles downstream from Capell Creek.
DRAINAGE AREA ---577 square miles.
RECORDS AVAILABLE ---Chemical analyses: October 1952 to September 1958.
REMARKS ---Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 28, 1957	44	---	---	---	---	7.2	---	151	---	---	3.5	---	---	0.15	---	---	---	120	0	0.3	255	8.0
Nov. 18	18	---	---	---	---	9.2	---	178	2	---	7.3	---	---	20	---	---	---	153	4	0.3	318	8.3
Dec. 23	52	---	---	---	---	9.9	---	199	---	---	8.0	---	---	21	---	---	---	168	5	0.3	338	8.1
Jan. 21, 1958	49	---	---	---	---	9.9	---	189	---	---	7.5	---	---	03	---	---	---	156	1	0.3	327	8.1
Feb. 17	34	---	---	---	---	30	---	218	---	---	30	---	---	54	---	---	---	202	23	0.9	509	8.2
Mar. 11	9.6	---	---	---	---	70	---	314	---	---	32	---	---	1.1	---	---	---	312	55	1.7	868	7.8
Apr. 14	40	---	---	---	---	40	---	254	---	---	28	---	---	71	---	---	---	241	33	1.1	626	8.0
May 9	16	15	0.00	44	29	42	2.2	232	---	79	33	0.1	0.0	77	359	0.49	---	230	40	1.2	603	8.1
June 16	25	---	---	---	---	13	---	158	5	---	9.0	---	---	20	---	---	---	149	11	0.5	332	8.3
July 16	55	---	---	---	---	10	---	163	---	---	6.2	---	---	10	---	---	---	135	1	0.4	303	7.9
Aug. 4	28	---	---	---	---	9.6	---	154	4	---	7.0	---	---	10	---	---	---	134	1	0.4	297	8.3
Sept. 11	40	17	.00	18	22	8.8	1.9	156	---	18	6.4	0	0.6	10	170	.23	---	135	7	0.3	285	8.1

SACRAMENTO RIVER BASIN--Continued

11-4554. SACRAMENTO RIVER NEAR RIO VISTA, CALIF.

LOCATION.--On pier, 1,500 feet above tidal gaging station, 1 mile south of Rio Vista, Solano County, and approximately 3.1 miles below Steamboat Slough.
 RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.
 REMARKS.--Gaging station maintained and operated by State of California Department of Water Resources. No discharge records available for this station due to tidal effects from Suisun Bay.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carb. ions (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Ni- trate (NO ₃) (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 24, 1957						12		82			8.7						62	0	0.7	182	7.1
Nov. 25						7.8		84			6.0						58	0	0.4	143	7.6
Dec. 13						10		80			7.0						64	0		162	7.7
Jan. 17, 1958						11	1.5	71			8.0						56	0	0.6	165	7.4
Feb. 13						9.8		80			6.5						65	0	0.5	170	7.4
Mar. 6						9.7		82			7.0						68	1	0.5	171	7.8
Apr. 2						12		94			11						77	0	0.6	210	7.7
May 19		18	0.18	8.8	6.3	9.1	1.4	61		7.7	8.0	0.1	0.8				48	0	0.6	144	7.1
June 11						10		70			8.0						53	0	0.7	156	7.8
July 9						11		69			8.3						50	0	0.6	156	7.6
Aug. 6						13		78			11						63	0	0.7	175	7.8
Sept. 2		26	.10	15	7.9	13	2.2	91		13	10	.1	.4				70	0	0.7	193	7.5

NAPA RIVER BASIN

11-4560. NAPA RIVER NEAR ST. HELENA, CALIF.

LOCATION.--At highway bridge, 0.2 mile downstream from gaging station, 1.2 miles northeast of Zinfandel, and 2.6 miles east of St. Helena, Napa County.
DRAINAGE AREA.--81.3 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

Water temperatures: October 1957 to September 1958.

Sediment records: December 1956 to September 1958.

EXTREMES, 1957-58.--Sediment concentrations: Maximum daily, 1,260 ppm Feb. 24; minimum daily, not determined.

Maximum daily, 23,800 tons Feb. 24; minimum daily, less than 1957; minimum daily, no flow on many days in 1957.

EXTREMES, 1958.--Sediment concentrations: Maximum daily, 1,260 ppm Feb. 24; minimum daily, less than 1957; minimum daily, no flow on many days in 1957.

Maximum daily, 23,800 tons Feb. 24, 1958; minimum daily, less than 1957; minimum daily, no flow on many days in 1957.

EXTREMES, 1958.--Sediment concentrations: Maximum daily, 1,260 ppm Feb. 24; minimum daily, less than 1957; minimum daily, no flow on many days in 1957.

Maximum daily, 23,800 tons Feb. 24, 1958; minimum daily, less than 1957; minimum daily, no flow on many days in 1957.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1568.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbocationate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (microhmhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium	Non-carbonate			
Oct. 15, 1957.....	18	--	--	--	--	20	--	94	--	--	21	--	--	0.65	--	--	--	78	1	1.0	254	7.5
Nov. 19.....	16	--	--	--	--	21	--	100	--	--	19	--	--	.43	--	--	--	77	0	1.0	246	7.9
Dec. 18.....	684	--	--	--	--	8.7	--	44	--	--	6.5	--	--	.14	--	--	--	37	1	.6	108	7.0
Jan. 22, 1958.....	55	--	--	--	--	14	--	82	--	--	13	--	--	.09	--	--	--	67	0	.7	204	7.1
Feb. 21.....	580	--	--	--	--	7.6	--	61	--	--	5.3	--	--	.14	--	--	--	47	0	.5	132	7.5
Mar. 12.....	81	--	--	--	--	12	--	95	--	--	8.5	--	--	.24	--	--	--	77	0	.6	207	7.4
Apr. 14.....	150	--	--	--	--	10	--	85	--	--	7.6	--	--	.08	--	--	--	68	0	.5	178	7.4
May 14.....	31	41	0.00	20	9.2	15	2.8	110	--	10	12	0.2	3.0	.35	168	0.23	--	88	0	.7	245	7.6
June 17.....	8.7	--	--	--	--	19	--	132	--	--	17	--	--	.50	--	--	--	108	0	.8	297	8.2
July 11.....	4.7	--	--	--	--	18	--	184	--	--	12	--	--	.30	--	--	--	124	0	.7	326	7.7
Aug. 12.....	3.5	--	--	--	--	17	--	174	--	--	12	--	--	.20	--	--	--	140	0	.8	345	8.0
Sept. 10.....	.4	34	.00	31	18	18	3.7	191	--	23	12	.2	1.5	.40	236	.32	--	153	0	.6	359	8.2

NAPA RIVER BASIN--Continued

11-4560. NAPA RIVER NEAR ST. HELENA, CALIF.--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December				
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment			
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		
1...	3.1	}	(et)	11	7	}	9.7	--	}		
2...	2.8			9.7	--		9.1	--			
3...	2.5			8.6	--		9.1	--			
4...	2.5			9.1	--		9.7	--			
5...	2.6			10	--		12	--			
6...	2.6	}		9.7	--	}	10	--	}		
7...	2.8			9.1	--		9.7	--			
8...	2.8			9.1	--		9.1	2			
9...	5.8			9.1	--		9.1	--			
10...	50			9.1	--		9.7	--			
11...	18	--	e1	9.7	5	}	10	--	}		
12...	8.1	--	e.4	9.1	--		9.7	--			
13...	159	672	s464	11	--		9.7	--			
14...	52	30	4.2	85	68		s21	9.1		--	
15...	20	}		37	13		a1.3	20		15	a.8
16...	14			24	10	a.6	118	244	s127		
17...	10			18	9	a.4	167	360	s262		
18...	8.6			14	9	}	566	382	s974		
19...	7.6			13	--		158	90	38		
20...	7.1	13	--	231	80		50				
21...	6.6	}		12	--	}	324	112	s135		
22...	6.2			11	--		223	30	a18		
23...	66			283	s110		11	--	123	15	5.0
24...	96			60	16		11	10	90	10	2.4
25...	39			10	a1.1		11	}	72	}	
26...	25	9	a.6	11	63						
27...	18	8	.4	10	--	e.2	55		}		
28...	16	}		9.7	55	--	e2				
29...	14			9.7	53						
30...	12			9.7	3	.1	63				
31...	12	--	--	--	--	49					
Total	692.7	--	642.4	434.4	--	29.1	2,565.7	--	1,627.6		
January			February			March					
1...	49	20	a2.6	338	48	44	336	32	29		
2...	252	157	s125	1,040	620	s2,400	267	30	22		
3...	130	40	14	1,080	278	s869	223	20	12		
4...	90	20	a4.9	1,460	393	s1,660	188	16	8.1		
5...	72	20	a3.9	970	180	471	160	15	6.5		
6...	63	18	a3.1	583	90	142	144	16	6.2		
7...	57	10	a1.5	989	284	s835	121	9	2.9		
8...	52	8	a1.1	947	222	s673	115	12	3.7		
9...	53	18	2.6	1,190	475	s1,820	108	13	a3.8		
10...	311	340	s352	1,030	187	s562	102	8	2.2		
11...	208	60	34	664	137	s284	92	8	a2.0		
12...	222	177	s173	2,560	776	s6,340	81	6	1.3		
13...	270	99	s100	892	300	723	76	7	1.4		
14...	169	20	9.1	604	280	a460	89	12	2.9		
15...	125	20	a6.8	775	490	s1,100	92	16	4.0		
16...	102	15	4.1	967	220	a570	77	10	2.1		
17...	90	10	a2.4	576	50	a78	68	8	a1.5		
18...	77	10	a2.1	1,550	585	s3,620	74	11	2.2		
19...	68	9	1.7	2,130	380	s2,370	63	10	1.7		
20...	61	9	a1.5	947	150	384	235	114	s131		
21...	58	10	1.6	592	95	152	1,470	575	s2,550		
22...	55	10	a1.5	436	75	88	1,070	340	982		
23...	84	50	a11	398	90	a97	969	240	628		
24...	432	306	s443	3,950	1,260	s23,600	812	170	373		
25...	448	154	s238	2,340	792	s5,520	600	110	178		
26...	1,370	404	s1,690	971	300	787	417	70	79		
27...	491	115	152	604	120	196	498	90	121		
28...	330	60	53	426	60	69	368	42	42		
29...	1,750	795	s6,080	--	--	--	693	585	s2,160		
30...	1,080	403	s1,380	--	--	--	1,410	491	s2,310		
31...	488	170	224	--	--	--	708	230	440		
Total	9,107.0	--	11,119.5	31,009.0	--	55,914.0	11,726.0	--	10,109.5		

e Estimated.

s Computed by subdividing day.

t Less than 0.05, ton.

a Computed from estimated-concentration graph.

QUALITY OF SURFACE WATERS, 1958

NAPA RIVER BASIN--Continued

11-4560. NAPA RIVER NEAR ST. HELENA, CALIF.--Continued

Suspended sediment, water year October 1957 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	1,940	686	s4,360	50	12	1.6	16	10	
2...	3,420	962	s13,000	46	14	1.8	17		
3...	1,850	548	s2,860	44	15	1.8	16		
4...	1,320	290	1,030	43	15	1.7	14		
5...	1,010	368	s1,150	42	13	1.5	13		
6...	1,160	271	867	40	10	1.1	11		
7...	722	200	390	38	10	1.0	10		
8...	491	140	186	37	10	1.0	13	10	0.4
9...	374	45	45	36	8	.8	17		
10...	305	30	25	36	9	.9	17		
11...	248	20	13	36			18		
12...	210	25	14	34			15		
13...	177	20	9.6	33		.8	14		
14...	155	20	8.4	30	9		14		
15...	138	16	6.0	28			12	9	
16...	127	11	3.8	25			11		
17...	115	12	3.7	25			9.2		
18...	107	8	2.3	24	7	.5	9.8		
19...	99	8	2.1	23			9.8		
20...	92	7	1.7	22			10		.2
21...	84	7	1.6	21			10		
22...	78	7	a1.5	25			9.8	6	
23...	75	8	1.6	30			9.2		
24...	69	10	1.9	24			9.2		
25...	66	12	a2.1	23	11		7.3		
26...	62	12	2.0	21		.6	6.4		.1
27...	60	12	1.9	20			6.0		
28...	57	12	1.8	18			5.6		
29...	55	14	2.1	16			6.8	4	
30...	54	13	1.9	15			4.9		
31...	--	--	--	14			--		
Total	14,720	--	24,016.0	921	--	25.9	342.0	--	8.2
Day	July			August			September		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1...	4.9	--		2.5	--		0.9		
2...	6.0	--		2.4	--		.9		
3...	5.6	--		3.2	--		2.0		(et)
4...	6.4	--		1.1	--		1.0		
5...	5.2	--		1.0	--		1.6		
6...	4.5	--		2.0	6		1.0		
7...	5.6	--		1.7	--		1.0		
8...	6.4	--		1.1	--		.7		
9...	4.9	--		.9	--		.5		
10...	4.1	--		1.4	--		.7		
11...	4.9	--		3.0	--		.7		
12...	4.5	--	0.1	3.0	5		1.0		
13...	6.4	6		1.7	--		1.6		
14...	4.9	--		1.6	4		1.4		
15...	4.1	--		1.6	--	(t)	.7		
16...	5.6	--		1.8	--		.7		
17...	3.2	--		1.7	--		1.1		(et)
18...	9.2	--		1.4	12		1.0		
19...	6.8	--		2.2	--		.5		
20...	6.0	--		1.2	--		.5		
21...	3.2	6		1.1	--		.5		
22...	3.8	--		1.3	--		1.2		
23...	4.5	--		1.4	--		1.0		
24...	2.0	--		2.2	8		.8		
25...	1.3	--		1.7	--		.6		
26...	1.5	9	(t)	1.6	--		.4		
27...	1.5	--		1.7	--		.2		
28...	1.5	--		1.6	--		.5		
29...	1.5	--		1.7	--		1.1		
30...	1.5	--		1.1	11		.8	11	(t)
31...	1.5	6		1.6	--		--	--	
Total	133.0	--	2.5	53.7	--	1.1	26.6	--	0.4

Total discharge for year (cfs-days)..... 71,731.1
 Total load for year (tons)..... 103,496.2

e Estimated.

t Less than 0.05 ton.

s Computed by subdividing day.

a Computed from estimated-concentration graph.

NAPA RIVER BASIN--Continued

11-4560. NAPA RIVER NEAR ST. HELENA, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Samp- ling point	Water tem- per- ature (° F)	Discharge (cfs)	Sediment concentra- tion (ppm)	Suspended sediment											Method of analysis
						Percent finer than size indicated, in millimeters											
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Oct. 13, 1957.....	0900		59	179	1,300		55	64	80	92	97	99	100	--	--	--	SPWC
Oct. 23.....	1700		58	102	631		--	78	--	95	--	98	99	100	--	--	SPWC
Jan. 10, 1958.....	1600		51	760	760		--	--	48	--	65	--	90	99	100	--	VPWC
Jan. 26.....	0800		51	1,720	489		--	44	--	64	--	90	98	99	100	--	VPWC
Jan. 29.....	1700		54	4,520	1,930		32	37	47	60	72	86	96	100	--	--	VPWC
Feb. 12.....	0800		54	4,710	1,210		--	--	31	--	49	--	73	89	99	100	VPWC
Feb. 24.....	1700		59	9,640	3,340		36	41	54	67	81	91	95	98	100	--	VPWC
Mar. 21.....	1800		52	1,860	778		--	29	--	45	--	67	80	95	100	--	VPWC
Apr. 2.....	1800		50	3,600	1,240		--	27	--	39	--	60	77	91	100	--	VPWC
Apr. 3.....	1315		50	1,740	553		--	29	--	41	--	62	74	85	97	100	VPWC

RUSSIAN RIVER BASIN

11-4615. EAST FORK RUSSIAN RIVER NEAR CALPELLA, CALIF.

LOCATION.--On left bank, 0.5 mile downstream from Cold Creek and 3.6 miles east of Calpella, Mendocino County.

DRAINAGE AREA. 99.0 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1958 (discontinued).

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate		
Oct. 15, 1957.....	355	--	--	--	--	6.7	--	94	--	--	3.3	--	--	0.39	--	--	74	0	0.3	176	7.2
Nov. 4.....	320	--	--	--	--	6.0	--	94	--	--	5.0	--	--	.27	--	--	77	0	0.3	177	7.5
Dec. 16.....	593	--	--	--	--	7.1	--	86	--	--	2.0	--	--	.33	--	--	70	0	0.4	167	7.0
Jan. 15, 1958.....	601	--	--	--	--	5.8	--	94	--	--	3.0	--	--	.16	--	--	76	0	0.3	172	7.7
Feb. 3.....	1,960	--	--	--	--	4.4	--	72	--	--	2.5	--	--	.10	--	--	55	0	0.3	138	7.4
Mar. 10.....	436	--	--	--	--	5.1	--	94	--	--	3.5	--	--	.08	--	--	75	0	0.3	168	7.8
Apr. 4.....	1,700	--	--	--	--	4.8	--	72	--	--	2.8	--	--	.02	--	--	58	0	0.3	136	7.6
May 9.....	300	16	0.06	18	6.6	5.0	1.3	85	--	9.6	2.7	0.0	0.1	.04	102	0.14	72	0	0.3	160	7.5
June 6.....	255	--	--	--	--	5.0	--	84	--	--	1.3	--	--	.10	--	--	66	0	0.3	152	8.0
July 11.....	155	--	--	--	--	4.8	--	86	--	--	2.9	--	--	.20	--	--	68	0	0.3	157	7.8
Aug. 8.....	161	--	--	--	--	4.7	--	84	--	--	3.0	--	--	.40	--	--	68	0	0.2	156	7.8
Sept. 12.....	290	12	.00	18	5.8	4.8	.8	84	--	5.8	3.0	.0	.4	.20	.13	.13	69	0	0.3	153	7.7

RUSSIAN RIVER BASIN--Continued

11-4620.5. RUSSIAN RIVER AT UKIAH, CALIF.

LOCATION.--On right bank below Talmadge Road bridge, 0.1 mile below Middle Creek, 1 mile east of Ukiah, Mendocino County, and 3 miles below East Fork Russian River.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958 (discontinued).

REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂) (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbocationate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 15, 1957....					7.9		102			4.0			0.38	--	--		82	0	0.4	193	7.2
Nov. 4.....					6.8		102			4.8			.27	--	--		80	0	.3	181	7.8
Dec. 16.....					6.4		92			3.5			.27	--	--		73	0	.3	153	7.4
Jan. 15, 1958....					6.8		104			5.0			.04	--	--		80	0	.3	189	7.4
Feb. 3.....					5.1		122			2.5			.01	--	--		91	2	.3	133	7.3
Mar. 10.....					6.8		116			5.2			.12	--	--		90	0	.3	204	7.8
Apr. 4.....					6.0		118			3.5			.03	--	--		92	0	.3	207	7.9
May 9.....	15	0.02	29	10	8.0	1.1	138		12	6.2	0.1	0.5	.16	150	0.20		115	2	.3	249	7.9
June 6.....					7.2		115			3.5			.10	--	--		92	0	.3	205	8.0
July 11.....					8.8		94			9.7			.20	--	--		75	0	.4	188	7.7
Aug. 8.....					7.8		90			8.2			.20	--	--		72	0	.4	177	7.6
Sept. 12.....	14	.00	18	6.6	4.6	1.2	86		7.7	3.8	.1	.0	.20	98	.13		72	1	.2	155	7.4

RUSSIAN RIVER BASIN--Continued

11-4625. RUSSIAN RIVER NEAR HOPLAND, CALIF.

LOCATION.--At gaging station in Rancho de Sanel Grant, 0.2 mile downstream from McNab Creek, 4 miles north of Hopland, Mendocino County, and 17 miles upstream from Sulfur Creek.

DRAINAGE AREA.--362 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--Records of discharge for water year October 1957 to September 1958.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Po- tas- sium (K)	Bi- car- bon- ate (HCO ₃)	Car- bon- ate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃) (B)	Bo-	Dissolved solids (calculated)			Hardness as CaCO ₃		So- dium ad- sor- ption (micro- mhos at 25° C)	Specific con- duct- ance (micro- mhos at 25° C)	
															Parts per million	Tons per acre-foot	Tons per day	Cal- cium, Mag- ne- sium	Non-car- bon- ate			
Oct. 15, 1957.....	784	---	---	---	---	7.4	---	96	---	---	4.0	---	---	0.40	---	---	---	78	0	0.4	185	7.2
Nov. 4.....	433	---	---	---	---	7.1	---	107	---	---	5.5	---	---	.32	---	---	---	84	0	.3	191	7.7
Dec. 16.....	1,630	---	---	---	---	6.4	---	78	---	---	4.0	---	---	.40	---	---	---	66	2	.3	147	6.9
Jan. 15, 1958.....	1,490	---	---	---	---	6.7	---	92	---	---	5.0	---	---	.04	---	---	---	73	0	.3	168	7.5
Feb. 3.....	6,000	---	---	---	---	5.0	---	64	---	---	3.0	---	---	.00	---	---	---	52	0	.3	123	7.2
Mar. 10.....	990	---	---	---	---	6.6	---	110	---	---	5.0	---	---	.08	---	---	---	89	0	.3	202	7.8
Apr. 4.....	6,680	---	---	---	---	5.1	---	70	---	---	3.5	---	---	.08	---	---	---	56	0	.3	120	7.4
May 9.....	338	17	0.02	22	9.5	7.6	1.7	111	---	11	4.8	0.0	0.5	.12	129	0.18	94	3	.3	207	7.5	
June 6.....	270	---	---	---	---	6.4	---	102	---	---	2.4	---	---	.20	---	---	85	1	.3	187	7.9	
July 11.....	192	---	---	---	---	6.8	---	109	---	---	5.6	---	---	.70	---	---	85	0	.3	196	7.8	
Aug. 8.....	187	---	---	---	---	7.4	---	100	---	---	6.5	---	---	.70	---	---	80	0	.4	191	8.0	
Sept. 12.....	232	10	.00	19	7.2	4.6	.9	92	---	5.8	3.5	.0	.5	.30	97	.13	77	2	.2	167	7.6	

RUSSIAN RIVER BASIN--Continued

11-4640. RUSSIAN RIVER NEAR HEALDSBURG, CALIF.

LOCATION.--At gaging station in Sotoyome Grant, 2 miles east of Healdsburg, Sonoma County, and 3.5 miles upstream from Dry Creek. DRAINAGE AREA.--791 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonyl sulfate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH	
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate				
Oct. 14, 1957.....	4,040	--	--	--	--	6.1	--	87	--	--	3.7	--	--	0.27	--	--	--	72	1	0.3	189	7.2	
Nov. 4.....	2,680	--	--	--	--	8.7	--	146	--	--	5.5	--	--	--	--	--	--	120	0	--	259	8.1	
Dec. 16.....	2,160	--	--	--	--	6.9	--	95	--	--	4.0	--	--	.38	--	--	--	82	4	--	3	190	6.6
Jan. 13, 1958.....	6,360	--	--	--	--	5.4	--	80	--	--	1.5	--	--	.15	--	--	--	65	0	--	3	148	7.0
Feb. 3.....	13,000	--	--	--	--	4.6	--	72	--	--	3.0	--	--	.08	--	--	--	59	0	--	3	132	7.5
Mar. 10.....	1,920	--	--	--	--	7.5	--	138	--	--	4.5	--	--	.19	--	--	--	112	0	--	3	245	7.7
Apr. 4.....	16,060	--	--	--	--	5.0	--	80	--	--	3.0	--	--	.08	--	--	--	62	0	--	3	137	7.5
May 9.....	734	19	0.00	28	14	8.6	1.7	154	--	12	5.0	0.0	0.3	0.17	165	0.22	129	3	--	3	273	8.0	
June 6.....	a450	--	--	--	--	8.3	--	148	--	--	3.8	--	--	.30	--	--	--	121	0	--	3	260	8.2
July 11.....	a210	--	--	--	--	8.6	--	162	--	--	6.2	--	--	.40	--	--	--	128	0	--	3	281	8.2
Aug. 8.....	a175	--	--	--	--	8.5	--	156	--	--	5.5	--	--	.50	--	--	--	126	0	--	3	276	8.1
Sept. 12.....	a170	13	.00	26	14	7.4	1.2	148	--	7.7	7.0	.0	.5	.80	151	.21	122	1	--	3	262	7.8	

a Daily mean discharge (cfs).

a Daily mean discharge (cfs).

RUSSIAN RIVER BASIN--Continued
11-4670. RUSSIAN RIVER AT GUERNEVILLE, CALIF.

LOCATION.--On bridge on State Highway 12, in Guerneville, Sonoma County, 5.3 miles downstream from gaging station, and 6.5 miles upstream from Austin Creek.
DRAINAGE AREA.--1,342 square miles upstream from gaging station.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.
REMARKS.--Records for gaging station near Guerneville, for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 16, 1957.....	2,280	--	--	--	--	9.6	--	114	--	--	6.5	--	--	0.35	--	--	--	93	0	0.4	226	7.3
Nov. 4.....	712	--	--	--	--	10	--	148	--	--	7.5	--	--	.41	--	--	--	120	0	.4	272	7.9
Dec. 16.....	5,050	--	--	--	--	12	--	121	--	--	11	--	--	.51	--	--	--	103	4	.5	251	6.8
Jan. 13, 1958.....	9,620	--	--	--	--	5.8	--	76	--	--	4.8	--	--	.04	--	--	--	60	0	.3	141	7.8
Feb. 3.....	22,200	--	--	--	--	5.0	--	68	--	--	3.5	--	--	.18	--	--	--	556	0	.3	129	7.4
Mar. 10.....	4,010	--	--	--	--	8.2	--	138	--	--	5.5	--	--	.08	--	--	--	114	1	.3	239	8.0
Apr. 4.....	35,000	--	--	--	--	5.9	--	74	--	--	4.5	--	--	.10	--	--	--	58	0	.3	139	7.5
May 9.....	943	19	0.00	28	17	9.8	1.7	166	--	13	6.8	0.0	0.5	.16	178	0.24	--	139	3	.4	293	7.9
June 6.....	545	--	--	--	--	9.4	--	153	--	--	6.0	--	--	.30	--	--	--	130	5	.4	280	8.1
July 11.....	229	--	--	--	--	9.1	--	168	--	--	6.2	--	--	.50	--	--	--	135	0	.3	292	8.1
Aug. 8.....	168	--	--	--	--	9.0	--	165	--	--	6.5	--	--	.50	--	--	--	136	1	.3	293	7.9
Sept. 12.....	177	13	.00	28	16	8.3	1.4	164	--	12	5.0	.0	.5	.60	166	.23	--	137	3	.3	288	8.0

Daily mean discharge (cfs).

a Daily mean discharge (cfs).

RUSSIAN RIVER BASIN--Continued

11-4710. EAST FORK RUSSIAN RIVER AT POTTER VALLEY POWERHOUSE, CALIF.

LOCATION.--At gaging station of Pacific Gas and Electric Co. powerhouse, 3 miles northwest of town of Potter Valley, Mendocino County, and 16 miles above mouth. RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--Records of discharge for Potter Valley powerhouse tailrace near Potter Valley, for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Po- tas- sium (K)	Bi- car- bon- ate (HCO ₃)	Car- bon- ate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		So- dium ad- sorp- tion micro- mhos at 25°C)	Specific con- duct- ance (micro- mhos at 25°C)	pH
															Parts per million	Tons per acre- foot	Tons per day	Cal- cium, Mag- ne- sium	Non- carbon- ate			
Oct. 15, 1957.....	363	--	--	--	--	6.7	--	92	--	--	3.5	--	--	0.42	--	--	--	73	0	0.3	172	7.6
Nov. 4.....	301	--	--	--	--	5.6	--	90	--	--	4.2	--	--	.23	--	--	--	74	0	.3	156	6.7
Dec. 16.....	301	--	--	--	--	5.0	--	67	--	--	2.0	--	--	.43	--	--	--	56	5	.3	126	7.2
Jan. 15, 1958.....	294	--	--	--	--	4.8	--	67	--	--	2.0	--	--	.04	--	--	--	54	0	.3	123	7.2
Feb. 3.....	296	--	--	--	--	3.9	--	58	--	--	2.0	--	--	.10	--	--	--	53	5	.2	109	7.2
Mar. 10.....	297	--	--	--	--	3.4	--	62	--	--	2.2	--	--	.02	--	--	--	48	0	.2	111	7.6
Apr. 4.....	293	--	--	--	--	3.2	--	58	--	--	2.5	--	--	.05	--	--	--	46	0	.2	105	7.6
May 9.....	257	13	0.08	14	5.1	4.7	1.1	72	3.8	0.0	0.2	.17	80	0.11	56	0	.3	130	7.9			
June 6.....	234	--	--	--	--	4.1	--	71	--	--	1.5	--	--	.10	--	--	--	58	0	.2	131	8.0
July 11.....	171	--	--	--	--	3.6	--	73	--	--	3.4	--	--	.10	--	--	--	58	0	.2	130	8.0
Aug. 8.....	198	--	--	--	--	3.8	--	73	--	--	2.5	--	--	.00	--	--	--	58	0	.2	133	7.9
Sept. 12.....	301	14	.00	18	5.6	3.9	.9	83	3.8	--	2.8	.1	.5	.10	91	.12	68	0	.2	144	7.7	

EEL RIVER BASIN

11-4725. EEL RIVER ABOVE DOS RIOS, CALIF.

LOCATION.--At gaging station, 1.8 miles upstream from Middle Fork and 2.1 miles south of Dos Rios, Mendocino County.

DRAINAGE AREA.--703 square miles.

RECORDS AVAILABLE.--Water temperatures: October 1957 to September 1958.

Sediment records: October 1957 to September 1958.

EXTREMES: 1957-58.--Water temperatures: Minimum 42°F Dec. 23, Jan. 5.

Sediment concentrations: Maximum daily, 2,740 ppm Feb. 24; minimum daily, 1 ppm on many days.

Sediment loads: Maximum daily, 245,000 tons Feb. 24; minimum daily, less than 0.50 tons on many days.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1365.

Temperature (°F) of water, water year October 1957 to September 1958

/Once-daily measurement generally between 12 m. and 7 p.m./

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October.....	60	--	--	57	57	50	57	--	57	59	61	57	--	--	--	--	--	--	57	52	--	--	--	57	--	--	--	--	--	--	--	--	--
November....	--	--	--	50	--	--	--	--	--	--	--	--	--	--	49	49	47	47	58	56	51	--	48	47	--	--	--	--	46	--	--	--	
December....	--	--	--	--	44	--	--	46	44	--	44	--	45	45	49	47	50	49	50	49	50	47	42	46	--	47	44	49	50	48	48	--	
January.....	45	48	46	45	42	44	45	43	47	47	48	47	45	--	46	47	50	48	44	45	45	43	44	46	46	48	46	50	50	47	48	46	--
February....	48	48	47	49	49	50	49	51	51	50	51	50	50	49	51	49	51	51	50	54	48	51	48	52	49	48	49	48	49	49	50	50	--
March.....	50	50	50	51	49	49	47	46	44	45	50	48	50	45	50	51	50	52	52	50	47	49	48	48	50	54	51	50	48	47	47	49	--
April.....	--	--	45	46	45	44	50	52	55	59	59	56	58	58	59	59	53	57	59	60	61	54	55	55	60	60	59	64	65	68	--	56	--
May.....	65	67	68	70	68	71	69	70	68	66	59	58	--	73	--	--	--	--	--	--	--	--	66	--	--	--	--	--	--	70	--	--	--
June.....	--	65	--	--	68	68	--	--	68	--	--	70	--	--	84	--	--	--	82	--	--	--	76	--	78	--	--	72	--	--	--	--	--
July.....	--	70	--	--	80	--	--	--	82	--	--	--	79	--	--	73	--	--	--	76	--	76	--	82	--	--	--	80	--	--	80	--	--
August.....	--	--	--	85	--	--	--	84	--	--	60	78	--	--	76	--	76	76	--	--	--	80	--	--	76	--	82	--	--	76	--	--	--
September..	--	76	72	--	--	76	--	--	71	--	--	68	--	--	71	--	--	72	--	--	65	--	--	68	--	--	76	--	--	76	--	79	--

EEL RIVER BASIN--Continued

11-4725. EEL RIVER ABOVE DOS RIOS, CALIF.--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December		
	Mean dis-charge (cfs)	Mean concentration (ppm)	Tons per day	Mean dis-charge (cfs)	Mean concentration (ppm)	Tons per day	Mean dis-charge (cfs)	Mean concentration (ppm)	Tons per day
1...	158	104	44	242	--	--	221	--	--
2...	85	67	a15	221	--	--	207	--	--
3...	61	37	a6	205	--	--	193	--	--
4...	50	32	4	189	2	--	182	--	--
5...	138	109	41	182	--	1	216	3	--
6...	179	113	55	175	--	--	209	--	--
7...	184	50	25	168	--	--	178	--	2
8...	182	57	a28	178	--	--	167	--	--
9...	2,400	827	s5,710	184	--	--	161	3	--
10...	2,000	278	s1,640	254	--	--	155	3	--
11...	1,120	95	287	366	--	e100	150	--	--
12...	861	230	s1,300	307	--	--	145	1	--
13...	8,980	--	e30,000	5,250	--	e10,000	142	--	--
14...	2,640	--	e3,000	8,360	--	e20,000	138	2	--
15...	1,400	--	e900	2,790	--	e1,000	265	140	sa150
16...	916	--	e400	1,500	43	174	1,950	483	s2,480
17...	578	--	e100	1,020	21	a58	5,180	675	s10,900
18...	389	--	e50	1,140	25	77	8,740	662	s18,400
19...	303	22	18	997	17	46	6,590	210	3,740
20...	244	10	--	748	19	38	5,870	150	2,380
21...	214	--	6	632	11	19	11,100	873	s20,600
22...	198	--	--	527	8	a11	9,610	390	10,100
23...	402	--	e100	459	6	7	6,260	300	5,070
24...	659	--	e300	408	4	--	4,820	140	1,820
25...	1,070	--	e600	373	--	--	3,320	80	a720
26...	748	--	e300	347	--	--	3,020	80	652
27...	483	--	e100	317	--	4	2,420	60	392
28...	370	--	--	284	--	--	7,330	597	s13,400
29...	324	--	--	261	8	--	6,130	230	3,810
30...	286	--	e30	242	--	--	3,700	77	769
31...	263	--	--	--	--	--	2,630	47	334
Total	27,885	--	45,161	28,326	--	31,767	91,399	--	93,755
January			February			March			
1...	2,160	40	233	6,120	230	3,800	5,270	200	2,850
2...	3,980	144	1,550	9,440	591	s15,700	4,080	155	1,710
3...	2,840	50	383	15,000	800	32,400	3,270	130	1,150
4...	2,120	27	155	15,800	720	30,700	2,800	97	733
5...	1,780	24	115	14,100	620	23,600	2,430	82	538
6...	1,550	20	84	10,300	350	9,730	2,140	79	456
7...	1,350	17	62	11,900	440	14,100	1,890	69	352
8...	1,290	20	70	12,400	440	14,700	1,780	66	317
9...	1,440	110	sa700	16,100	1,180	s59,000	1,630	64	a280
10...	7,830	534	11,300	15,100	557	s23,400	1,510	60	245
11...	7,010	205	s4,280	11,600	652	s24,200	1,430	54	208
12...	9,140	611	s17,300	33,600	2,420	s231,000	1,330	53	190
13...	8,760	285	s6,930	18,400	742	s37,800	1,240	48	161
14...	5,110	140	a1,900	16,000	770	33,300	1,220	54	178
15...	3,550	80	767	18,400	710	35,300	1,570	64	271
16...	2,880	45	350	17,000	580	26,600	1,350	50	182
17...	2,300	34	211	12,800	480	16,600	1,190	38	122
18...	1,910	27	139	16,700	1,340	s66,000	1,070	36	104
19...	1,720	21	98	21,500	1,000	s60,700	976	37	98
20...	1,560	20	84	14,300	460	17,800	2,130	291	s3,020
21...	1,410	15	57	9,250	300	7,490	11,100	1,170	s36,000
22...	1,250	11	37	6,400	260	4,490	12,300	644	s22,100
23...	1,730	168	s1,360	5,330	170	2,450	9,410	320	8,130
24...	4,130	256	s2,970	28,100	2,740	s245,000	8,890	270	6,480
25...	5,090	182	s2,770	35,300	1,510	s151,000	10,200	360	9,910
26...	12,200	806	s26,000	18,400	808	s41,400	6,780	160	2,930
27...	8,200	251	s5,900	11,400	479	14,700	4,880	100	1,320
28...	5,890	160	2,540	7,250	310	6,070	3,690	85	847
29...	18,100	2,640	s125,000	--	--	--	6,650	686	s19,000
30...	17,700	903	s45,600	--	--	--	13,200	728	s26,400
31...	10,200	408	11,200	--	--	--	9,270	399	s10,200
Total	156,180	--	270,145	427,990	--	1,249,030	136,676	--	156,482

e Estimated.
s Computed by subdividing day.

a Computed from estimated-concentration graph.

QUALITY OF SURFACE WATERS, 1958

EEL RIVER BASIN--Continued

11-4725, EEL RIVER ABOVE DOS RIOS, CALIF.--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Mean concentration (ppm)	Suspended sediment Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Suspended sediment Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Suspended sediment Tons per day
1...	15,200	1,400	57,000	389	15	16	129	--	
2...	23,200	1,400	83,000	343	12	11	166	--	
3...	18,100	500	24,400	330	9	8	175	--	
4...	13,000	490	17,200	315	8	7	147	--	
5...	9,750	405	10,700	302	7	6	129	4	
6...	9,630	360	9,360	290	6	5	125	2	2
7...	7,110	220	4,220	282	7	5	127	--	
8...	5,340	130	1,870	282	5	4	136	--	
9...	4,440	102	1,220	269	4	3	170	4	
10...	3,970	93	997	302	10	8	196	--	
11...	3,800	85	872	374	10	10	207	--	
12...	3,640	79	776	381	7	7	161	5	
13...	3,430	72	667	435	--	--	111	--	
14...	3,250	65	570	404	--	--	100	--	
15...	2,990	58	468	325	8	--	92	--	
16...	2,760	54	402	328	--	--	87	--	
17...	2,610	49	345	397	--	11	83	--	
18...	2,480	43	288	415	--	--	74	--	1
19...	2,230	39	235	412	--	--	74	--	
20...	2,020	34	185	399	--	--	77	4	
21...	1,910	34	175	384	--	--	77	--	
22...	1,870	38	192	420	--	--	69	--	
23...	1,740	33	155	681	24	--	66	4	
24...	1,390	27	101	585	--	21	62	--	
25...	979	24	63	505	--	--	60	2	
26...	714	22	42	481	--	--	56	--	(t)
27...	681	18	33	302	--	--	54	--	
28...	701	17	32	171	--	--	53	2	
29...	628	16	27	141	--	2	51	--	
30...	498	17	23	127	4	--	49	--	
31...	--	--	--	122	--	--	--	--	--
Total	150,061	--	215,618	10,893.0	--	304	3,163.0	--	38
Day	July			August			September		
	Mean discharge (cfs)	Mean concentration (ppm)	Suspended sediment Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Suspended sediment Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Suspended sediment Tons per day
1...	49	--	--	17	--	--	9.3	--	
2...	48	2	--	16	--	--	11	2	
3...	48	--	--	15	--	--	10	1	
4...	46	--	--	15	1	--	11	--	
5...	43	--	--	15	--	--	11	--	
6...	41	--	--	14	--	--	11	2	
7...	38	--	--	14	--	--	10	--	
8...	38	--	--	14	2	--	10	--	
9...	36	1	--	14	--	--	10	--	
10...	33	--	--	13	--	--	10	--	
11...	31	--	--	12	1	--	11	--	
12...	29	--	--	12	2	--	11	6	
13...	28	2	--	12	--	--	11	--	
14...	27	--	--	12	--	--	11	--	
15...	27	--	--	11	4	--	12	8	
16...	26	--	(t)	11	--	(t)	11	--	(t)
17...	28	2	--	11	--	--	11	--	
18...	32	--	--	12	1	--	10	--	
19...	31	--	--	13	--	--	10	--	
20...	30	--	--	13	--	--	9.6	--	
21...	28	2	--	12	2	--	9.6	--	
22...	27	--	--	12	--	--	10	--	
23...	26	--	--	11	--	--	10	--	
24...	30	--	--	11	--	--	12	9	
25...	28	--	--	10	--	--	12	--	
26...	26	--	--	9.6	--	--	12	--	
27...	23	--	--	9.6	1	--	11	--	
28...	22	3	--	9.6	--	--	11	--	
29...	21	--	--	9.3	--	--	10	--	
30...	19	--	--	9.0	2	--	10	8	
31...	18	2	--	9.0	--	--	--	--	--
Total	977	--	6	378.1	--	2	318.5	--	5
Total discharge for year (cfs-days).....									1,034,246.6
Total load for year (tons).....									2,062,313

s Computed by subdividing day.

a Computed from estimated-concentration graph.

t Less than 0.50 ton.

EEL RIVER BASIN--Continued

11-4725. EEL RIVER ABOVE DOS RIOS, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Samp- ling point	Water temp- er- ature (° F)	Discharge (cfs)	Sediment concen- tration (ppm)	Suspended sediment											Method of analysis
						Percent finer than size indicated, in millimeters											
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Jan. 13, 1958.....	1705		45	7,650	225		--	--	--	--	--	69	79	88	98	100	V
Jan. 29.....	1640		50	23,500	2,430		--	18	25	34	43	54	66	83	99	100	VPWC
Feb. 2.....	1620		48	9,700	605		--	--	--	--	--	71	83	96	100	--	V
Feb. 4.....	1605		47	15,200	630		--	--	--	--	--	66	78	90	100	--	V
Feb. 9.....	1625		49	20,600	1,640		--	28	--	49	--	69	81	92	99	100	VPWC
Feb. 10.....	0955		49	15,700	464		--	--	--	--	--	70	80	92	100	--	V
Feb. 12.....	1005		50	39,000	3,010		--	30	--	51	--	75	89	96	100	--	VPWC
Feb. 12.....	1725		50	33,200	1,560		--	19	28	36	46	56	69	83	93	100	VPWC
Feb. 24.....	0940		47	24,100	3,640		--	29	--	49	--	71	84	94	100	--	VPWC
Feb. 24.....	1730		52	44,000	3,770		--	23	30	40	51	63	74	87	96	100	VPWC
Feb. 25.....	1635		49	29,300	1,230		--	33	--	51	--	69	82	94	99	100	VPWC

EEL RIVER BASIN--Continued

11-4739. MIDDLE FORK EEL RIVER AT DOS RIOS, CALIF.

LOCATION --At bridge on county road, 0.4 mile upstream from mouth, and 0.5 mile southeast of Dos Rios, Mendocino County.
 RECORDS AVAILABLE --Temperature records October 1957 to September 1958.
 Sediment records: October 1957 to September 1958.

REMARKS --Water discharge used is difference between discharges at Eel River above Dos Rios and Eel River below Dos Rios. No correction made for inflow between stations. Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Temperature (°F) of water, water year October 1957 to September 1958

/Once-daily measurement generally between 12 m and 6 p.m./

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October....	66	--	--	58	55	55	54	--	53	55	58	54	56	55	--	--	--	--	54	51	--	--	55	--	53	--	--	--	54	--	55	--
November....	--	--	--	48	--	--	--	46	--	51	--	49	50	50	40	45	44	--	51	53	48	--	53	48	--	--	--	--	44	--	--	--
December....	--	41	--	--	44	--	--	--	44	43	--	46	--	--	44	44	47	45	44	47	42	44	44	41	42	--	46	42	48	47	42	43
January....	43	49	44	41	40	42	42	43	46	45	45	45	48	--	45	47	47	47	42	44	46	43	42	45	44	46	45	48	47	45	45	45
February....	49	46	45	46	47	48	49	47	48	48	47	48	46	46	48	49	48	50	50	51	49	50	49	48	50	48	50	46	45	47	--	48
March....	41	46	47	49	47	49	43	44	42	45	42	46	46	45	50	51	49	51	52	50	46	49	49	48	50	50	48	46	45	47	47	47
April....	--	--	44	45	45	43	49	51	55	56	55	54	54	55	55	56	50	49	55	54	55	54	52	52	55	55	57	59	59	62	--	53
May....	59	60	60	63	64	59	--	63	67	57	50	54	--	--	65	--	--	--	--	--	--	--	60	--	--	--	--	--	--	68	--	--
June....	--	60	--	--	64	59	--	--	64	--	--	64	--	--	80	--	--	--	79	--	--	--	75	--	76	--	--	76	--	--	--	--
July....	68	--	--	82	--	--	--	84	--	--	--	81	--	--	--	76	--	--	--	77	--	--	83	--	--	--	82	--	--	84	--	--
August....	--	--	--	86	--	--	--	84	--	--	--	76	--	--	79	--	--	81	--	--	83	--	--	75	--	--	79	--	--	75	--	--
September..	--	78	71	--	--	72	--	--	73	--	--	69	--	--	74	--	--	--	--	--	64	--	--	--	74	--	--	75	--	74	--	--

EEL RIVER BASIN--Continued

11-4739. MIDDLE FORK EEL RIVER AT DOS RIOS, CALIF.--Continued

Monthly and annual summary of suspended-sediment discharge,
water year October 1957 to September 1958

Month	Discharge (cfs-days)	Suspended sediment (tons)
1957		
October.....	50,326	137,400
November.....	61,716	197,900
December.....	117,330	366,200
1958		
January.....	183,000	624,300
February.....	458,710	2,432,000
March.....	129,074	159,900
April.....	156,019	222,300
May.....	73,067	15,860
June.....	22,951	15,823
July.....	4,879	51
August.....	1,609.9	10
September.....	832.5	3
Total for year	1,259,584.4	4,156,747

Particle-size analyses of suspended sediment, water year October 1957 to September 1958
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Samp- ling hour point	Water temp- er- ature (°F)	Discharge (cfs)	Sediment con- cen- tration (ppm)	Suspended sediment										Method of analysis
						Percent finer than size indicated, in millimeters										
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500		1.000
Oct. 13, 1957.....	0940		55	e 20,000	3,610		21	31	40	53	65	78	85	93	100	VPWC
Feb. 11, 1958.....	1045	46	46	e 7,000	469		--	--	--	--	--	60	66	73	87	100
Feb. 12.....	0950	47	47	e 50,000	2,920		22	32	40	52	63	75	86	95	100	VPWC

EEL RIVER BASIN

11-4752.5. EEL RIVER AT McCANN, CALIF.

LOCATION.--On right bank below Summer Bridge, about 0.5 mile northwest of McCann, Humboldt County, and 6.5 miles above confluence with the South Fork.
 RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.
 REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	pH	
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 18, 1957						16		105			20			0.11				100	14	0.7	281	7.5
Nov. 5						5.8		109			4.5			.02				93	4	.3	207	7.9
Dec. 17						4.6		68			3.0			.20				97	11	.2	142	6.9
Jan. 7, 1958						5.2		86			2.0			.12				54	0	.3	161	7.4
Feb. 4						3.6		68			2.8			.03				74	0	.2	119	7.9
Mar. 11						4.4		90						.15				74	0	.2	161	8.0
Apr. 3						4.4		62			2.2			.00				49	0	.3	110	7.8
May 8			0.05	16	4.6	3.1	1.0	67		7.7	1.5	0.0	0.0	.00	80	0.11		59	4	.2	126	7.4
June 5	13					4.0		83			2.0			.00				72	4	.2	159	8.0
July 10						5.4		120			4.4			.10				103	5	.2	226	8.0
Aug. 7						6.3		134			6.0			.10				118	8	.2	262	8.2
Sept. 11	9.8		.00	39	7.4	6.9	1.4	136		22	6.5	.0	.2	.30	161	.22		128	16	.3	280	7.8

EEL RIVER BASIN--Continued
11-4765. SOUTH FORK EEL RIVER NEAR MIRANDA, CALIF.

LOCATION.--At gaging station, at Sylvandale Campgrounds on U.S. Highway 101, 0.5 mile upstream from Rocky Glen Creek, 4.3 miles southeast of Miranda, Humboldt County, and 20 miles upstream from mouth.

DRAINAGE AREA.--537 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 15, 1957.....	1,990	--	--	--	--	6.2	--	86	--	3.8	--	--	0.08	--	--	--	70	0	0.3	169	7.3
Nov. 5.....	500	--	--	--	--	7.7	--	96	--	6.5	--	--	.07	--	--	--	78	0	0.4	180	7.9
Dec. 17.....	4,380	--	--	--	--	5.5	--	54	--	4.0	--	--	.18	--	--	--	49	5	.3	116	7.2
Jan. 6, 1958.....	2,060	--	--	--	--	5.7	--	70	--	4.8	--	--	.00	--	--	--	54	0	.3	130	7.1
Feb. 4.....	11,600	--	--	--	--	4.7	--	54	--	3.0	--	--	.00	--	--	--	40	0	.3	101	7.6
Mar. 11.....	1,610	--	--	--	--	5.7	--	74	--	4.5	--	--	.02	--	--	--	56	0	.3	132	7.9
Apr. 3.....	22,900	--	--	--	--	4.6	--	40	--	3.8	--	--	.00	--	--	--	36	3	.3	79	7.5
May 8.....	512	19	0.02	17	6.4	6.2	1.4	87	4.8	5.0	0.0	0.0	.00	103	0.14	--	69	0	.3	159	7.9
June 5.....	212	--	--	--	--	7.2	--	95	--	4.5	--	--	.10	--	--	--	73	0	.4	177	8.2
July 10.....	117	--	--	--	--	8.3	--	119	--	7.2	--	--	.10	--	--	--	92	0	.4	213	8.2
Aug. 7.....	66	--	--	--	--	6.9	--	122	--	7.0	--	--	.10	--	--	--	86	0	.4	224	8.2
Sept. 11.....	44	5.2	.00	24	10	7.9	1.4	122	5.8	9.0	.1	.4	.30	124	.17	--	103	3	.3	232	8.1

EEL RIVER BASIN--Continued
 11-4765. SOUTH FORK EEL RIVER NEAR MIRANDA, CALIF.--Continued

Periodic determinations of suspended sediment discharge,
 water year October 1957 to September 1958

Date	Time (24 hr)	Water tem- per- ature (°F)	Discharge (cfs)	Mean concen- tration (ppm)	Discharge (tons per day)
Oct. 2, 1957.....	0900	63	162	3	1.3
Oct. 19.....	1345	57	847	11	25
Oct. 23.....	0900	50	876	14	28
Nov. 10.....	1200	50	2,766	82	611
Nov. 28.....	1200	47	9,000	785	19,100
Dec. 23.....	1430	47	5,970	265	4,270
Jan. 14, 1958.....					
Feb. 12.....	0830	50	47,300	5,910	755,000
Mar. 11.....	1620	49	1,600	18	78
Apr. 7.....	1725	52	7,210	299	5,820
May 12.....	0815	58	456	10	12
June 7.....	1200	68	245	6	4.0
Sept. 2.....	1830	74	45	2	.2

EEL RIVER BASIN--Continued

11-4765. SOUTH FORK EEL RIVER NEAR MIRANDA, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Samp- ling point	Water temp- er- ature (°F)	Discharge (cfs)	Sediment concen- tration (ppm)	Suspended sediment										Method of analysis
						Percent finer than size indicated, in millimeters										
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500		1.000
Dec. 23, 1957.....	1200		47	9,000	785			33	33	54		75	90	98	100	VPWC
Jan. 14, 1958.....	1430		47	5,970	265			36	36	56		71	81	94	100	VPWC
Feb. 12.....	0830		50	47,300	5,910		17	24	34	34	44	55	66	84	96	VPWC
Apr. 7.....	1725		52	7,210	299			34	34	60	60	79	89	98	100	VPWC

EEL RIVER BASIN--Continued
11-4770. EEL RIVER AT SCOTIA, CALIF.

LOCATION--At gaging station (revised) on bridge on U.S. Highway 101, 0.5 mile north of Scotia, Humboldt County, and 6 miles upstream from Van Duzen River.
 DRAINAGE AREA--11.5 square miles.
 RECORDS AVAILABLE--Chemical analyses: October 1953 to September 1958.

Water temperatures: October 1957 to September 1958.

Sediment records: October 1957 to September 1958.

EXTREMES, 1957-58--Sediment concentrations: Maximum daily, 5,220 ppm Nov. 14; minimum daily, 1 ppm on many days.

Sediment loads: Maximum daily, 2,290,000 tons Feb. 25; minimum daily, 0.4 ton on several days.

REMARKS--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio at 25°C)	Specific conductance (micro-mhos at 25°C)		
													Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 18, 1957....	4,030	---	---	---	---	16	---	100	---	20	---	---	0.14	---	---	---	100	18	0.7	282	7.5
Nov. 5.....	1,510	---	---	---	---	8.0	---	114	---	5.5	---	---	.12	---	---	---	95	2	.4	219	8.1
Dec. 17.....	21,500	---	---	---	---	5.4	---	64	---	4.5	---	---	.17	---	---	---	60	8	.3	138	6.9
Jan. 6, 1958....	8,530	---	---	---	---	7.1	---	82	---	3.5	---	---	.01	---	---	---	66	0	.4	162	7.2
Feb. 4.....	68,500	---	---	---	---	4.0	---	82	---	2.5	---	---	.48	---	---	---	84	3	.2	117	7.7
Mar. 11.....	8,500	---	---	---	---	5.1	---	98	---	4.0	---	---	.01	---	---	---	82	2	.2	181	7.7
Apr. 3.....	106,000	---	---	---	---	3.8	---	50	---	2.8	---	---	.00	---	---	---	43	2	.3	98	7.5
May 8.....	5,310	15	0.06	19	4.5	3.9	1.2	78	8.6	2.5	0.0	0.1	.00	93	0.13	66	2	.2	145	7.7	
June 5.....	2,140	---	---	---	---	5.1	---	97	---	3.0	---	---	.00	---	---	---	82	2	.2	182	8.1
July 10.....	510	---	---	---	---	7.0	---	135	---	5.0	---	---	.10	---	---	---	116	5	.3	249	8.0
Aug. 7.....	213	---	---	---	---	8.1	---	156	---	7.0	---	---	.10	---	---	---	134	6	.3	289	8.2
Sept. 11.....	141	8.8	.00	38	12	7.9	1.3	164	16	8.0	.0	.8	.20	174	.24	144	10	.3	306	7.9	

EEL RIVER BASIN--Continued

11-4770. EEL RIVER AT SCOTIA, CALIF.--Continued

Temperature (°F) of water, water year October 1957 to September 1958
 /Once-daily measurement, generally between 12 m. and 8 p.m./

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October.....	--	--	--	59	--	--	--	--	--	--	--	--	--	--	--	--	--	62	58	--	--	56	58	58	59	58	58	60	60	57	57	--	
November....	55	54	--	54	53	52	52	54	54	55	53	53	54	54	52	51	49	51	52	54	54	52	50	51	50	50	50	49	48	47	47	--	52
December....	46	48	46	46	47	47	49	50	49	49	49	--	50	49	50	49	49	49	49	50	50	49	48	--	50	--	48	49	50	49	49	49	--
January.....	48	49	48	48	46	46	46	47	48	49	48	49	47	48	--	--	51	--	--	--	--	--	47	--	--	--	48	--	50	51	51	51	--
February....	50	48	50	50	51	52	51	51	--	--	51	50	50	52	54	53	53	52	53	54	52	53	53	53	50	49	49	47	--	--	51	--	
March.....	46	49	51	50	49	48	--	47	49	50	50	49	49	48	51	51	51	54	54	52	50	49	50	51	50	51	52	51	49	48	48	50	
April.....	48	48	47	50	48	49	52	52	53	--	58	58	55	57	57	57	55	54	58	59	57	56	55	55	55	53	53	54	55	56	--	54	
May.....	57	58	62	60	59	60	60	59	63	63	58	59	60	64	66	70	67	69	67	68	67	65	65	68	67	68	70	69	68	--	--	64	
June.....	--	65	--	--	--	68	--	68	67	--	--	69	--	71	--	--	71	--	--	--	74	--	--	73	--	--	--	69	--	--	--	--	
July.....	--	72	--	--	--	72	--	--	72	67	--	74	--	--	70	--	--	--	70	--	--	--	74	--	--	77	--	--	76	--	--	77	--
August.....	--	--	74	--	--	--	71	--	--	--	69	--	--	--	73	--	--	--	73	--	--	--	75	--	--	--	--	--	73	--	--	--	--
September...	--	70	--	--	--	74	--	72	--	--	68	--	--	--	71	--	--	--	--	67	--	--	--	58	--	--	--	69	--	--	--	--	--

EEL RIVER BASIN--Continued

11-4770. EEL RIVER AT SCOTIA, CALIF.--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December		
	Mean dis-charge (cfs)	Mean concentration (ppm)	Tons per day	Mean dis-charge (cfs)	Mean concentration (ppm)	Tons per day	Mean dis-charge (cfs)	Mean concentration (ppm)	Tons per day
1...	1,210	17	a 56	2,070	12	67	2,620	22	156
2...	1,120	16	a 48	1,930	12	63	2,470	17	113
3...	878	15	a 36	1,770	7	a 33	2,360	19	121
4...	680	14	26	1,630	6	26	2,220	15	90
5...	670	15	a 27	1,510	8	33	2,140	12	69
6...	1,390	37	sa 170	1,420	8	31	2,120	15	86
7...	2,840	52	a 400	1,290	8	28	2,150	13	75
8...	2,350	36	a 230	1,290	11	38	2,030	9	49
9...	3,210	130	sa 1,500	1,430	8	31	1,930	10	52
10...	17,500	1,900	sa 100,000	1,660	15	67	1,820	11	a 54
11...	12,200	570	a 19,000	2,700	240	1,750	1,720	15	70
12...	6,070	150	a 2,500	3,310	120	1,070	1,640	15	a 66
13...	37,200	2,500	sa 330,000	16,200	2,270	s 168,000	1,590	15	64
14...	31,000	1,300	sa 140,000	81,900	5,220	s 1,180,000	1,550	14	59
15...	11,200	310	a 9,400	35,700	1,470	s 154,000	1,610	11	48
16...	6,740	150	a 2,700	18,100	700	34,200	4,020	419	s 6,890
17...	4,980	86	a 1,200	12,100	373	12,200	20,700	2,350	131,000
18...	3,960	59	a 630	9,950	284	7,630	52,500	2,980	s 432,000
19...	3,280	38	337	10,500	263	7,460	34,000	1,150	106,000
20...	2,630	27	a 190	8,740	169	3,990	34,200	900	83,100
21...	2,330	20	a 130	7,330	163	3,230	57,000	2,920	s 543,000
22...	2,070	20	112	6,230	137	2,300	71,600	2,580	s 538,000
23...	2,520	91	619	5,300	115	1,670	39,900	1,080	116,000
24...	2,890	174	1,360	4,880	85	1,120	34,700	880	82,400
25...	3,960	114	1,220	4,450	63	757	25,900	500	35,000
26...	4,720	134	1,710	4,110	50	555	22,200	470	28,200
27...	4,370	78	920	3,800	40	410	19,600	360	19,100
28...	3,570	38	366	3,520	35	333	30,600	1,480	s 163,000
29...	2,940	22	175	3,240	26	227	55,900	1,930	s 308,000
30...	2,550	16	110	2,860	24	185	32,700	700	61,800
31...	2,270	16	98	--	--	--	21,600	410	23,900
Total	185,298	--	615,270	261,010	--	1,581,504	587,090	--	2,678,562
January			February			March			
1...	16,300	340	15,000	43,200	1,170	136,000	31,200	970	81,700
2...	20,100	530	28,800	39,200	1,090	115,000	24,800	700	46,900
3...	19,800	360	19,200	62,600	2,080	352,000	20,100	590	32,000
4...	14,300	220	8,490	66,400	1,540	276,000	17,000	520	23,900
5...	11,600	150	4,700	68,400	1,550	286,000	14,500	420	16,400
6...	9,760	100	2,640	53,900	1,040	151,000	13,000	280	9,830
7...	8,470	110	2,520	59,700	1,750	282,000	11,600	270	a 8,500
8...	7,630	125	2,580	61,400	1,270	211,000	10,900	250	7,360
9...	7,460	180	3,630	62,500	1,470	248,000	10,200	220	6,060
10...	28,000	1,870	s 145,000	72,100	1,840	358,000	9,180	200	4,960
11...	41,100	1,050	117,000	49,400	1,060	141,000	8,560	190	4,390
12...	37,400	1,360	s 153,000	128,000	4,100	s 1,560,000	8,020	180	3,900
13...	53,300	1,610	s 240,000	109,000	2,930	s 916,000	7,570	150	3,070
14...	33,800	600	54,800	71,000	1,880	360,000	7,120	130	2,500
15...	25,000	440	29,700	110,000	2,790	829,000	7,750	170	3,560
16...	22,500	370	22,500	103,000	2,250	626,000	8,140	180	3,960
17...	17,300	250	11,700	82,500	1,750	390,000	7,240	130	2,540
18...	14,000	180	6,800	102,000	3,540	s 1,050,000	6,650	90	1,620
19...	11,800	150	4,780	145,000	4,750	1,860,000	6,250	60	1,010
20...	10,300	130	3,620	93,800	1,940	491,000	6,750	210	3,830
21...	9,220	110	2,740	58,300	1,420	224,000	31,100	2,680	s 258,000
22...	8,020	110	2,380	42,200	1,130	128,000	45,200	1,740	212,000
23...	8,130	230	5,050	36,400	1,000	98,300	38,700	850	84,200
24...	19,800	1,110	s 68,600	87,600	4,610	s 1,310,000	38,800	810	84,900
25...	35,200	1,280	122,000	174,000	4,770	s 2,290,000	42,900	880	102,000
26...	40,800	1,230	s 149,000	94,400	2,730	696,000	37,700	680	69,200
27...	41,200	870	96,800	57,700	1,890	294,000	27,800	420	31,500
28...	38,300	850	87,900	41,300	1,270	142,000	21,900	300	17,700
29...	84,200	3,860	s 1,030,000	--	--	--	22,800	689	s 50,600
30...	118,000	4,030	s 1,380,000	--	--	--	57,900	2,440	s 383,000
31...	68,800	1,700	316,000	--	--	--	53,200	1,100	158,000
Total	881,590	--	4,136,930	2,175,000	--	15,821,300	652,530	--	1,719,090

s Computed by subdividing day.

a Computed from estimated concentration graph.

EEL RIVER BASIN--Continued

11-4770. EEL RIVER AT SCOTIA, CALIF.--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	68,900	2,070	385,000	5,710	78	1,200	2,400	--	
2...	100,000	3,050	858,000	5,630	74	1,120	2,500	12	
3...	103,000	2,440	698,000	5,750	74	1,150	2,510	--	
4...	72,600	1,490	292,000	5,850	75	1,180	2,550	--	
5...	58,700	1,100	174,000	5,630	70	1,060	2,160	10	74
6...	47,800	1,070	138,000	5,650	63	961	2,060	--	
7...	38,900	640	67,200	5,510	59	878	1,990	14	
8...	51,000	530	44,400	5,250	60	851	1,990	9	48
9...	26,000	380	26,700	5,150	48	687	2,040	8	a 44
10...	23,600	320	20,000	5,170	46	642	2,220	13	78
11...	22,400	320	19,400	5,310	58	832	2,470	18	a 120
12...	21,500	320	18,600	5,730	70	1,080	2,280	18	111
13...	20,000	290	15,700	5,600	67	1,010	2,040	14	a 77
14...	18,900	250	12,800	4,800	52	674	1,840	10	
15...	17,200	230	10,700	4,500	34	413	1,700	--	42
16...	15,600	220	9,270	4,200	36	403	1,620	--	
17...	14,700	190	7,540	4,400	29	345	1,490	8	
18...	14,400	180	7,000	4,600	27	335	1,440	--	
19...	13,200	172	6,130	4,600	32	397	1,360	--	
20...	11,900	158	5,080	4,400	33	392	1,330	--	30
21...	11,400	152	4,680	4,300	39	453	1,510	8	
22...	11,400	153	4,710	4,700	28	355	1,300	--	
23...	11,000	150	4,500	5,200	40	562	1,230	--	
24...	9,220	135	3,360	4,800	64	829	1,060	6	
25...	7,930	123	2,630	4,300	52	604	1,060	--	
26...	6,850	104	1,920	3,700	50	500	1,010	--	
27...	6,350	106	1,820	3,200	30	259	950	--	16
28...	6,100	81	1,330	3,000	20	162	894	6	
29...	6,020	68	1,110	2,700	18	131	867	--	
30...	5,950	72	a 1,160	2,500	17	a 110	828	--	
31...	--	--	--	2,400	15	a 97	--	--	--
Total	822,520	--	2,842,740.0	144,240	--	19,657	50,839	--	1,444
	July			August			September		
1...	789	--		255	--		159	1	a 0.4
2...	750	6	12	249	--		150	1	.4
3...	738	--		243	--		144	--	
4...	714	--		231	--		141	--	
5...	678	--		225	--	0.6	141	--	
6...	642	5		219	--		138	2	
7...	608	--		213	1		141	--	
8...	564	--	6.8	213	--		144	2	
9...	531	4		207	--		147	--	
10...	500	--		201	--		144	--	
11...	460	--		201	1		141	2	
12...	450	4	4.8	195	--		141	--	
13...	430	--		190	--		144	--	
14...	420	--		186	--		144	--	
15...	402	3		186	1		144	2	
16...	402	--		186	--		144	--	.8
17...	393	--		182	--		147	--	
18...	384	--		182	--	.5	147	--	
19...	384	3	3.1	182	1		147	--	
20...	375	--		177	--		147	2	
21...	366	--		177	--		144	--	
22...	366	3		201	--		144	--	
23...	366	--		190	1		141	--	
24...	366	--		186	--		150	2	
25...	375	2		177	--		154	--	
26...	384	--	1.9	168	--		154	--	
27...	348	--		164	--		150	--	
28...	322	2		159	1		150	2	
29...	315	--		154	--	.4	147	--	
30...	292	1	a .8	150	--		147	--	
31...	270	1	.7	147	--		--	--	--
Total	14,384	--	154.0	5,996	--	15.9	4,376	--	23.2
Total discharge for year (cfs-days).....							5,784,873		
Total load for year (tons).....							29,416,690.1		

a Computed from estimated concentration graph.

EEL RIVER BASIN--Continued

11-4770. EEL RIVER AT SCOTIA, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Sam- pling point	Water temp- per- ature (°F)	Discharge (cfs)	Sediment concen- tration (ppm)	Suspended sediment											Method of analysis
						Percent finer than size indicated, in millimeters											
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Nov. 13, 1957.....	1630		54	17,600	2,740		26	36	46	59	73	86	96	100			VPWC
Nov. 14.....	1630		54	87,900	3,390		--	35	--	60	--	86	96	100			VPWC
Nov. 15.....	1630		52	28,600	1,200		--	40	--	60	--	88	98	100			VPWC
Nov. 16.....	1630		51	16,700	1,574		--	--	--	--	--	89	98	100			V
Dec. 17.....	1600		49	20,300	1,630		--	46	--	59	--	80	88	95	100		VPWC
Dec. 18.....	1600		49	62,300	2,880		22	31	41	54	68	82	94	100			VPWC
Dec. 28.....	1600		49	37,400	2,080		--	35	--	54	--	79	92	100			VPWC
Dec. 29.....	1700		50	49,000	1,340		--	36	--	61	--	86	96	100			VPWC
Jan. 10, 1958.....	1700		49	36,500	1,890		--	31	--	49	--	71	88	99	100		VPWC
Jan. 12.....	1600		49	40,400	1,620		--	31	--	52	--	81	93	100			VPWC
Jan. 30.....	1300		51	112,000	3,040		20	29	38	50	63	76	94	100			VPWC
Feb. 13.....	0700		50	122,000	3,270		--	26	--	45	--	71	91	100			VPWC
Feb. 19.....	1700		52	153,000	3,610		--	29	--	49	--	74	90	99	100		VPWC
Feb. 25.....	1800		50	131,000	4,010		20	28	38	49	62	74	92	100			VPWC
Mar. 22.....	1200		49	46,400	1,680		--	30	--	51	--	77	90	99	100		VPWC
Mar. 30.....	0700		48	57,800	3,360		--	30	--	52	--	78	92	100			VPWC
May 13.....	0835		52	5,600	070		--	--	--	--	--	81	84	88	94	100	S

d Daily mean.

MAD RIVER BASIN

11-4810. MAD RIVER NEAR ARCATA, CALIF.

LOCATION.--At gaging station, 100 feet upstream from bridge on U.S.Highway 299, 1.0 mile downstream from Warren Creek, and 2.8 miles northeast of Arcata, Humboldt County.
DRAINAGE AREA.--485 square miles.

RECORDS AVAILABLE.--Water temperatures: December 1957 to September 1958.

Sediment records: December 1957 to September 1958.

EXTREMES, 1957-58.--Water temperatures: minimum 43°F Mar. 1.

Sediment concentrations: Maximum daily, 3,730 ppm Jan. 29; minimum daily, 1 ppm Sept. 23, 29.

Sediment loads: Maximum daily, 249,000 tons Jan. 29; minimum daily, less than 0.50 ton on many days.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1365.

Temperature (°F) of water, December 1957 to September 1958

/Once-daily measurement, generally between 12 m. and 8 p.m./

Month		Day																															Aver- age	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
November...	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
December...	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	44	48	--	--	--	50	48	49	49	47	48	--	
January....	50	48	48	48	48	48	48	49	50	49	--	48	47	46	54	50	50	50	48	47	46	47	48	47	48	47	48	48	49	50	50	47	48	
February...	50	48	48	48	48	50	49	49	49	49	50	48	47	49	50	53	53	53	51	49	50	52	50	50	53	49	48	48	49	53	49	48	48	
March.....	43	48	49	48	48	47	45	44	45	48	48	46	48	--	--	46	--	--	53	--	48	48	47	48	48	49	48	49	53	49	--	45	47	
April.....	46	47	47	49	48	48	52	51	53	56	58	54	52	55	55	--	53	55	--	55	--	--	--	--	55	--	--	54	58	--	--	--	--	
May.....	--	--	--	58	--	--	59	--	58	--	--	--	61	--	--	50	--	--	--	63	--	68	--	--	60	--	65	--	--	--	60	--	--	
June.....	--	62	--	--	--	--	--	61	--	67	--	--	--	--	--	--	--	--	--	--	--	--	68	--	--	68	--	68	--	--	70	--	--	
July.....	--	--	--	--	66	--	--	75	--	--	--	--	64	--	68	--	--	--	66	--	--	--	--	76	--	68	--	70	--	66	--	--	--	
August.....	--	62	--	--	69	--	--	64	--	64	--	69	--	69	--	65	--	65	--	64	--	64	--	76	--	68	--	68	--	68	--	68	--	--
September...	--	66	59	--	--	--	67	--	66	--	--	61	--	68	--	68	--	65	--	65	--	--	--	63	--	69	--	69	--	64	--	--	--	--

MAD RIVER BASIN--Continued

11-4810. MAD RIVER NEAR ARCATA, CALIF.--Continued

Suspended sediment, December 1957 to September 1958

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...							--	--	--
2...							--	--	--
3...							--	--	--
4...							--	--	--
5...							--	--	--
6...							--	--	--
7...							--	--	--
8...							--	--	--
9...							--	--	--
10...							--	--	--
11...							--	--	--
12...							--	--	--
13...							--	--	--
14...							--	--	--
15...							--	--	--
16...							--	--	--
17...							--	--	--
18...							--	--	--
19...							--	--	--
20...							--	--	--
21...							17,900	2,630	s139,000
22...							11,800	1,830	s62,600
23...							6,320	900	15,400
24...							5,530	700	10,500
25...							5,680	700	10,700
26...							5,840	720	11,400
27...							4,760	521	s7,030
28...							11,500	2,370	s79,300
29...							8,660	1,290	s31,800
30...							4,030	600	6,530
31...							3,260	400	3,520
Total							85,280	--	377,780
	January			February			March		
1...	2,560	330	2,280	6,140	840	13,900	4,190	430	4,860
2...	4,820	696	s9,110	5,090	700	9,620	3,160	325	2,770
3...	3,530	380	3,620	6,390	1,100	19,000	2,720	235	1,730
4...	2,540	190	1,300	6,070	740	12,100	2,310	160	998
5...	1,910	160	825	7,170	950	18,400	2,030	120	658
6...	1,480	140	559	5,990	680	11,000	1,840	120	596
7...	1,230	115	382	8,180	1,230	s28,800	1,650	125	557
8...	1,060	90	258	8,560	970	22,400	1,890	190	970
9...	1,010	150	409	6,900	750	14,000	1,910	160	825
10...	5,150	1,370	s20,500	5,970	700	11,300	1,650	90	401
11...	5,730	1,100	sa18,000	4,740	552	s7,290	1,530	70	289
12...	7,320	1,230	s32,700	23,300	2,840	s192,000	1,420	65	249
13...	8,810	1,240	s31,700	14,800	1,770	s80,000	1,310	65	230
14...	5,090	570	7,830	10,200	1,790	s55,300	1,250	60	a200
15...	5,030	675	9,170	18,900	2,480	s126,000	1,250	55	a190
16...	4,510	475	5,780	16,500	1,900	s84,900	1,200	55	178
17...	3,120	315	2,650	9,770	1,520	s39,800	1,150	55	a170
18...	2,440	220	1,450	13,800	2,370	s92,600	1,060	55	a160
19...	1,850	160	799	17,200	2,750	s128,000	1,010	55	150
20...	1,850	230	1,150	9,380	1,550	s40,300	1,050	120	a340
21...	1,840	200	994	5,450	970	14,300	4,780	2,340	s35,700
22...	1,430	100	386	3,920	670	7,090	5,420	830	12,100
23...	1,280	90	311	3,380	570	5,200	4,650	545	6,840
24...	2,490	350	2,350	12,200	2,840	s133,000	5,180	600	8,390
25...	3,650	530	5,220	21,200	3,170	s199,000	6,900	800	14,900
26...	4,380	860	10,200	11,300	1,460	s45,500	5,570	510	7,670
27...	3,920	500	5,290	7,370	1,000	19,900	4,010	350	3,790
28...	10,600	2,250	s78,100	5,380	630	9,150	2,980	210	1,690
29...	24,200	3,730	s249,000	--	--	--	3,240	369	sa4,200
30...	18,300	2,250	s115,000	--	--	--	5,490	800	11,900
31...	9,790	1,360	35,900	--	--	--	4,740	450	5,760
Total	152,920	--	653,223	275,250	--	1,439,850	88,540	--	129,461

s Computed by subdividing day.

a Computed from estimated-concentration graph.

QUALITY OF SURFACE WATERS, 1958

MAD RIVER BASIN--Continued

11-4810, MAD RIVER NEAR ARCATA, CALIF.--Continued

Suspended sediment, December 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	6,310	865	s15,000	892	--	--	351	--	--
2...	9,070	1,440	s36,400	892	--	--	378	8	--
3...	9,150	1,050	25,900	847	--	--	409	--	--
4...	6,560	510	9,030	816	20	--	390	--	9
5...	5,150	385	5,350	798	--	40	355	--	--
6...	4,880	390	5,140	767	--	--	351	--	--
7...	3,940	240	2,550	736	14	--	426	--	--
8...	3,500	220	2,080	711	--	--	438	22	--
9...	3,280	200	1,770	680	--	--	537	--	--
10...	3,740	310	3,130	667	15	--	512	--	--
11...	4,220	375	4,270	649	--	--	450	20	22
12...	4,610	500	6,220	649	--	--	409	--	--
13...	4,460	430	5,180	624	30	37	374	--	--
14...	3,900	280	2,950	581	--	--	351	--	--
15...	3,340	200	1,800	556	--	--	328	--	--
16...	3,000	160	a1,300	525	--	--	312	--	--
17...	2,880	150	1,170	494	11	--	289	--	--
18...	3,160	200	1,710	481	--	--	278	--	--
19...	2,580	140	a980	432	--	--	270	--	--
20...	2,260	110	671	398	--	11	239	--	--
21...	2,030	90	a490	374	6	--	246	--	--
22...	1,890	78	398	382	--	--	239	5	3
23...	1,640	67	a300	624	--	--	231	--	--
24...	1,440	57	222	705	55	65	227	--	--
25...	1,310	49	a170	525	--	--	194	--	--
26...	1,190	42	a130	426	22	--	201	3	--
27...	1,100	35	104	409	--	--	194	--	--
28...	1,020	27	74	382	--	16	188	--	--
29...	964	25	a65	367	--	--	182	--	--
30...	928	24	a60	359	--	--	188	3	--
31...	--	--	--	347	7	--	--	--	--
Total	103,502	--	134,614	18,095	--	973	9,537	--	316
Day	July			August			September		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1...	154	--	--	64	--	--	31	--	--
2...	179	--	--	60	--	--	30	--	--
3...	148	--	--	58	2	--	29	3	--
4...	154	--	--	58	--	--	28	--	--
5...	151	--	--	58	--	--	30	--	--
6...	145	3	--	52	3	--	26	--	--
7...	142	--	--	50	--	--	26	2	--
8...	129	--	--	50	--	--	33	--	--
9...	129	4	--	49	--	--	35	--	--
10...	123	--	--	37	7	--	46	5	--
11...	120	--	--	37	--	--	43	--	--
12...	118	--	--	33	--	--	40	--	--
13...	115	4	--	43	2	--	49	3	--
14...	126	--	--	40	--	--	60	--	--
15...	103	3	--	39	--	--	62	3	--
16...	115	--	1	39	--	(t)	60	--	(t)
17...	95	--	--	39	4	--	62	--	--
18...	109	--	--	40	--	--	47	--	--
19...	109	3	--	42	--	--	44	--	--
20...	96	--	--	43	7	--	40	2	--
21...	120	--	--	42	--	--	37	--	--
22...	89	--	--	36	--	--	37	--	--
23...	64	9	--	32	--	--	39	1	--
24...	114	--	--	32	4	--	37	--	--
25...	81	--	--	33	--	--	36	--	--
26...	56	--	--	37	--	--	36	2	--
27...	78	2	--	35	4	--	35	--	--
28...	81	--	--	33	--	--	34	--	--
29...	75	4	--	35	--	--	33	1	--
30...	70	--	--	35	--	--	33	--	--
31...	66	--	--	34	3	--	--	--	--
Total	3,458	--	31	1,344	--	14	1,178	--	8

Total discharge for period December 1957 to September 1958 (cfs-days)..... 739,104
 Total load for period December 1957 to September 1958 (tons)..... 2,736,270

s Computed by subdividing day,
 t Less than 0.50 ton.

a Computed from estimated-concentration
 graph.

MAD RIVER BASIN--Continued

11-4810. MAD RIVER NEAR ARCATA, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Sam- pling point	Water temp- er- ature (° F)	Discharge (cfs)	Sediment concent- ration (ppm)	Suspended sediment											Method of analysis	
						Percent finer than size indicated, in millimeters												
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000		
Dec. 21, 1957.....	1615		44	22,000	3,670	19	25	35	45	58	69	85	98	99	100	100	VPWC	
Dec. 28.....	1100		49	12,200	2,930	--	22	--	41	--	65	81	94	98	100	100	VPWC	
Jan. 10, 1958.....	1550		48	6,100	1,830	--	28	--	47	--	71	85	93	98	100	100	VPWC	
Jan. 15.....	1440		54	5,780	1,030	--	31	--	52	--	74	86	96	99	100	100	VPWC	
Jan. 29.....	1600		50	31,400	4,370	--	31	--	55	--	80	93	99	100	--	--	VPWC	
Feb. 8.....	1345		49	8,500	909	--	29	--	51	--	70	81	97	100	--	--	VPWC	
Feb. 13.....	0945		47	17,000	1,690	--	25	--	43	--	63	79	95	99	100	100	VPWC	
Feb. 20.....	1600		50	8,250	1,410	--	24	--	41	--	61	75	93	100	--	--	VPWC	
Mar. 22.....	0845		48	5,580	839	--	28	--	44	--	85	75	93	99	100	100	VPWC	
Apr. 1.....	1600		46	6,300	885	--	30	--	45	--	70	77	83	92	98	100	VPWC	
Apr. 13.....	1215		52	4,420	426	29	33	38	55	85	74	79	82	98	100	100	VPWC	

KLAMATH RIVER BASIN

11-5125. KLAMATH RIVER BELOW FALL CREEK, NEAR COPCO, CALIF.

LOCATION.--At gaging station, 500 feet downstream from Fall Creek, 0.5 mile downstream from Copco No. 2 plant of The California Oregon Power Co., and 1 mile south of Copco, Siskiyou County.

DRAINAGE AREA.--4,370 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (microhmhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 9, 1957.....	3,400	--	--	--	--	16	--	86	--	--	3.3	--	--	0.13	--	--	--	54	0	1.0	188	7.8
Nov. 19.....	3,500	--	--	--	--	23	--	100	--	--	5.0	--	--	.00	--	--	--	66	0	1.2	241	7.9
Dec. 11.....	3,360	--	--	--	--	19	--	88	--	--	4.5	--	--	.15	--	--	--	58	0	1.1	198	7.9
Jan. 7, 1958.....	3,330	--	--	--	--	16	--	78	--	--	4.0	--	--	.09	--	--	--	50	0	1.0	169	6.8
Feb. 11.....	3,940	--	--	--	--	18	--	88	--	--	4.0	--	--	.10	--	--	--	68	0	.9	209	7.4
Mar. 11.....	5,400	--	--	--	--	13	--	68	--	--	3.0	--	--	.12	--	--	--	50	0	.8	158	7.3
Apr. 16.....	6,160	--	--	--	--	16	--	80	--	--	2.5	--	--	.08	--	--	--	54	0	1.0	188	7.3
May 16.....	3,300	21	0.11	9.6	6.6	14	2.5	76	14	--	4.0	0.3	1.3	.04	110	0.15	--	51	0	.9	175	7.6
June 12.....	4,500	--	--	--	--	9.6	--	65	--	--	1.0	--	--	.00	--	--	--	40	0	.7	121	7.7
July 14.....	3,010	--	--	--	--	13	--	77	--	--	2.3	--	--	.10	--	--	--	50	0	.8	139	7.4
Aug. 19.....	3,850	--	--	--	--	16	--	86	--	--	3.5	--	--	.11	--	--	--	59	0	.8	157	7.1
Sept. 16.....	3,010	24	.13	12	5.4	14	2.6	83	9.6	--	4.0	.1	2.9	.20	116	.16	--	52	0	.8	171	7.4

KLAMATH RIVER BASIN--Continued
11-5230. KLAMATH RIVER AT SOMESBAR, CALIF.

LOCATION.--One hundred feet downstream from gaging station, 400 feet downstream from Salmon River, and 1 mile west of Somesbar Post Office, Siskiyou County.
DRAINAGE AREA.--8,480 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.
REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 16, 1957	4,800	--	--	--	--	11	--	88	--	4.0	--	--	0.10	--	--	--	63	0	0.6	175	7.2
Nov. 6	4,400	--	--	--	--	16	--	184	--	6.0	--	--	.00	--	--	--	74	0	.8	218	7.7
Jan. 8, 1958	11,900	--	--	--	--	9.2	--	84	--	3.0	--	--	.00	--	--	--	64	0	.3	159	7.3
Feb. 6	23,300	--	--	--	--	5.5	--	90	--	2.8	--	--	.08	--	--	--	72	0	.3	153	7.7
Mar. 12	19,300	--	--	--	--	7.6	--	82	--	2.5	--	--	.01	--	--	--	64	0	.4	154	7.5
Apr. 2	22,900	--	--	--	--	6.0	--	82	--	3.0	--	--	.00	--	--	--	60	0	.3	147	7.9
May 7	19,000	14	0.05	10	4.4	3.3	1.2	56	3.5	1.0	0.0	0.7	.00	66	0.09	--	43	0	.2	101	7.8
June 4	15,400	--	--	--	--	5.2	--	63	--	.8	--	--	.00	--	--	--	45	0	.3	113	7.8
July 9	5,740	--	--	--	--	8.6	--	84	--	4.4	--	--	.00	--	--	--	60	0	.5	157	7.9
Aug. 6	3,040	--	--	--	--	14	--	104	--	5.0	--	--	.10	--	--	--	74	0	.7	206	7.8
Sept. 10	2,380	20	.01	18	6.6	14	2.3	105	5.8	7.5	.1	1.0	.30	128	.17	--	72	0	.7	206	7.5

Daily mean discharge (cfs).

a Daily mean discharge (cfs).

KLAMATH RIVER BASIN--Continued

11-5230. KLAMATH RIVER AT SOMESBAR, CALIF.--Continued

Periodic determinations of suspended sediment discharge,
water year October 1957 to September 1958

Date	Time (24 hr)	Water tem- per- ature (°F)	Discharge (cfs)	Suspended sediment	
				Mean concen- tration (ppm)	Discharge (tons per day)
Oct. 18, 1957	1020	52	84,250	22	252
Nov. 16	1215	48	816,000	153	6,610
Dec. 21	1120	42	49,200	1,290	171,000
Jan. 16, 1958	1400	47	21,000	90	5,100
Jan. 30	1140	--	69,700	2,040	384,000
Feb. 13	1600	46	45,000	669	81,300
Mar. 14	1050	--	17,800	253	12,200
Apr. 9	1045	56	18,500	150	7,490
May 14	1120	--	17,900	147	7,110
June 8	1530	61	15,300	58	2,400
Aug. 13	1200	56	2,820	8	61

a Daily mean discharge.

Particle-size analyses of suspended sediment, water year October 1957 to September 1958
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Sampling point (°F)	Water temp- er- ature (°F)	Discharge (cfs)	Sediment con- cen- tration (ppm)	Suspended sediment										Method of analysis	
						Percent finer than size indicated, in millimeters											
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500		1.000
Dec. 21, 1957	1120	42	49,200	1,290				10		22		40	57	81	96	100	VPWC
Jan. 30, 1958	1140	--	69,700	2,040			14	20	28	37	48	59	73	88	98	100	VPWC
Feb. 13	1600	46	45,000	669				13		27		46	58	79	98	100	VPWC
Mar. 14	1050	--	17,800	253						27		47	59	69	85	100	VPWC

KLAMATH RIVER BASIN--Continued
11-5255. TRINITY RIVER AT LEWISTON, CALIF.

LOCATION.--At gaging station on downstream side of left pier of highway bridge, at Lewiston, Trinity County, and 0.8 mile downstream from Deadwood Creek. DRAINAGE AREA.--727 square miles.

RECORDS AVAILABLE.--Chemical analyses: December 1953 to September 1958.

Water temperatures: September 1951 to September 1955, October 1957 to September 1958 (discontinued).

EXTREMES, 1951-55, 1957-58.--Water temperatures: Minimum, 38°F, January 1955; maximum, 76°F on several days in August 1955; minimum, 33°F on several days in January 1952.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	
														Parts per million	Tons per acre-foot	Tons per day	Calcium-Magnesium	Non-carbonate		
Oct. 8, 1957.....	514	--	--	--	--	8.8	--	86	--	8.5	--	--	0.2	--	--	--	63	0	0.5	164
Nov. 13.....	1,310	--	--	--	--	5.3	--	66	--	5.2	--	--	.1	--	--	--	52	0	.3	124
Dec. 10.....	2,652	--	--	--	--	5.7	0.6	74	--	4.0	--	--	.2	--	--	--	56	0	.3	132
Jan. 16, 1958....	2,170	--	--	--	--	3.8	--	66	--	3.0	--	--	.1	--	--	--	49	0	.2	106
Feb. 10.....	7,240	--	--	--	--	2.2	--	48	--	1.5	--	--	.0	--	--	--	38	0	.2	78
Mar. 4.....	4,200	--	--	--	--	2.6	--	49	--	2.6	--	--	.1	--	--	--	39	0	.2	89
Apr. 14.....	6,080	--	--	--	--	2.8	--	50	--	2.0	--	--	.2	--	--	--	38	0	.2	88
Apr. 17.....	6,500	17	--	10	5.8	2.7	.9	39	3.8	.5	0.3	0.8	.0	71	0.10	49	1	.2	105	
May 13.....	8,010	17	0.07	4.2	4.7	2.0	.7	35	1.9	.5	.0	.1	.0	48	.07	30	0	.1	65	
June 10.....	5,260	--	--	--	--	2.0	--	41	--	5.5	--	--	.0	--	--	27	0	.2	63	
July 2.....	2,170	--	--	--	--	1.8	--	41	--	2.5	--	--	.0	--	--	32	0	.1	74	
Aug. 7.....	646	--	--	--	--	3.3	--	60	--	4.5	--	--	.0	--	--	50	1	.2	111	
Sept. 4.....	259	18	.04	9.2	9.7	5.4	1.6	77	6.7	5.2	.1	.2	.0	94	.13	63	0	.3	140	

QUALITY OF SURFACE WATERS, 1958

KLAMATH RIVER BASIN--Continued

11-5255. TRINITY RIVER AT LEWISTON, CALIF.--Continued

Temperature (°F) of water, water year October 1957 to September 1958

[Continuous-recording thermograph]

Month		Day																												Aver- age				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		29	30	31	
October	Maximum.....	61	60	58	57	55	56	56	55	51	52	52	51	52	52	52	52	53	53	53	52	52	52	52	52	50	51	51	51	50	50	50	50	53
	Minimum.....	--	59	56	55	54	54	55	51	50	50	51	50	51	52	52	52	52	52	52	51	51	51	51	50	49	50	51	50	49	49	49	52	
	Mean.....	50	48	47	46	46	45	46	47	46	46	46	46	46	45	43	43	42	43	42	43	45	43	42	43	44	44	43	42	41	40	--	45	
	Maximum.....	46	47	45	44	44	45	46	46	46	46	46	46	46	46	45	43	42	42	42	43	43	43	42	42	43	43	43	41	41	40	39	--	44
	Minimum.....	40	42	42	42	43	44	45	44	43	43	43	43	43	44	44	45	45	44	43	44	44	44	44	44	44	43	42	42	42	42	42	41	43
November	Maximum.....	41	42	--	--	--	--	--	39	40	40	40	41	41	41	41	41	41	41	40	41	41	41	40	39	40	42	42	42	43	44	41	--	44
	Minimum.....	41	41	--	--	--	--	--	38	39	39	39	39	41	41	41	41	41	40	39	39	40	40	39	39	40	42	42	42	42	43	40	--	44
	Mean.....	44	44	44	45	46	46	46	45	45	45	45	45	44	43	44	45	45	44	45	44	44	44	45	45	43	43	42	42	43	--	--	44	
	Maximum.....	43	44	44	44	45	46	46	45	45	45	44	44	42	42	43	44	44	44	43	44	44	44	44	44	45	43	42	42	43	--	--	44	
	Minimum.....	43	43	43	43	43	43	42	43	43	44	44	44	44	44	44	45	45	45	45	45	46	46	46	46	46	46	46	46	46	46	46	46	45
December	Maximum.....	42	42	43	43	43	42	42	42	43	43	44	44	44	44	44	44	44	45	45	45	45	46	46	46	46	46	46	46	46	46	46	46	44
	Minimum.....	46	45	45	45	44	44	44	44	44	45	45	45	45	45	46	45	45	44	44	44	45	45	45	45	44	43	42	42	43	44	47	45	45
	Mean.....	47	48	48	47	47	47	47	47	47	47	47	47	47	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	47	
	Maximum.....	48	48	47	47	46	48	48	49	50	51	51	52	53	54	54	55	55	55	54	55	56	56	56	55	56	57	56	55	55	55	55	52	
	Minimum.....	48	47	47	47	48	47	47	48	48	48	49	49	50	50	51	51	52	51	50	52	53	53	53	52	54	54	54	55	54	--	50	--	
January	Maximum.....	55	55	56	57	58	59	60	61	62	63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	74	75	75	76	76	--
	Minimum.....	54	54	55	56	57	58	56																										

KLAMATH RIVER BASIN--Continued

11-5255. TRINITY RIVER AT LEWISTON, CALIF.--Continued

Periodic determinations of suspended sediment discharge,
water year October 1957 to September 1958

Date	Time (24 hr)	Water tem- per- ature (°F)	Discharge (cfs)	Suspended sediment	
				Mean con- cen- tration (ppm)	Discharge (tons per day)
Oct. 1, 1957.....	1000	80	550	83	94
Oct. 17.....	1410	58	1,240	5	17
Nov. 15.....	1825	42	3,580	35	350
Dec. 2.....	1200	42	2,480	13	92
Dec. 20.....	1815	42	2,480	19	127
Jan. 2, 1958.....	1245	41	2,270	43	264
Jan. 17.....	1050	41	2,030	12	88
Feb. 1.....	1310	40	4,650	39	490
Feb. 19.....	1440	47	23,000	613	38,100
Mar. 14.....	1815	39	2,440	37	244
Apr. 1.....	1200	45	5,020	46	624
Apr. 9.....	1555	56	3,780	10	102
Apr. 30.....	1215	44	5,100	23	317
May 14.....	1745	56	6,550	54	955
May 31.....	1210	58	8,850	38	703
June 9.....	0820	50	5,330	23	331
June 30.....	1100	--	2,420	8	52

Particle-size analyses of suspended sediment, water year October 1957 to September 1958
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Sam- pling point	Water tem- per- ature (°F)	Discharge (cfs)	Sediment con- cen- tration (ppm)	Suspended sediment										Method of analysis
						Percent finer than size indicated, in millimeters										
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500		1.000
Feb. 19, 1958.....	1440		47	23,000	613		19	30	39	50	52	73	86	96	100	VPWC
Mar. 14.....	1815		39	2,440	037			44		89	93	97	98	98	100	SPWC

KLAMATH RIVER BASIN--Continued

11-5290. SOUTH FORK TRINITY RIVER NEAR SALYER, CALIF.

LOCATION --At gaging station, 4 miles south of Salyer, Humboldt County, and 8 miles upstream from mouth.

DRAINAGE AREA --899 square miles.

RECORDS AVAILABLE --Water temperatures: November 1956 to September 1958.

Sediment records: November 1956 to September 1958.

EXTREMES, 1957-58. --Sediment concentrations: Maximum daily, 4,190 ppm Jan. 29; minimum daily, 2 ppm on many days.

Sediment loads: Maximum daily, 255,000 tons Feb. 19; minimum daily, 1.1 tons Oct. 2-6.

EXTREMES, 1956-58. --Sediment concentrations: Maximum daily, 4,190 ppm Jan. 29, 1958; minimum daily, 1 ppm on many days, 1957.

Sediment loads: Maximum daily, 255,000 tons Feb. 19, 1958; minimum daily, 0.3 ton Sept. 1-10, 1957.

REMARKS. --Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Temperature (°F) of water, water year October 1957 to September 1958
/Once-daily measurement, generally before 12m/

Month	Day																															Aver- age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	52	--	--	54	--	55	--	--	55	--	--	--	--
November...	53	--	--	44	--	--	--	--	48	--	48	49	50	48	46	46	43	48	--	51	--	46	--	43	--	43	--	45	--	45	45	41
December...	41	--	--	42	--	--	46	--	--	--	42	--	--	46	--	45	43	45	45	--	--	--	43	43	42	45	45	--	--	--	--	--
January....	--	45	--	43	--	42	--	43	--	44	--	--	43	--	45	44	46	--	42	--	--	42	--	42	--	44	--	46	48	--	46	--
February...	--	46	--	46	47	--	47	--	46	--	46	46	45	44	46	50	49	48	48	--	--	49	49	--	46	45	--	46	--	--	--	--
March.....	--	--	45	--	45	44	--	43	--	44	--	45	--	42	--	44	--	45	--	47	47	45	--	46	46	--	46	--	46	43	45	--
April.....	--	44	48	--	45	--	46	48	48	--	48	--	49	--	49	--	50	49	--	50	--	--	46	--	47	--	49	--	--	51	--	--
May.....	--	--	51	--	53	--	53	--	55	--	55	51	56	--	55	--	59	58	--	58	--	57	--	57	--	57	--	57	--	59	--	--
June.....	--	--	57	--	--	59	--	60	60	--	--	--	--	--	67	--	--	68	--	--	--	--	--	68	--	--	--	56	--	--	--	--
July.....	--	65	--	--	72	--	--	74	--	--	70	--	--	--	71	--	--	74	--	--	77	--	--	78	--	--	74	--	79	--	--	--
August.....	--	--	--	--	--	78	--	79	--	--	76	--	--	--	76	--	--	76	--	--	76	--	--	78	--	--	--	--	--	75	--	--
September..	--	--	68	--	--	--	70	--	--	66	--	--	--	65	--	69	--	--	67	--	--	--	63	--	--	68	--	--	74	67	--	--

KLAMATH RIVER BASIN--Continued

11-5290. SOUTH FORK TRINITY RIVER NEAR SALYER, CALIF.--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December		
	Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	149	6	2.4	488	2		871	3	7.1
2...	132	--		456	--		844	--	
3...	124	--		424	--		811	--	
4...	118	3		405	--		784	--	
5...	132	--	1.1	392	2	2.2	771	2	4.2
6...	172	2		369	--		757	--	
7...	227	7	a4.3	355	--		737	--	
8...	191	6	3.1	382	--		704	2	
9...	367	329	s449	378	2		684	--	
10...	1,630	680	sa3,300	419	5	a5.7	677	--	
11...	1,080	220	sa720	624	16	27	650	--	3.5
12...	597	235	s544	630	25	43	624	2	
13...	4,510	1,900	s25,800	5,430	1,410	s32,400	604	--	
14...	2,730	130	a960	11,600	1,870	s67,200	579	--	
15...	1,680	42	191	4,930	497	s6,960	617	3	5.0
16...	1,220	25	a82	3,020	150	1,220	1,160	33	sa130
17...	991	12	32	2,410	135	878	3,190	244	s2,460
18...	777	6	a13	2,960	245	1,960	6,170	682	s11,800
19...	637	4	a6.9	2,680	120	a870	4,160	200	2,250
20...	604	2		2,370	52	333	4,180	180	2,030
21...	552	--	3.0	2,090	33	a190	9,620	1,900	sa60,000
22...	510	--		1,820	22	108	10,100	1,230	s36,600
23...	590	8		1,600	--		6,710	360	6,520
24...	650	--		1,790	12	57	5,250	340	4,820
25...	677	10	17	1,630	--		4,860	360	4,720
26...	711	--		1,190	--		4,990	310	4,180
27...	717	--		1,100	8		4,600	200	a2,500
28...	644	5		1,030	--	22	7,720	670	sa15,000
29...	610	--	6.6	965	--		8,580	768	s18,100
30...	552	--		918	4	a9.9	6,360	430	7,380
31...	520	2	a2.8	--	--		4,970	270	3,620
Total	24,801	--	32,229.8	54,855	--	112,483.4	103,334	--	182,171.8
January			February			March			
1...	4,310	210	a2,400	9,390	--	11,000	8,730	400	a9,400
2...	5,270	260	3,700	8,530	--		7,450	280	a5,600
3...	4,670	190	a2,400	9,630	880	a23,000	6,510	240	4,220
4...	3,980	140	1,500	9,610	530	13,800	5,680	200	a3,100
5...	3,420	90	a830	11,100	650	19,500	5,050	120	1,640
6...	3,090	70		11,100	220	a6,600	4,650	87	1,090
7...	2,790	--	560	14,400	1,030	s42,200	4,240	70	a800
8...	2,580	55		14,400	900	a35,000	3,950	58	
9...	2,460	--	370	12,400	580	19,400	3,580	--	540
10...	5,610	966	s16,000	10,700	400	a12,000	3,340	51	
11...	6,480	830	a15,000	9,600	294	s7,960	3,140	--	
12...	7,470	935	s20,800	20,300	1,880	s107,000	2,960	42	330
13...	8,940	579	s14,900	15,900	1,020	43,800	2,810	--	
14...	6,770	220	a4,000	16,700	920	41,500	2,700	28	
15...	6,380	430	7,410	22,700	1,300	79,700	2,620	--	
16...	6,160	220	3,660	21,400	1,020	58,900	2,480	26	170
17...	5,360	--	1,300	18,400	950	47,200	2,360	--	
18...	4,730	--		27,900	2,360	s152,000	2,240	--	
19...	4,140	81		31,000	2,910	s255,000	2,160	--	
20...	3,700	--		21,100	650	37,000	2,440	28	184
21...	3,280	--	880	15,500	600	s25,000	7,150	721	s15,200
22...	2,980	102		12,400	570	19,100	7,010	460	8,710
23...	2,960	--		14,000	450	17,000	6,450	320	s5,600
24...	3,840	205	2,120	21,000	1,300	a74,000	6,250	270	4,560
25...	4,580	280	a3,500	27,000	1,900	139,000	5,860	205	3,240
26...	5,190	438	6,140	16,000	1,100	47,500	5,200	140	a2,000
27...	5,090	300	a4,100	13,000	800	a28,000	4,690	97	1,230
28...	9,700	1,820	s59,500	10,600	590	16,900	4,200	75	a850
29...	20,200	4,190	s232,000	--	--	--	4,280	141	s1,900
30...	19,200	1,500	s81,600	--	--	--	6,100	360	5,930
31...	12,200	700	23,100	--	--	--	5,760	280	a4,400
Total	187,530	--	513,520.0	445,760	--	1,430,060.0	142,040	--	83,284.0

s Computed by subdividing day.

a Computed from estimated-concentration graph.

KLAMATH RIVER BASIN--Continued

11-5290, SOUTH FORK TRINITY RIVER NEAR SALYER, CALIF.--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	6,990	380	a7,200	2,410	--		1,050	--	
2...	8,900	1,140	s28,300	2,410	--	130	1,140	--	
3...	9,050	782	s19,600	2,380	20		1,110	8	24
4...	7,400	420	a8,400	2,300	18	a110	998	--	
5...	6,500	325	5,700	2,280	16		991	--	
6...	6,150	300	a5,000	2,200	--		1,080	22	a64
7...	5,700	270	4,160	2,140	15		987	--	
8...	5,300	100	1,430	2,080	--	87	1,080	14	44
9...	5,200	150	2,110	2,040	--		1,140	15	
10...	5,640	250	a3,800	2,050	14		1,150	--	30
11...	6,030	355	5,780	2,130	--		1,080	--	
12...	6,750	500	a9,100	2,110	18	103	969	6	
13...	6,930	600	11,200	1,910	13	67	914	--	
14...	6,720	420	a7,600	1,800	13	a63	859	--	
15...	6,240	265	4,460	1,720	12	56	808	6	13
16...	5,830	--		1,660	--		783	--	
17...	5,680	205	3,100	1,620	--		754	--	
18...	5,550	200		1,610	10		714	5	
19...	4,900	--		1,570	--		725	--	
20...	4,600	185		1,490	8	39	830	--	
21...	4,410	--		1,440	--		768	--	16
22...	4,210	110	a1,300	1,410	--		696	--	
23...	3,780	75	765	1,620	21	92	645	--	
24...	3,350	60	a540	1,870	29	a150	618	4	
25...	3,190	49	422	1,510	20		598	--	
26...	2,440	--		1,370	--	66	577	--	6.0
27...	2,750	36	250	1,320	18		552	--	
28...	2,630	--		1,250	--		529	--	
29...	2,510	--	150	1,140	8		514	3	
30...	2,440	22		1,120	--	21	498	--	
31...	--	--	--	1,080	6		--	--	--
Total	157,770	--	144,117.0	55,040	--	2,240.0	25,157	--	576.0
	July			August			September		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	498	--		219	--		141	--	
2...	480	4	5.8	214	6		140	--	6.8
3...	470	--		238	--		134	11	
4...	455	--		236	--		128	--	
5...	437	10	12	225	--		126	--	
6...	417	9	a10	220	4		124	--	4.4
7...	396	--		219	--	3.3	123	15	
8...	378	6		220	6		126	--	
9...	368	--		206	--		132	--	
10...	349	--	5.6	200	--		131	7	
11...	338	--		197	--		132	--	
12...	327	7		192	--		133	--	2.2
13...	321	--		189	4		136	--	
14...	319	15	a13	184	--		141	4	
15...	314	24	20	181	8		139	--	
16...	310	16	a13	182	--		135	18	6.2
17...	312	--		181	--	4.0	134	--	
18...	317	8		182	--		130	--	
19...	310	--		186	--		125	4	
20...	295	--	6.3	186	--		124	--	
21...	289	6		190	14		121	--	
22...	289	--		182	--	6.4	121	7	
23...	304	--		176	--		126	--	
24...	302	9		166	12		128	--	1.7
25...	276	--	6.8	162	--		126	5	
26...	274	--		157	--	4.3	126	--	
27...	261	14	9.9	150	--		125	--	
28...	246	--		141	11		121	--	
29...	236	--		141	--		119	4	
30...	228	7	5.0	140	18	a6.8	117	--	
31...	220	--		141	23	8.8	--	--	--
Total	10,336	--	225.3	5,803	--	132.9	3,864	--	89.9
Total discharge for year (cfs-days).....									
Total load for year (tons).....									

s Computed by subdividing day.

a Computed from estimated-concentration graph.

KLAMATH RIVER BASIN--Continued

11-5290. SOUTH FORK TRINITY RIVER NEAR SALYER, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958

(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;

P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Sam- pling point	Water tem- per- ature (°F)	Discharge (cfs)	Sediment con- cen- tration (ppm)	Suspended sediment											Method of analysis
						Percent finer than size indicated, in millimeters											
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Dec. 22, 1957.....	1000		43	10,200	1,230	--	--	--	--	--	27	35	52	80	100	---	V
Jan. 10, 1958.....	1030		44	6,170	1,150	--	--	--	--	--	18	24	33	55	93	100	V
Jan. 28.....	1330		46	9,000	2,050	--	--	--	--	--	21	30	53	77	99	100	V
Feb. 5.....	1100		47	11,300	619	--	--	--	--	--	43	54	73	89	100	---	V
Feb. 12.....	0930		46	22,300	2,420	08	13	18	24	31	39	50	69	89	100	---	VPWC
Feb. 19.....	1100		48	32,200	3,340	10	15	21	27	35	46	63	81	93	100	---	VPWC
Feb. 25.....	1000	d	46	27,000	1,970	--	--	--	--	--	46	63	81	95	100	---	V

d Daily mean.

KIAMATH RIVER BASIN--Continued

11-5300. TRINITY RIVER NEAR HOOPA, CALIF.

LOCATION.--At gaging station in Hoopa Indian Reservation, 0.7 mile downstream from Campbell Creek and 1.8 miles southeast of Hoopa, Humboldt County. DRAINAGE AREA.--2,846 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

Water temperatures: November 1956 to September 1958.

EXTREMES, 1957-58.--Sediment concentrations: Maximum daily, 3,090 ppm Feb. 19; minimum daily, 1 ppm on several days. Maximum daily, 967,000 tons Feb. 19; minimum daily, 3 tons Sept. 1-10.

EXTREMES, 1956-58.--Sediment concentrations: Maximum daily, 3,090 ppm Feb. 19, 1958; minimum daily, 1 ppm on several days. Maximum daily, 967,000 tons Feb. 19, 1958; minimum daily, 2 tons Aug. 21-31, Sept. 14-26, 1957.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium magnesium	Non-carbonate			
Oct. 16, 1957	4,340	--	--	--	--	3.9	--	83	--	--	3.5	--	--	0.08	--	--	70	2	0.2	155	7.1	
Nov. 6	1,960	--	--	--	--	5.0	--	97	--	--	5.8	--	--	0.08	--	--	79	0	0.2	173	8.0	
Jan. 8, 1958	7,560	--	--	--	--	3.8	--	86	--	--	2.5	--	--	0.05	--	--	73	2	0.2	156	7.5	
Feb. 6	30,800	--	--	--	--	2.8	--	74	--	--	1.5	--	--	0.05	--	--	62	1	0.2	129	7.9	
Mar. 12	9,160	--	--	--	--	2.9	--	84	--	--	2.8	--	--	0.07	--	--	70	1	0.2	143	7.6	
Apr. 2	22,800	--	--	--	--	2.4	--	76	--	--	2.5	--	--	0.00	--	--	62	0	0.1	128	7.9	
May 7	15,400	17	0.10	10	4.9	1.9	0.8	54	--	2.9	1.2	0.0	0.1	0.00	66	0.09	45	1	0.1	97	7.7	
June 9	10,900	--	--	--	--	2.0	--	46	--	--	3.5	--	--	0.00	--	--	45	6	0.1	80	7.7	
July 9	3,640	--	--	--	--	2.5	--	62	--	--	3.5	--	--	0.00	--	--	51	0	0.2	110	7.9	
Aug. 6	1,600	--	--	--	--	3.8	--	85	--	--	5.5	--	--	0.00	--	--	72	0	0.2	156	7.9	
Sept. 10	1,738	11	.00	22	9.7	4.8	.8	106	--	8.6	7.0	.0	.2	.20	116	.16	95	8	0.2	203	7.7	

KLAMATH RIVER BASIN--Continued

11-5300. TRINITY RIVER NEAR HOOPA, CALIF.--Continued

Temperature (°F) of water, water year October 1957 to September 1958

/Once-daily measurement generally between 12 m. and 7 p.m./

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October....	64	61	59	57	58	55	57	56	58	56	55	55	55	57	56	57	56	56	55	55	56	55	54	55	58	55	60	55	57	57	56	
November...	58	52	50	--	49	49	--	--	--	--	50	55	55	55	57	45	45	46	46	52	45	43	44	43	43	45	44	46	43	44	48	
December...	46	43	41	40	42	43	--	46	44	43	40	43	42	44	45	45	42	39	39	47	45	45	43	43	43	45	44	47	46	44	44	
January....	47	45	45	43	40	39	39	39	44	48	39	39	43	41	39	40	41	43	39	39	39	41	39	42	39	39	39	38	36	39	41	
February....	41	41	43	43	41	41	39	39	39	39	35	36	--	34	--	34	--	38	36	36	38	41	45	43	43	45	--	--	--	39	41	
March.....	47	46	46	46	44	48	46	41	43	44	48	48	44	--	48	--	48	--	48	--	46	42	48	46	48	48	48	49	48	42	41	43
April.....	45	45	43	43	42	41	42	48	47	50	--	52	49	50	52	57	49	49	48	50	51	52	52	50	50	--	51	53	54	54	--	49
May.....	53	54	53	55	54	--	55	55	56	53	48	51	54	52	57	56	57	60	56	59	61	59	56	61	62	63	60	60	62	59	--	57
June.....	61	--	61	--	63	--	62	54	59	--	60	--	62	--	64	--	63	--	63	--	63	--	66	--	67	--	68	--	70	--	--	--
July.....	71	65	73	--	74	--	--	70	68	72	--	74	--	75	--	75	--	76	--	76	--	78	--	78	--	76	--	76	--	76	--	76
August.....	--	76	--	78	--	79	--	80	--	81	--	82	--	84	--	78	--	80	--	75	--	78	--	80	--	75	--	74	--	75	--	--
September..	74	--	73	--	72	--	71	--	71	69	68	--	65	--	69	--	74	--	77	--	69	--	63	--	68	--	68	--	69	--	--	--

KLAMATH RIVER BASIN--Continued

11-5300. TRINITY RIVER NEAR HOOPA, CALIF.--Continued

Suspended sediment, water year October 1957 to September 1958

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	1,750	13	61	2,590	5	35	2,840	15	115
2...	1,550	10	42	2,410	5	33	2,700	13	95
3...	1,350	8	29	2,240	3	18	2,590	9	63
4...	1,270	11	38	2,130	2	a12	2,440	6	40
5...	1,430	21	81	2,020	1		2,450	4	26
6...	1,600	15	65	1,940	--	5	2,460	7	46
7...	1,810	11	54	1,890	--		2,530	6	a41
8...	1,700	5	23	1,870	--		2,450	4	26
9...	4,430	38	455	1,860	--		2,340	5	32
10...	9,220	294	s8,410	1,920	3	a16	2,230	6	36
11...	11,100	240	7,190	2,360	9	57	2,130	5	29
12...	6,650	140	2,510	2,670	30	216	2,060	4	22
13...	12,400	365	s13,800	17,300	1,270	s91,200	2,010	4	22
14...	11,400	215	s7,260	38,200	1,100	s118,000	1,980	6	32
15...	6,630	70	1,250	20,000	448	s25,400	2,020	17	93
16...	4,670	53	668	12,300	200	6,640	2,970	46	s408
17...	3,800	31	318	8,920	150	3,610	8,870	202	s5,210
18...	3,180	19	163	9,420	200	5,090	17,500	421	s20,300
19...	2,810	14	106	8,620	180	4,190	14,800	198	7,910
20...	2,540	10	69	7,420	76	1,520	14,000	190	7,180
21...	2,310	5	31	6,600	38	677	25,600	601	s44,800
22...	2,140	5	29	5,710	40	617	31,100	462	s40,800
23...	2,340	20	126	5,010	43	582	21,200	220	12,600
24...	6,040	223	s4,250	4,510	20	244	17,000	134	6,150
25...	6,190	115	1,920	4,200	19	215	15,900	100	4,290
26...	5,510	40	595	3,910	18	190	15,800	102	4,350
27...	4,560	20	246	3,610	16	156	15,400	104	4,320
28...	3,880	10	105	3,380	18	164	23,800	340	s23,100
29...	3,380	9	82	3,130	9	76	25,300	290	s20,400
30...	2,980	8	a64	2,980	7	56	19,300	152	7,920
31...	2,780	6	45	--	--	--	15,500	100	4,180
Total	133,400	--	50,085	191,120	--	259,039	319,270	--	214,636
Day	January			February			March		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	13,000	95	3,330	31,000	300	25,100	27,800	590	44,300
2...	14,200	128	4,910	27,200	250	18,400	24,000	450	29,200
3...	13,500	80	2,920	30,300	530	43,400	21,600	400	23,300
4...	12,000	60	1,940	31,600	600	51,200	19,900	300	16,100
5...	10,800	50	1,460	34,400	780	72,400	18,400	220	10,900
6...	9,700	49	1,280	31,100	450	37,800	16,600	180	8,070
7...	8,810	30	714	37,400	750	75,700	16,400	100	4,430
8...	8,140	23	505	43,800	780	92,200	13,300	120	4,310
9...	7,700	40	832	36,900	570	56,800	12,200	110	3,620
10...	12,100	188	s6,470	32,500	450	39,500	11,100	90	2,700
11...	14,700	154	6,110	28,800	310	24,100	10,000	65	1,760
12...	16,400	169	s8,060	54,100	1,290	s196,000	9,170	60	a1,500
13...	22,100	247	14,700	48,800	880	116,000	8,510	64	1,470
14...	18,000	124	6,030	46,700	879	s114,000	8,170	62	a1,400
15...	16,900	140	6,390	64,100	1,200	208,000	7,810	59	1,240
16...	16,800	160	7,260	72,400	1,200	235,000	7,200	58	a1,100
17...	15,100	115	4,690	66,200	881	s160,000	6,710	58	1,050
18...	13,600	90	3,300	83,700	1,500	s361,000	6,360	57	a980
19...	12,300	80	2,660	114,000	3,090	s967,000	6,100	55	906
20...	11,400	78	2,400	76,500	1,780	s375,000	6,490	110	a1,900
21...	10,700	58	1,680	52,900	1,300	186,000	16,200	431	s19,900
22...	9,170	32	792	41,400	1,030	115,000	21,100	450	25,600
23...	9,010	50	1,220	34,200	750	69,300	20,400	342	18,800
24...	10,200	80	2,200	55,700	1,670	s312,000	21,200	400	22,900
25...	11,400	90	2,770	99,800	2,800	s776,000	20,200	285	15,500
26...	12,900	100	3,480	59,900	1,430	s237,000	17,800	208	10,000
27...	14,200	104	3,990	42,000	920	104,000	15,900	162	6,950
28...	22,100	422	s29,300	33,200	670	60,100	14,300	120	4,630
29...	54,900	1,530	s256,000	--	--	--	13,600	110	4,040
30...	65,100	1,510	s277,000	--	--	--	18,000	290	14,100
31...	40,900	615	s70,000	--	--	--	17,400	260	12,200
Total	527,830	--	734,393	1,410,600	--	5,128,000	453,920	--	314,856

s Computed by subdividing day.

a Computed from estimated-concentration graph.

KLAMATH RIVER BASIN--Continued

11-5300. TRINITY RIVER NEAR HOOPA, CALIF.--Continued

Suspended sediment, water year October 1957 to September 1958--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	19,200	320	16,600	12,400	80	2,680	11,100	110	3,300
2...	22,900	510	31,500	13,600	110	4,040	13,100	220	a7,800
3...	25,900	545	38,100	15,000	133	5,390	13,400	230	8,320
4...	21,800	295	17,400	15,400	132	5,490	10,900	110	a3,200
5...	19,500	170	8,950	16,000	130	a5,600	10,000	80	2,160
6...	20,400	300	16,500	16,700	160	a7,200	10,000	80	a2,200
7...	19,400	220	11,500	15,800	193	8,230	10,100	80	2,180
8...	17,600	145	6,890	15,200	130	5,340	10,100	85	2,320
9...	16,700	120	5,410	16,100	320	13,900	9,810	65	1,720
10...	17,000	123	5,650	17,900	500	24,200	9,780	--	--
11...	18,500	160	a8,000	19,600	730	38,600	9,420	52	1,300
12...	19,800	185	9,890	20,000	695	37,500	9,030	--	
13...	20,400	190	10,500	15,800	420	a18,000	8,780	52	
14...	20,900	225	12,700	13,800	250	9,310	8,060	--	
15...	20,700	220	12,300	13,400	205	7,420	8,480	98	
16...	20,200	172	9,380	14,300	220	8,490	9,090	--	2,500
17...	20,100	172	9,330	16,200	280	a12,000	9,340	103	
18...	20,200	240	13,100	17,900	340	a16,000	9,280	--	
19...	19,500	170	8,950	19,200	400	20,700	9,370	93	
20...	19,200	140	7,260	18,000	330	16,000	9,980	--	
21...	18,800	132	6,700	16,400	270	12,000	8,760	90	1,800
22...	19,200	155	8,040	17,100	265	12,200	8,310	--	
23...	17,600	138	6,560	17,900	255	12,300	8,280	86	
24...	15,100	115	4,690	16,900	276	12,600	7,560	--	
25...	13,400	95	3,440	13,200	260	9,270	6,600	44	
26...	12,400	80	a2,700	14,200	225	8,630	6,010	--	420
27...	11,800	68	2,170	14,200	160	6,130	5,900	28	
28...	11,600	60	1,880	13,100	130	4,600	5,360	--	
29...	11,700	46	1,450	12,100	125	4,080	4,600	20	
30...	12,000	65	2,110	11,400	110	3,390	4,390	--	
31...	--	--	--	11,400	100	a3,100	--	--	--
Total	544,500	--	299,650	480,200	--	354,390	264,890	--	64,420
	July			August			September		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1...	4,190	17	180	1,890	--	41	765	1	3
2...	4,030	19		1,840	10		737	--	
3...	4,000	17		1,870	--		715	2	
4...	3,910	--		1,840	8		687	--	
5...	3,950	19		1,710	--		675	2	
6...	3,920	--	67	1,580	5	21	670	--	4
7...	3,890	--		1,530	--		658	2	
8...	3,840	16		1,470	5		675	--	
9...	3,690	--		1,430	--		720	2	
10...	3,470	9		1,380	7		737	--	
11...	3,270	--	37	1,320	--	16	754	1	4
12...	3,290	7		1,250	7		743	--	
13...	3,260	--		1,200	4		765	2	
14...	3,120	8		1,170	6		782	--	
15...	2,990	--		1,120	--		760	1	
16...	2,870	5	88	1,100	5	9	743	--	4
17...	2,740	--		1,070	--		709	3	
18...	2,730	5		1,080	5		681	--	
19...	2,710	--		1,090	--		658	3	
20...	2,600	5		1,100	--		642	--	
21...	2,540	--	40	1,120	--	9	625	3	4
22...	2,500	6		1,080	6		619	--	
23...	2,640	--		1,030	--		625	2	
24...	2,830	11		978	7		647	--	
25...	3,020	--		936	--		658	2	
26...	2,710	11	40	887	4	9	675	--	4
27...	2,500	--		855	--		653	--	
28...	2,320	--		850	3		602	--	
29...	2,160	6		810	--		597	2	
30...	2,050	--		793	6		572	--	
31...	1,970	6		788	--		--	--	--
Total	95,710	--	2,833	38,167	--	629	20,549	--	110

Total discharge for year (cfs-days)..... 4,480,156
 Total load for year (tons)..... 7,423,041

a Computed from estimated-concentration graph.

KLAMATH RIVER BASIN---Continued
 11-5300. TRINITY RIVER NEAR HOOPA, CALIF.--Continued
 Particle-size analyses of suspended sediment, water year October 1957 to September 1958
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Sam- pling point	Water tem- per- ature (°F)	Discharge (cfs)	Sediment concentra- tion (ppm)	Suspended sediment											Method of analysis
						Percent finer than size indicated, in millimeters											
						0.001	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Nov. 14, 1957.....	0650		57	44,600	1,200	--	--	34	--	61	--	89	98	100	--	--	VPWC
Dec. 18.....	1635		39	19,200	399	--	--	--	--	--	--	79	90	99	100	--	V
Jan. 29, 1958.....	0740		36	42,600	822	--	19	27	38	48	58	68	82	96	99	100	VPWC
Jan. 30.....	0720		--	72,000	1,710	--	--	23	--	41	--	64	81	97	100	--	VPWC
Jan. 31.....	0735		36	43,400	667	--	--	24	--	--	--	62	78	96	100	--	VPWC
Feb. 4.....	1645		43	32,100	559	--	--	--	--	--	--	66	77	89	98	100	V
Feb. 8.....	0905		39	45,000	823	--	--	24	--	41	--	64	80	96	100	--	VPWC
Feb. 12.....	1645		35	63,800	1,420	--	--	24	--	40	--	64	79	94	100	--	VPWC
Feb. 19.....	0805		38	124,000	3,700	--	13	21	30	41	53	67	82	95	100	--	VPWC
Feb. 24.....	1720		41	74,400	2,440	--	--	17	--	35	--	59	77	92	100	--	VPWC
Feb. 25.....	1015		43	109,000	2,970	--	--	22	--	43	--	66	80	93	100	--	VPWC
Feb. 26.....	0705		44	64,500	1,590	--	--	19	--	36	--	57	72	90	100	--	VPWC
May 14.....	0810		52	13,600	256	--	--	25	--	43	--	62	73	84	94	100	VPWC

KLAMATH RIVER BASIN--Continued
11-5305. KLAMATH RIVER NEAR KLAMATH, CALIF.

LOCATION---at gaging station, 2.8 miles upstream from Turwar Creek, and 3.3 miles east of Klamath, Del Norte County.
REMARKS AVAILABLE---Records of discharge for water year October 1957 to September 1958 given in WSP 1565.
RECORDS AVAILABLE---Chemical analyses October 1953 to September 1958.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonylate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 17, 1957.....	10,000	--	--	--	--	7.7	--	84	--	--	4.0	--	--	0.1	--	--	--	65	0	0.4	165	7.5
Nov. 7,.....	6,970	--	--	--	--	11	--	101	--	--	5.0	--	--	.0	--	--	--	75	0	.6	198	7.8
Dec. 18,.....	41,700	--	--	--	--	4.5	--	31	--	--	4.5	--	--	.1	--	--	--	28	3	.4	72	6.6
Jan. 9, 1958.....	24,300	--	--	--	--	6.6	--	78	--	--	3.0	--	--	.0	--	--	--	59	0	.4	142	7.2
Feb. 5,.....	68,100	--	--	--	--	3.8	--	74	--	--	2.5	--	--	.0	--	--	--	56	0	.2	130	7.8
Mar. 13,.....	33,800	--	--	--	--	5.6	--	80	--	--	2.8	--	--	.1	--	--	--	62	0	.3	146	7.7
Apr. 1,.....	48,400	--	--	--	--	4.1	--	72	--	--	3.0	--	--	.0	--	--	--	57	0	.2	124	7.6
May 6,.....	36,200	15	0.08	11	4.5	3.1	1.1	58	2.3	2.5	0.0	0.2	.0	.0	69	0.09	--	46	0	.2	103	7.6
June 3,.....	31,900	--	--	--	--	3.2	--	51	--	--	.7	--	--	.0	--	--	--	41	0	.2	97	7.5
July 8,.....	10,300	--	--	--	--	5.0	--	75	--	--	3.6	--	--	.1	--	--	--	58	0	.3	135	8.0
Aug. 5,.....	4,870	--	--	--	--	8.4	--	90	--	--	4.5	--	--	.0	--	--	--	70	0	.4	173	7.6
Sept. 9,.....	3,680	15	.00	16	9.7	9.3	1.6	100	9.6	--	5.5	.0	.8	.2	117	.16	--	80	0	.4	196	7.5

SMITH RIVER BASIN

11-5325. SMITH RIVER NEAR CRESCENT CITY, CALIF.

LOCATION.--At gaging station, 0.5 mile downstream from South Fork and 8 miles east of Crescent City, Del Norte County.

DRAINAGE AREA.--613 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1958.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1565.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- nie- sium (Mg)	Sodium (Na)	Po- tas- sium (K)	Bi- car- bon- ate (HCO ₃)	Car- bon- ate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		So- di- um ad- sorp- tion ratio (micro- mhos at 25°C)	pH
															Parts per million	Tons per acre- foot	Tons per day	Cal- cium Mag- nesium	Non- carbon- ate		
Oct. 17, 1957	1,270	--	--	--	--	2.1	--	72	--	--	2.5	--	--	0.0	--	--	61	2	0.1	123	7.3
Nov. 7	574	--	--	--	--	2.4	--	71	--	--	4.8	--	--	0	--	--	58	0	--	120	7.7
Dec. 18	15,800	--	--	--	--	1.9	--	49	--	--	3.5	--	--	0	--	--	42	2	--	86	7.3
Jan. 9, 1958	3,210	--	--	--	--	2.9	--	52	--	44	3.0	--	--	0	--	--	41	1	2	91	7.1
Feb. 5	8,020	--	--	--	--	1.6	--	42	--	--	3.0	--	--	0	--	--	38	4	--	78	7.7
Mar. 13	3,060	--	--	--	--	2.2	--	46	--	--	4.2	--	--	0	--	--	40	2	2	84	7.4
Apr. 1	13,000	--	--	--	--	1.6	--	40	--	--	3.5	--	--	0	--	--	37	4	--	75	7.5
May 6	2,330	14	0.00	6.0	7.3	1.4	0.6	49	4.8	2.3	0.0	0.0	0	60	0.08	45	5	1	88	7.7	
June 3	1,070	--	--	--	--	2.2	--	51	--	4.8	1.5	--	--	0	--	--	48	6	1	96	8.0
July 8	1,448	--	--	--	--	2.1	--	69	--	--	4.8	--	--	0	--	--	56	0	1	119	8.2
Aug. 5	293	--	--	--	--	2.3	--	77	--	--	4.2	--	--	0	--	--	64	1	1	132	7.8
Sept. 9	280	11	0.00	8.0	12	2.4	0.3	79	3.8	4.5	0	0.2	0.1	81	0.11	70	5	1	139	7.6	

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS IN CALIFORNIA

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonyl (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	
															Parts per million	Tons per acre-foot	Tons per day					
SALINAS RIVER BASIN																						
11-1500. SAN ANTONIO RIVER AT PLEYTO																						
Feb. 4, 1958.....	1,050	18		29	8.3	7.7	1.5	98		30	5.3	0.4	0.5	0.0	149	0.20		107	24	0.3	242	7.9
July 24.....	6.2	30		50	15	19	2.2	176		60	15	.2	.0	.0	278	.38		185	41	.6	429	8.2
Aug. 13.....	.8	33		39	17	22	2.3	175		52	16	.3	.3	.1	268	.36		166	22	.7	426	8.1
Sept. 9.....	.8	36	0.00	50	15	26	3.2	172	6	62	20	.3	.3	.0	304	.41		186	35	.8	454	8.3
11-1505. SALINAS RIVER NEAR BRADLEY																						
Feb. 5, 1958.....	a3,480	21		32	8.3	12	2.3	118		28	8.8	0.0	2.1	0.0	172	0.23		114	17	0.5	281	7.8
July 24.....	630	16		26	11	18	1.6	127		35	9.4	.2	.7	.0	181	.25		111	7	.7	294	8.1
Aug. 13.....	680	18		24	11	9.7	1.4	110		28	6.0	.5	1.1	.1	154	.21		104	14	.4	243	7.8
Sept. 9.....	413	19	0.02	28	9.7	14	2.5	119		29	9.0	.1	.4	.0	171	.23		110	12	.6	270	7.9
11-1525. SALINAS RIVER NEAR SPRECKLES																						
Feb. 5, 1958.....	734	16	--	30	7.8	13	2.5	100		43	7.8	0.0	1.1	0.0	170	0.23		107	25	0.6	278	7.7
Apr. 16.....	3,260	--	--	--	--	22	--	140	--	--	18	--	--	.0	--	--		156	41	.8	407	7.9
May 15.....	a203	29	0.00	64	25	41	3.7	232		105	38	.2	.9	.2	421	.57		262	72	1.1	669	8.0
July 18.....	a4.8	--	--	--	--	112	--	533	--	--	116	--	--	.3	--	--		500	63	2.2	1,440	8.0
July 15.....	a147	--	--	--	--	22	--	158	--	--	19	--	--	--	--	--		152	22	.8	1,403	7.9
Aug. 13.....	158	--	--	--	--	19	--	142	--	--	15	--	--	.1	--	--		142	26	.7	360	7.9
Sept. 9.....	316	22	.02	32	13	16	3.0	134		40	14	.2	.6	.1	207	.28		132	22	.6	320	8.1
PAJARO RIVER BASIN																						
11-1565. SAN BENITO RIVER NEAR WILLOW CREEK SCHOOL																						
July 24, 1958.....	3.9	11		36	100	161	4.0	446	27	313	91	0.3	0.2	0.6	963	1.31		500	90	3.0	1,520	8.6
Aug. 13.....	2.1	12		32	102	193	5.2	445	22	326	118	.2	.3	1.6	1,030	1.40		500	99	3.8	1,600	8.5
Sept. 9.....	2.7	14	0.00	39	106	195	4.2	523	--	336	110	.3	.0	1.7	1,060	1.44		535	106	3.7	1,670	8.1
a Daily mean discharge (cfs)																						

a Daily mean discharge (cfs)

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS IN CALIFORNIA--Continued
 Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (microhmhos at 25°C)	
														Parts per million	Tons per acre-foot	Tons per day	Calcium magnesium	Non-carbonate			
ALAMEDA CREEK BASIN																					
11-1765. ARROYO VALLE NEAR LIVERMORE																					
Mar. 24, 1958.....	364	16		28	17	12	1.8	154		29	8.0	0.2	1.3	0.1	189	0.26	141	15	0.4	332	8.1
July 24.....	.4	14		65	41	59	3.9	309		106	62	.1	1.0	.8	504	.69	329	76	1.4	850	8.1
Aug. 14.....	.9	23		74	43	64	3.3	345		109	66	.0	1.2	.9	554	.75	363	80	1.5	904	8.1
Sept. 8.....	.6	27	0.00	83	48	76	8.0	381		134	92	.3	.0	1.2	656	.89	400	88	1.7	1,070	8.0
SAN JOAQUIN RIVER BASIN																					
CANTUA CREEK NEAR IDRIA																					
Feb. 7, 1958.....		13		29	126	68	3.5	556	28	204	26	0.2	0.9	0.9	776	1.06	600	97	1.2	1,200	8.5
Apr. 15.....		20		29	155	130	4.4	482	0	538	30	.4	7.6	.6	1,150	1.56	710	315	2.1	1,610	8.4
June 3.....		19		18	168	138	4.0	556	16	492	40	.4	1.1	1.1	1,170	1.59	736	254	2.2	1,690	8.4
PANOCH CREEK NEAR FIREBAUGH																					
Feb. 19, 1958.....		15		176	87	250	12	262	0	960	95	0.6	1.9	3.5	1,730	2.35	795	580	3.9	2,320	7.5
Mar. 17.....		15		133	74	179	7.0	200	0	753	42	1.0	2.7	1.5	1,310	1.78	635	471	3.1	1,790	7.5
June 3.....	5.5			140	367	648	12	310	0	2,610	265	.4	1.7	9.1	4,210	5.73	1,860	1,610	6.5	4,720	7.9
LITTLE PANOCH CREEK NEAR ORO LOMA																					
Feb. 10, 1958.....		17		27	161	577	10	350	0	360	900	0.6	2.1	10	2,260	3.07	730	443	9.3	3,930	7.7
Feb. 19.....		--		--	--	460	--	276	26	--	780	--	--	11	--	--	432	162	10	3,180	8.4
Mar. 17.....		19		54	22	69	4.6	240	0	61	82	.2	1.1	1.5	432	.59	224	27	2.0	1,410	7.7
Apr. 15.....	3.1			32	54	161	5.0	247	0	108	235	.4	2.1	3.5	726	.96	300	97	4.1	1,510	8.0
June 3.....	1.4			67	51	362	4.4	320	0	169	516	.4	1.8	8.0	1,350	1.84	376	114	8.1	2,340	7.9

11-2740. SAN JOAQUIN RIVER NEAR NEWMAN

Mar. 26, 1958	10,900	19	20	9.2	47	4.1	106	41	44	0.3	0.9	0.4	238	0.32	88	1	2.2	408	7.1
May 28	10,600	13	19	3.9	30	2.2	69	34	9.0	2.1	1.2	0.2	67	.09	28	0	.8	103	6.7
June 23	5,240	16	19	7.7	30	2.2	69	38	33	2.1	1.2	0.2	182	.25	79	22	1.5	354	7.1
July 30	5,560	24	31	22	102	3.6	134	83	137	4.2	8.2	0.2	472	.64	166	56	3.4	817	8.0
Aug. 5	564	21	48	27	143	4.8	163	121	202	5.2	1.1	0.0	650	.88	232	98	4.1	1,160	7.3
Aug. 12	508	--	--	--	90	--	--	79	124	--	--	0.0	--	--	172	--	3.0	1,789	--
Aug. 20 7:45 a.m.	448	--	--	--	64	--	--	50	78	--	--	.1	--	--	124	--	2.5	537	--
Aug. 20 (above confluence of Merced River)	520	--	--	--	145	--	--	123	203	--	--	.4	--	--	248	--	4.0	1,170	--
Aug. 20 7:50 a.m.	520	--	--	--	50	--	--	35	57	--	--	.1	--	--	104	--	2.1	446	--
Aug. 20 8:00 a.m.	520	--	--	--	109	--	--	184	144	--	--	.3	--	--	294	--	3.4	694	--
Sept. 2	536	23	0.00	48	25	3.8	172	108	178	.2	2.9	.4	604	.82	224	83	3.8	1,050	7.7

11-2745. ORESTIMBA CREEK NEAR NEWMAN

Feb. 12, 1958	27	12	23	39	30	2.4	236	60	14	0.1	0.2	0.3	287	0.40	217	23	0.9	526	8.0
Mar. 26	88	21	45	25	26	2.6	210	79	12	.2	1.3	.2	321	.44	216	34	.8	496	8.4
Apr. 16	90	17	48	41	39	3.2	242	144	19	.2	2.3	.2	433	.59	288	90	1.0	675	8.2

11-3105. CALAVERAS RIVER NEAR STOCKTON

July 24, 1958	20	20	20	6.9	5.5	1.6	96	9.6	4.8	0.0	0.2	0.0	116	0.16	78	0	0.3	179	8.1
Aug. 8	19	22	8.3	5.9	5.9	1.9	107	9.6	4.0	0.0	.4	0.0	124	.17	89	1	.3	197	7.5
Sept. 5	16	0.01	22	8.8	5.6	3.0	107	12	5.0	.1	.6	0.0	126	.17	91	3	.3	203	7.7

11-3132. GRANT LINE CANAL AT TRACY ROAD BRIDGE.

July 24, 1958....	19	35	15	67	3.1	136	44	104	0.0	2.3	0.2	357	0.49	149	37	2.4	647	7.4	
Aug. 5.....	24	41	19	89	4.0	154	56	134	.4	1.9	.1	445	.61	182	56	2.9	781	7.7	
Sept. 3.....	19	0.02	20	30	84	4.0	157	55	132	.2	1.0	.2	422	.57	173	44	2.8	750	7.4

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS IN CALIFORNIA--Continued

Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium-Magnesium	Non-carbonate		
SAN JOAQUIN RIVER BASIN--Continued																				
SOUTH FORK MOKELUWNE RIVER NEAR GLENCOE																				
Oct. 15, 1957...		21		10	2.9	3.5	1.7	40	8.6	2.0	0.2	0.4	0.1	70	0.10	37	4	0.2	83	7.2
Feb. 3, 1958...		17		11	1.8	3.1	1.8	43	1.0	5.4	0.0	0.4	0.0	62	.08	35	0	.2	85	7.5
Sept. 16.....		24		8.0	3.2	3.7	1.8	40	7.7	3.5	0.0	0.0	0.2	72	.10	33	0	.3	84	7.3
11-3360. COSUMES RIVER AT McCONNELL																				
July 24, 1958...	85	20		8.0	3.4	3.8	1.3	45	1.0	3.4	0.0	0.2	0.0	63	0.09	34	0	0.3	88	7.8
Aug. 8.....	15	24		8.8	4.4	4.8	1.8	60	.0	3.0	0.0	0.3	0.0	77	.10	40	0	.3	105	7.4
Sept. 5.....	1.5	55	0.03	22	12	19	3.3	155	2.9	6.0	.1	1.2	.1	198	.27	98	0	.8	276	8.0
SACRAMENTO RIVER BASIN																				
11-3485. PIT RIVER NEAR CANBY																				
Oct. 29, 1957...	108	--	--	--	--	20	--	129	--	5.2	--	--	0.2	--	--	72	0	1.0	232	7.6
Nov. 13.....	138	--	--	--	--	21	--	118	--	5.0	--	--	0.0	--	--	69	0	1.1	224	7.9
Apr. 16, 1958...	708	--	--	--	--	8.4	--	78	--	2.0	--	--	.1	--	--	50	0	.5	135	7.5
May 14.....	988	29	0.23	15	6.1	14	3.9	97	7.7	4.2	0.0	1.1	.1	129	0.18	63	0	.8	169	7.8
June 18.....	356	--	--	--	--	17	--	116	--	2.5	--	--	0.0	--	--	66	0	.9	202	7.6
July 16.....	96	--	--	--	--	17	--	116	--	3.2	--	--	.1	--	--	64	0	.9	199	8.1
Aug. 13.....	200	--	--	--	--	18	--	127	--	4.6	--	--	.1	--	--	77	0	.9	225	7.7
Sept. 10.....	130	34	.26	16	9.0	21	5.9	132	11	4.5	0.0	.9	.1	168	.23	77	0	1.0	238	7.6
11-3605. BURNEY CREEK NEAR BURNEY																				
Oct. 24, 1957...	--	--	--	--	--	3.4	--	58	--	0.7	--	--	0.0	--	--	39	0	0.2	91	7.6
Nov. 13.....	--	--	--	--	--	4.3	--	55	--	1.0	--	--	0.0	--	--	42	0	.3	92	7.4
Apr. 16, 1958...	--	--	--	--	--	2.2	--	31	--	1.0	--	--	.0	--	--	23	0	.2	51	7.2
May 14.....	a194	17	0.01	4.4	1.7	2.4	0.8	27	0.0	1.9	0.0	0.2	0.0	41	0.06	18	0	.2	46	7.1
June 18.....	a76	--	--	--	--	2.7	--	39	--	1.6	--	--	0.0	--	--	27	0	.2	64	7.8
July 16.....	a25	--	--	--	--	3.8	--	56	--	1.2	--	--	.1	--	--	38	0	.3	93	7.8
Aug. 13.....	a19	--	--	--	--	4.2	--	68	--	1.2	--	--	0.0	--	--	46	0	.3	105	7.6
Sept. 10.....	a13	31	.10	9.2	5.6	3.9	2.1	67	1.9	.3	.1	.8	.0	88	.12	46	0	.3	107	7.6
a Daily mean discharge (cfs).																				

a Daily mean discharge (cfs).

11-3650. PIT RIVER NEAR MONTGOMERY

Oct. 8, 1957.....	3,950	--	--	11	7.7	--	92	--	5.2	--	0.0	--	54	0	0.7	161	7.6
May 14, 1958.....	6,360	30	0.03	10	4.4	--	1.8	7.7	1.9	2.6	0.0	0.3	1	94	0.1	125	6.9
June 11.....	4,500	--	--	11	--	--	82	--	--	2.0	--	--	46	0	0.7	141	8.1
July 9.....	4,170	--	--	11	--	--	88	--	--	3.4	--	--	48	0	0.7	151	8.1
Aug. 6.....	2,680	--	--	11	--	--	91	--	--	5.5	--	--	56	0	0.6	154	8.1
Sept. 9.....	3,580	17	.02	11	6.0	13	3.2	87	4.8	4.0	.1	.7	103	0	.8	154	7.9

11-3720. CLEAR CREEK NEAR IGO

Apr. 28, 1958.....	812	16	0.05	7.2	6.4	1.8	0.9	30	1.9	3.2	0.0	0.0	0.1	49	0.07	64	7.7
May 21.....	430	16	--	7.2	1.9	4.0	.6	29	6.3	4.9	.0	.1	.0	55	.07	72	7.5
June 26.....	167	22	--	9.8	2.6	6.0	.7	41	7.7	5.8	.0	.0	.0	75	.10	100	7.5

11-3765. BATTLE CREEK NEAR COTTONWOOD

Apr. 28, 1958.....	677	31	0.02	7.8	4.5	6.2	2.0	62	0.0	2.5	0.0	0.1	0.2	85	0.12	102	7.8
May 21.....	1,000	30	--	7.8	3.6	4.1	1.3	42	2.9	2.2	.0	.2	.0	71	.10	100	7.8
June 26.....	572	41	--	--	5.0	4.6	1.5	59	2.3	2.0	.0	.2	.0	94	.13	100	7.8

11-4015. INDIAN CREEK NEAR CRESCENT MILLS

Oct. 25, 1957.....	125	--	--	--	7.7	--	--	93	--	3.5	--	--	0.3	--	--	66	0	0.4	167	7.6
Nov. 14.....	528	--	--	--	--	6.0	--	62	--	1.0	--	--	--	--	--	52	1	0.4	118	7.2
Apr. 17, 1958.....	4,340	--	--	--	--	3.2	--	36	--	1.0	--	--	--	--	--	29	0	0.3	64	7.2
May 15.....	2,460	20	0.14	7.2	22	3.2	1.2	38	1.0	1.8	0.0	0.3	.0	56	0.08	27	0	0.3	68	7.5
June 19.....	722	--	--	--	--	4.6	--	53	--	.7	--	--	--	--	--	38	0	0.3	95	7.7
July 17.....	98	--	--	--	--	7.1	--	91	--	1.6	--	--	--	--	--	62	0	0.4	156	7.5
Aug. 14.....	46	--	--	--	--	9.6	--	91	--	4.8	--	--	--	--	--	81	6	0.5	192	7.5
Sept. 11.....	44	27	.07	21	6.9	11	2.9	112	7.7	4.5	.2	1.1	.1	137	.19	81	0	0.5	202	7.4

11-4217. FEATHER RIVER BELOW SHANGHAI BEND

July 22, 1958.....	a1,970	16	11	4.0	4.2	1.1	61	0.0	3.6	0.0	0.0	0.0	0.0	70	0.10	44	0	0.3	107	7.8
Aug. 11.....	a1,380	17	12	4.8	5.0	1.2	66	4.8	3.0	.1	.5	.0	.0	81	.11	49	0	0.3	120	7.4
Sept. 8.....	2,300	16	0.02	11	5.5	4.3	2.3	65	4.8	2.0	.1	.9	.0	79	.11	50	0	0.3	114	7.6

a Daily mean discharge (cfs), estimated.

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS IN CALIFORNIA--Continued

Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
SACRAMENTO RIVER BASIN--Continued																						
11-4335. MIDDLE FORK AMERICAN RIVER NEAR AUBURN																						
July 25, 1958...	484	11	--	4.8	1.0	1.8	0.8	20		1.0	3.2	0.0	0.0	0.0	34	0.05		16	0	0.2	43	7.6
Aug. 7.....	253	13	--	6.4	1.5	3.2	.9	26		2.9	4.0		2.4	.1	46	.06		22	1	.3	62	7.3
Sept. 5.....	115	14	0.00	8.6	1.7	2.8	.8	30		4.8	4.0		0	2	52	.07		28	3	.2	74	7.4
Sept. 11.....	110	12	0.00	8.4	3.4	3.8	2.2	32		12	5.0		0	.1	63	.10		35	9	.3	83	6.9
11-4455. SOUTH FORK AMERICAN RIVER NEAR LOTUS																						
July 25, 1958...	724	11		3.6	0.7	2.2	0.8	17		0.0	3.2	0.0	0.0	0.0	30	0.04		12	0	0.3	35	7.5
Aug. 7.....	361	13		3.2	1.3	2.7	.9	19		1.0	2.5	.1	.4	0	34	.05		14	0	.3	40	7.3
Sept. 5.....	290	11	0.01	4.1	1.1	2.6	1.9	18		1.0	4.0		0	.5	35	.05		15	0	.3	43	7.1
EEL RIVER BASIN																						
11-4721.5. EEL RIVER NEAR DOS RIOS																						
May 19, 1958...		13	0.00	17	5.5	4.8	1.1	82		6.7	1.2	0.1	0.6	0.2	90	0.12		65	0	0.3	146	8.2
June 24.....		12	0.00	26	8.0	7.1	1.2	117		13	3.7	.0	.3	.4	130	.19		96	2	.3	215	8.2
Sept. 11.....		9.0		22	10	9.6	1.0	120		7.7	6.2	.1	.5	.2	123	.17		97	0	.4	233	7.4
11-4722. OUTLET CREEK NEAR LONGVALE																						
May 19, 1958...	46	16	0.00	21	7.4	10	1.3	102	2	7.7	7.2	0.0	0.3	0.6	124	0.17		83	0	0.5	194	8.3
June 24.....	18	9.3		26	8.3	21	1.7	145	2	7.7	9.7	.0	.3	.9	158	.21		99	0	.9	234	8.3
Sept. 11.....	1.7	9.0		30	6.6	10	1.2	123	--	14	7.8	.1	.4	.5	141	.19		102	1	.4	244	7.6
MIDDLE FORK EEL RIVER NEAR DOS RIOS																						
Apr. 16, 1958...		11		14	4.6	4.1	1.4	65		7.7	0.5	0.2	0.5	0.0	76	0.10		54	1	0.2	116	7.8
May 19.....		8.3	0.00	12	2.4	2.2	.9	46		6.7	.8	.1	.0	.1	56	.08		40	2	.2	91	7.9
June 24.....		9.0		21	5.0	4.8	.8	83		11	3.0	.0	.3	.1	96	.13		73	5	.2	158	8.2
Sept. 11.....		9.1		26	8.5	9.8	1.4	121		17	6.3	.1	.1	.3	139	.19		100	1	.4	235	7.4
4785. VAN DUZEN RIVER NEAR BRIDGEVILLE																						
Apr. 16, 1958...	1,640	11		8.8	4.9	2.7	1.0	50		7.7	0.5	0.2	0.6	0.0	62	0.08		42	1	0.2	89	7.4
May 20.....	298	13		16	3.9	3.6	.8	69		5.8	1.5	.0	.4	.1	79	.11		56	0	.2	123	8.1
June 25.....	96	12		22	6.6	4.1	.8	95		13	2.4	.0	.2	.0	108	.15		82	4	.2	174	8.0

MAD RIVER BASIN

MAD RIVER AT MAD RIVER

Apr. 18, 1958....	9.9	8.0	1.9	2.4	1.0	31	7.7	1.5	0.0	0.5	0.0	48	0.07		28	3	0.2	65	7.2
May 20.....	11	10	2.4	2.2	.6	37	5.8	2.5	.0	.7	.0	53	.07		35	5	.2	77	7.9
June 25.....	8.1	12	2.4	2.2	.8	44	7.1	2.1	.0	.1	.0	57	.08		40	4	.2	92	7.4

MAD RIVER NEAR MAPLE CREEK

May 20, 1958....	10	16	3.4	3.5	1.2	64	6.7	1.8	0.0	0.4	0.1	75	0.10		54	2	0.2	118	8.1
June 25.....	10	22	5.7	6.6	.8	99	8.6	2.0	.0	.2	.1	98	.13		76	3	.2	116	8.0
Sept. 1.....	11	41	6.7	6.5	1.0	148	18	6.0	.1	.3	.1	162	.22		130	9	.2	274	8.1

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS IN CALIFORNIA--Continued

Periodic determinations of suspended-sediment discharge,
water year October 1957 to September 1958

Date	Time (24 hr)	Water tem- per- ature (°F)	Discharge (cfs)	Suspended sediment	
				Mean concentration (ppm)	Discharge (tons per day)
SANTA CLARA RIVER BASIN					
11-1130. SESPE CREEK NEAR FILLMORE, CALIF.					
Dec. 17, 1957.....	1000	57	2,020	11,100	60,500
Feb. 5, 1958.....	1245	47	1,560	1,740	7,330
Feb. 6.....	1650	50	616	342	569
Feb. 20.....	1230	50	1,090	1,070	3,150
Mar. 16.....	1100	---	3,640	2,580	25,400
Mar. 17.....	1000	52	1,410	808	3,080
Mar. 27.....	1445	51	944	374	953
Mar. 28.....	1030	---	672	190	345
Apr. 4.....	1200	49	2,960	2,040	16,300
Apr. 7.....	1115	48	2,550	1,430	9,850
VENTURA RIVER BASIN					
11-1160. NORTH FORK MATILIJIA CREEK AT MATILIJIA HOT SPRINGS, CALIF.					
Dec. 17, 1957.....	1410	54	48	4,140	537
Jan. 26, 1958.....	0930	52	15	1,330	54
Feb. 3.....	1400	52	72	4,580	890
Feb. 4.....	1415	---	1,450	14,400	56,400
Feb. 6.....	1350	54	50	1,830	247
Mar. 17.....	1410	55	120	594	192
Mar. 27.....	1350	54	97	786	206
Mar. 28.....	0910	53	74	325	65
Apr. 2.....	1540	53	206	1,710	951
Apr. 3.....	1510	52	1,120	20,600	62,300
Apr. 18.....	1200	56	64	269	46
SANTA YNEZ RIVER BASIN					
11-1325. SALSIPUEDES CREEK NEAR LOMPOC, CALIF.					
Mar. 15, 1958.....	0815	48	542	7,260	10,600
Mar. 27.....	0830	---	750	21,400	43,300
Mar. 27.....	1305	53	216	4,630	2,700
Apr. 1.....	0830	---	568	9,830	15,100
Apr. 1.....	1200	---	1,220	16,000	52,700
SANTA MARIA RIVER BASIN					
11-1370. CUYAMA RIVER NEAR SANTA MARIA, CALIF.					
Dec. 17, 1957.....	1530	52	33	65,800	6,080
Dec. 20.....	1145	45	21	5,200	295
Jan. 27, 1958.....	1245	50	22	9,460	562
Feb. 3.....	1200	46	290	19,200	15,000
Mar. 27.....	0850	49	160	1,760	760
Apr. 7.....	1000	---	2,100	8,220	46,600
SAN FRANCISQUITO CREEK BASIN					
11-1645. SAN FRANCISQUITO CREEK AT STANFORD UNIVERSITY					
Dec. 16, 1957.....	1600	53	77	573	119
Dec. 17.....	0845	51	7.3	127	2.5
Dec. 18.....	0800	50	95	1,620	416
Dec. 18.....	1520	51	23	268	17
Dec. 19.....	0745	44	1.2	98	.3
Jan. 10, 1958.....	1550	51	.9	364	.9
Jan. 11.....	1030	51	7.6	391	8.0
Jan. 24.....	0800	49	266	626	450
Jan. 24.....	1345	51	312	308	259
Jan. 24.....	1730	51	234	166	105
Jan. 25.....	0730	46	66	63	11
Jan. 26.....	0930	51	512	889	1,230
Jan. 26.....	1540	52	302	296	241
Jan. 27.....	0805	47	123	145	48
Jan. 28.....	1000	49	36	70	6.8
Jan. 28.....	1030	50	35	68	6.4
Jan. 29.....	0830	52	22	60	3.6
Jan. 29.....	1750	54	48	66	8.6
Jan. 30.....	0730	50	274	298	220
Jan. 31.....	1455	51	61	70	12
Feb. 1.....	1510	49	19	25	1.3
Feb. 2.....	0920	---	240	232	150
Feb. 2.....	1700	52	824	2,490	5,540
Feb. 2.....	2115	50	660	897	1,600
Feb. 3.....	0820	50	338	327	298
Feb. 7.....	0900	53	266	435	312
Feb. 8.....	0830	51	224	150	91
Feb. 8.....	1510	53	206	119	66

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS IN CALIFORNIA--Continued

Periodic determinations of suspended-sediment discharge,
water year October 1957 to September 1958--Continued

Date	Time (24 hr)	Water tem- per- ature (°F)	Discharge (cfs)	Suspended sediment	
				Mean con- cen- tration (ppm)	Discharge (tons per day)
SAN FRANCISQUITO CREEK BASIN--Continued					
11-1645. SAN FRANCISQUITO CREEK AT STANFORD UNIVERSITY--Continued					
Feb. 9.....	1055	52	140	67	25
Feb. 10.....	0725	52	270	274	200
Feb. 12.....	0840	55	760	1,790	3,670
Feb. 12.....	1055	55	901	1,460	3,550
Feb. 13.....	1410	53	134	77	28
Feb. 14.....	1120	53	126	90	31
Feb. 17.....	1535	57	44	34	4.0
Feb. 18.....	1415	55	320	602	520
Feb. 19.....	0800	54	847	1,010	2,310
Feb. 19.....	1410	56	498	751	1,010
Feb. 20.....	0815	53	224	153	93
Feb. 21.....	0855	54	134	92	33
Feb. 22.....	0930	54	98	71	19
Feb. 23.....	1045	56	76	46	9.4
Feb. 24.....	1705	57	960	3,000	7,780
Feb. 25.....	0945	53	470	937	1,190
Feb. 26.....	0805	49	228	151	93
Feb. 27.....	1650	53	165	79	35
Feb. 28.....	1130	52	106	48	14
Mar. 2.....	1105	--	66	25	4.5
Mar. 3.....	1800	52	55	34	5.0
Mar. 6.....	1140	50	39	13	1.4
Mar. 8.....	0745	49	42	17	1.9
Mar. 12.....	1130	51	28	8	.6
Mar. 13.....	1520	51	29	13	1.0
Mar. 14.....	1635	53	46	26	3.2
Mar. 15.....	1150	50	42	31	3.5
Mar. 16.....	1140	51	401	332	359
Mar. 16.....	1820	51	256	182	126
Mar. 17.....	1055	50	95	38	9.7
Mar. 17.....	1700	52	113	53	16
Mar. 18.....	1450	55	81	30	6.6
Mar. 19, 1958.....	0815	47	71	26	5.0
Mar. 20.....	1410	55	118	101	32
Mar. 21.....	0745	51	194	423	222
Mar. 21.....	1530	53	600	1,430	2,320
Mar. 22.....	1025	52	308	405	337
Mar. 23.....	1130	53	1,580	3,430	14,600
Mar. 23.....	1610	54	1,220	1,560	5,140
Mar. 24.....	1720	53	292	244	192
Mar. 25.....	1035	53	244	166	109
Mar. 25.....	1530	55	230	146	91
Mar. 26.....	0815	48	165	94	42
Mar. 27.....	1400	54	246	295	196
Mar. 28.....	1715	49	141	60	23
Mar. 30.....	1110	53	530	644	922
Mar. 30.....	1800	54	286	204	158
Apr. 1.....	1615	54	512	721	997
Apr. 2.....	1540	52	3,420	5,450	50,300
Apr. 2.....	1700	52	4,140	7,680	85,800
Apr. 3.....	1035	51	652	1,910	3,360
Apr. 4.....	1340	52	660	876	1,560
Apr. 5.....	1410	52	312	274	231
Apr. 6.....	1125	51	572	745	1,150
Apr. 7.....	1540	55	290	211	165
Apr. 11.....	1800	60	124	39	13
Apr. 14.....	1700	63	77	44	9.1
Apr. 17.....	1200	60	45	6	.7

GUADALUPE RIVER BASIN

11-1690. GUADALUPE RIVER AT SAN JOSE, CALIF.

Jan. 26, 1958.....	1100	--	38	2,950	303
Jan. 26.....	1410	54	158	1,440	614
Feb. 3.....	1130	--	288	895	696
Feb. 4.....	1230	--	120	189	61
Feb. 12.....	1130	58	30	116	9.4
Feb. 18.....	1240	--	120	1,030	334
Feb. 19.....	1030	--	550	597	887
Feb. 20.....	0900	--	135	119	43

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS IN CALIFORNIA--Continued

Periodic determinations of suspended-sediment discharge,
water year October 1957 to September 1958--Continued

Date	Time (24 hr)	Water tem- per- ature (°F)	Discharge (cfs)	Suspended sediment	
				Mean concen- tration (ppm)	Discharge (tons per day)

GUADALUPE RIVER BASIN--Continued

11-1690. GUADALUPE RIVER AT SAN JOSE, CALIF.--Continued

Feb. 21	1330	--	70	134	25
Feb. 25	1500	--	428	600	693
Feb. 26	0830	--	260	315	221
Feb. 26	1700	--	225	266	162
Feb. 27	1100	--	116	161	50
Mar. 14	1100	53	95	309	79
Mar. 16	0830	55	500	579	782
Mar. 16	1230	52	345	426	397
Mar. 16	1730	58	275	319	237
Mar. 17	0930	55	175	110	52
Mar. 17	1700	60	150	85	34
Mar. 20	1400	59	158	161	69
Mar. 21, 1958	1600	58	846	2,510	5,730
Mar. 22	0900	55	1,360	1,080	3,970
Mar. 22	1730	58	1,220	738	2,430
Mar. 23	1300	59	946	453	1,160
Mar. 24	1300	58	494	246	328
Mar. 25	1645	56	459	299	371
Mar. 26	1230	59	410	107	118
Mar. 27	1300	59	605	239	390
Mar. 28	1000	60	421	250	284
Mar. 29	1000	59	335	49	44
Mar. 31	1300	59	494	88	117
Apr. 1	1300	58	2,930	3,200	25,300
Apr. 2	1430	58	1,680	3,130	14,200
Apr. 9	1300	60	575	413	641
Apr. 10	1030	60	685	264	488
Apr. 11	1300	63	520	266	373
Apr. 12	1130	68	445	212	255
Apr. 13	1000	61	365	170	168
Apr. 14	1300	68	330	89	79
Apr. 15	1430	68	279	58	44

PACHECO CREEK BASIN

11-1835. WALNUT CREEK AT WALNUT CREEK, CALIF.

Oct. 9, 1957	1200	63	1.2	89	0.3
Nov. 7	1435	53	2.1	83	.5
Dec. 9	1450	47	3.2	131	1.1
Jan. 7, 1958	1355	46	4.5	71	.9
Jan. 26	1650	52	450	3,650	4,430
Feb. 4	1425	52	140	324	122
Feb. 12	1415	58	1,580	6,580	28,100
Feb. 19	1245	55	1,450	2,360	9,240
Feb. 25	1220	54	330	857	764
Mar. 25	1145	55	207	250	140
Apr. 3	1110	51	2,180	8,260	48,600
Apr. 16	1355	62	98	93	25
May 6	1535	68	43	42	4.9
Aug. 20	1400	57	2.9	50	.4

SAN JOAQUIN RIVER BASIN

11-3235. MOKELUMNE RIVER NEAR CLEMENTS, CALIF.

Oct. 10, 1957	1050	65	142	3	1.2
Jan. 7, 1958	1300	47	360	10	9.7
Jan. 30	1040	48	395	11	12
Apr. 2	1120	--	3,990	32	345
Apr. 16	0925	52	1,890	11	56
May 6	1000	52	1,560	47	198

11-3345. COSUMNES RIVER NEAR PLYMOUTH, CALIF.

Nov. 15, 1957	1700	55	171	29	13
Jan. 2, 1958	1000	--	110	10	3.0
Jan. 30	1330	50	1,200	113	366
Feb. 5	1115	49	2,920	184	1,450
Apr. 2	1345	45	5,960	316	5,090
Apr. 15	1140	59	2,390	49	316

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS IN CALIFORNIA--Continued

Periodic determinations of suspended-sediment discharge,
water year October 1957 to September 1958--Continued

Date	Time (24 hr)	Water tem- per- ature (°F)	Discharge (cfs)	Suspended sediment	
				Mean concen- tration (ppm)	Discharge (tons per day)

SAN JOAQUIN RIVER BASIN--Continued
11-3360. COSUMNES RIVER AT McCONNELL, CALIF.

Nov. 7, 1957.....	0920	44	18	10	0.5
Dec. 9.....	1005	43	24	10	.6
Jan. 2, 1958.....	1150	--	80	18	3.9
Jan. 30.....	1550	52	3,070	265	2,200
Feb. 5.....	1430	56	3,240	268	2,340
Apr. 2.....	0950	45	19,500	439	23,100
Apr. 3.....	1640	50	32,300	1,310	114,000
Apr. 15.....	0920	58	2,340	183	1,160
May 7.....	0900	60	1,910	206	1,060

SACRAMENTO RIVER BASIN
11-3485. PIT RIVER NEAR CANBY, CALIF.

✓ Oct. 16, 1957.....	0845	46	215	88	52
Nov. 14.....	1035	40	351	443	420
Dec. 18.....	1510	36	642	511	886
Jan. 6, 1958.....	1245	33	130	59	21
Jan. 12.....	1150	33	335	108	98
Feb. 12.....	1600	43	570	217	334
Feb. 20.....	1320	--	1,180	87	277
Apr. 11.....	1105	53	714	67	129
May 9.....	0945	63	594	82	132
May 19.....	1400	70	816	57	126
June 6.....	1200	56	672	46	83
June 17.....	1615	74	428	52	60

11-3710. CLEAR CREEK AT FRENCH GULCH, CALIF.

Oct. 4, 1957.....	1130	58	54	1	0.1
Oct. 17.....	1230	54	153	3	1.2
Nov. 15.....	1500	47	438	6	7.1
Dec. 20.....	0910	46	504	5	6.8
Jan. 17, 1958.....	1220	46	364	4	3.9
Feb. 1.....	1615	45	945	32	82
Feb. 17.....	1400	50	2,420	120	784
Feb. 19.....	1600	--	5,020	523	7,090
Apr. 9.....	1725	57	1,000	11	30
May 15.....	0805	52	256	2	1.4
June 9.....	0750	55	136	7	2.6
June 30.....	1300	63	70	1	.2

11-3765. BATTLE CREEK NEAR COTTONWOOD, CALIF.

Oct. 17, 1957.....	0900	51	324	5	4.4
Nov. 15.....	1025	46	568	21	32
Dec. 19.....	1500	45	513	7	9.7
Jan. 18, 1958.....	1000	45	465	5	6.3
Feb. 19.....	1130	--	2,570	65	451
Apr. 10.....	1035	58	806	10	22
May 15.....	1120	58	788	15	32
June 7.....	0820	56	638	7	12
Sept. 4.....	1110	60	a228	5	3.1

11-3914. LITTLE LAST CHANCE CREEK NEAR CHILCOOT, CALIF.

Oct. 15, 1957.....	1300	51	2.9	9	0.1
Nov. 13.....	1400	43	6.1	3	(t)
Jan. 19, 1958.....	1545	34	7.9	9	.2
Feb. 20.....	1740	--	138	330	123
Apr. 11.....	1510	51	242	554	362
May 10.....	0830	46	216	204	119
June 6.....	0805	47	29	7	.5

11-3915. BIG GRIZZLY CREEK NEAR PORTOLA, CALIF.

Oct. 15, 1957.....	1200	49	4.4	10	0.1
Nov. 13.....	1305	42	6.4	9	.2
Dec. 18.....	0925	33	4.2	82	.9
Jan. 19, 1958.....	1620	53	4.6	6	.1
Feb. 20.....	1815	--	210	328	186
Apr. 11.....	1600	41	109	68	20
Apr. 22.....	1345	--	616	98	163
May 10.....	0730	48	328	28	25
June 6.....	0725	51	32	13	1.1
Aug. 21.....	0930	59	2.1	4	(t)

t Less than 0.05 ton.

a Daily mean discharge.

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS IN CALIFORNIA--Continued

Periodic determinations of suspended-sediment discharge,
water year October 1957 to September 1958--Continued

Date	Time (24 hr)	Water tem- per- ature (°F)	Discharge (cfs)	Suspended sediment	
				Mean con- cen- tra- tion (ppm)	Discharge (tons per day)
SACRAMENTO RIVER BASIN--Continued					
11-3935. MIDDLE FORK FEATHER RIVER BELOW SLOAT, CALIF.					
Oct. 15, 1957.....	0945	48	125	3	1.0
Oct. 21.....	1030	--	125	4	1.4
Nov. 13.....	1110	45	123	3	1.0
Dec. 17.....	1400	33	797	30	65
Jan. 20, 1958.....	0915	32	194	3	1.6
Jan. 22.....	1030	--	182	3	1.5
Feb. 20.....	1050	--	2,220	42	252
Apr. 12.....	0930	51	2,960	62	496
Apr. 15.....	1035	--	3,250	70	614
May 9.....	1430	62	2,850	33	254
June 5.....	1445	54	1,060	9	26
Aug. 20.....	0930	65	130	5	1.8
11-4015. INDIAN CREEK NEAR CRESCENT MILLS, CALIF.					
Oct. 14, 1957.....	1705	57	105	28	7.9
Oct. 21.....	1645	--	118	21	6.7
Nov. 13.....	0930	43	112	19	5.7
Dec. 17.....	1150	37	1,270	210	720
Jan. 20, 1958.....	0950	35	252	9	6.1
Jan. 21.....	1045	--	240	7	4.5
Feb. 20.....	1155	--	3,490	345	3,250
Feb. 21.....	0900	--	3,100	249	2,080
Apr. 12.....	1220	55	2,900	503	3,940
May 9.....	1145	56	3,020	178	1,450
June 5.....	1645	57	838	43	97
11-4335. MIDDLE FORK AMERICAN RIVER NEAR AUBURN, CALIF.					
Oct. 19, 1957.....	1100	58	112	1	0.3
Jan. 2, 1958.....	1330	43	636	23	39
Jan. 2.....	1345	--	636	17	29
Feb. 5.....	1300	50	3,610	37	361
Mar. 17.....	1200	50	3,020	8	65
Apr. 2.....	1020	44	6,150	47	780
Apr. 18.....	0950	54	5,740	53	821
May 7.....	1250	61	7,040	40	760
Aug. 26.....	1000	59	143	1	.4
11-4455. SOUTH FORK AMERICAN RIVER NEAR LOTUS, CALIF.					
Nov. 19, 1957.....	1310	45	a400	3	3.2
Jan. 2, 1958.....	1430	43	a500	5	6.8
Feb. 5.....	1400	49	a3,000	76	616
Mar. 17.....	1310	49	2,700	15	109
Apr. 2.....	1230	45	6,340	39	668
Apr. 18.....	1045	51	3,950	82	881
May 7.....	1110	54	5,980	98	1,580
May 13.....	1345	50	4,590	32	397
11-4525. CACHE CREEK AT YOLO, CALIF.					
Oct. 14, 1957.....	1150	60	380	376	386
Jan. 2, 1958.....	1030	48	160	55	24
Jan. 23.....	1510	45	128	15	5.2
Jan. 29.....	1430	52	3,440	1,110	10,300
Feb. 10.....	1145	52	10,700	2,910	84,100
Feb. 18.....	1215	53	6,620	1,790	32,000
Feb. 18.....	1515	53	6,860	3,230	59,800
Feb. 25.....	1145	52	30,700	3,560	295,000
Mar. 16.....	1255	57	4,070	1,060	11,600
Apr. 13.....	1110	66	5,840	1,640	25,900
May 10.....	1310	65	71	21	4.0
11-4530. YOLO BYPASS NEAR WOODLAND, CALIF.					
Jan. 8, 1958 b.....	0950	42	c578	56	87
Jan. 13 b.....	1040	47	c1,280	125	432
Jan. 28.....	1400	51	6,540	405	7,150
Jan. 29.....	1345	51	7,630	384	7,910
Jan. 29 b.....	1600	51	6,940	294	5,510
Jan. 31 b.....	1330	52	25,000	159	10,700
Jan. 31.....	1430	52	28,600	101	7,800
Feb. 3.....	1505	50	39,100	171	18,100
Feb. 7 b.....	1040	--	65,000	349	61,200

a Daily mean discharge.

b Sample collected from bridge on Highway 40, 8 miles below station.

c Discharge computed from supplementary water-stage recorder about 0.7 mile above Highway 40 bridge.

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS IN CALIFORNIA--Continued

Periodic determinations of suspended-sediment discharge,
water year October 1957 to September 1958--Continued

Date	Time (24 hr.)	Water tem- per- ature (°F)	Discharge (cfs)	Suspended sediment	
				Mean concentration (ppm)	Discharge (tons per day)
SACRAMENTO RIVER BASIN--Continued					
11-4530. YOLO BYPASS NEAR WOODLAND, CALIF.--Continued					
Feb. 10 b.....	1500	--	72,600	153	30,000
Feb. 17, b.....	1430	55	94,600	210	53,600
Feb. 20.....	1500	54	124,000	176	58,900
Feb. 24.....	1530	54	100,000	332	89,600
Mar. 4.....	1500	57	55,700	134	20,200
Mar. 7.....	1020	46	27,400	143	10,600
Mar. 24.....	1540	52	46,500	214	26,900
Apr. 1.....	1540	51	41,000	269	29,800
Apr. 4.....	1530	50	99,800	132	35,600
Apr. 15.....	1350	65	26,600	114	8,190
Apr. 25.....	1515	--	6,160	176	2,930
May 10.....	1350	64	e360	136	132
SONOMA CREEK BASIN					
11-4585. SONOMA CREEK AT BOYES HOT SPRINGS, CALIF.					
Oct. 23, 1957.....	1730	--	360	220	214
Oct. 24.....	1230	--	47	20	2.5
Nov. 21.....	1700	52	6.5	3	.1
Dec. 16.....	1230	--	414	136	152
Dec. 16.....	1730	--	215	142	82
Dec. 18.....	2100	--	162	186	81
Dec. 19.....	1230	--	106	11	3.1
Dec. 20.....	1100	--	196	34	18
Dec. 21.....	1600	53	526	378	537
Dec. 22.....	1100	53	172	22	10
Dec. 24.....	1315	50	73	8	1.6
Jan. 13, 1958.....	1010	46	101	17	4.6
Jan. 15.....	1200	--	52	27	3.8
Jan. 24.....	0900	--	432	274	320
Jan. 24.....	1400	--	585	346	547
Jan. 24.....	1700	--	589	1,030	1,640
Jan. 25.....	1200	--	218	47	28
Jan. 30.....	0800	56	737	356	708
Jan. 31.....	0800	48	351	113	107
Jan. 31.....	1300	52	327	65	57
Jan. 31.....	1700	--	306	52	43
Feb. 1.....	1150	50	245	37	24
Feb. 3.....	0800	52	569	214	329
Feb. 3.....	1800	55	741	519	1,040
Feb. 4.....	0800	52	1,810	1,390	6,790
Feb. 4.....	1200	54	1,930	1,140	5,940
Feb. 4.....	1730	55	1,040	889	2,500
Feb. 5.....	1300	52	613	198	328
Feb. 5.....	1730	55	537	135	196
Feb. 6.....	1300	54	390	50	53
Feb. 7.....	0900	52	1,140	643	1,980
Feb. 7.....	1300	55	950	607	1,560
Feb. 7.....	1800	55	673	364	661
Feb. 8.....	0900	55	526	177	251
Feb. 8.....	1330	55	737	493	981
Feb. 10.....	0800	54	717	315	610
Feb. 12.....	0800	52	3,300	1,820	16,200
Feb. 12.....	1200	55	1,750	1,260	5,950
Feb. 18.....	1745	54	2,170	1,760	10,300
Feb. 25.....	0800	52	1,640	1,050	4,650
Feb. 26.....	1800	--	534	256	369
Feb. 27.....	0800	49	444	76	91
Feb. 28.....	0800	48	345	33	31
Mar. 1.....	0800	48	262	17	12
Mar. 2.....	1800	56	191	10	5.2
Mar. 3.....	0800	--	169	8	3.6
Mar. 4.....	0700	50	140	8	3.0
Mar. 4.....	0700	--	123	6	2.0
Mar. 6.....	0800	--	106	5	1.4
Mar. 10.....	0800	--	67	5	.9
Mar. 10.....	1055	50	67	5	.9
Mar. 14.....	0900	--	53	8	1.1
Mar. 16.....	0800	--	53	5	.7
Mar. 17.....	0800	--	44	8	1.0
Mar. 22.....	0800	--	733	370	732
Mar. 22.....	0900	50	713	337	649
Mar. 23.....	0700	--	685	427	790

e Estimated.

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS IN CALIFORNIA--Continued

Periodic determinations of suspended-sediment discharge,
water year October 1957 to September 1958--Continued

Date	Time (24 hr)	Water tem- per- ature ("F)	Discharge (cfs)	Suspended sediment	
				Mean con- cen- tration (ppm)	Discharge (tons per day)

SONOMA CREEK BASIN--Continued

11-4585. SONOMA CREEK AT BOYES HOT SPRINGS--Continued

Mar. 23.....	1700	--	945	506	1,290
Mar. 25.....	0800	50	489	140	185
Mar. 25.....	1700	50	396	118	126
Mar. 26.....	0900	--	330	49	44
Apr. 1.....	0800	49	1,550	1,200	5,020
Apr. 2.....	1400	--	4,580	2,020	25,000
Apr. 3.....	0700	48	1,990	711	3,820
Apr. 3.....	1500	--	1,490	403	1,620
Apr. 5.....	0800	--	685	243	449
Apr. 6.....	0800	48	1,360	1,080	3,970
Apr. 7.....	0700	48	673	148	269
Apr. 8.....	0700	48	450	64	78
Apr. 9.....	0700	48	369	42	42
Apr. 10.....	0800	48	275	26	19
Apr. 11.....	0700	--	222	5	3.0
Apr. 13.....	0800	--	152	9	3.7
Apr. 15.....	0700	58	112	7	2.1
Apr. 17.....	0700	56	90	9	2.2
Apr. 18.....	0800	58	82	5	1.1
Apr. 20.....	0800	--	68	6	1.1
Apr. 22.....	0800	--	57	5	.8
Apr. 24.....	0800	--	49	6	.8
Apr. 28.....	0800	50	40	5	.5
Apr. 29.....	0700	51	37	4	.4
Apr. 30.....	0700	52	35	4	.4
May 1.....	0700	52	33	4	.4
July 21.....	1045	--	3.6	5	(t)

EEL RIVER BASIN

11-4755. SOUTH FORK EEL RIVER NEAR BRANSCOMB, CALIF.

Oct. 20, 1957.....	1240	51	64	3	0.5
Nov. 18.....	1430	50	284	38	29
Jan. 14, 1958.....	1050	43	572	52	80
Feb. 11.....	1355	49	845	80	183
Mar. 11.....	1310	47	100	5	1.4
May 12.....	1715	58	34	5	.5
June 7.....	0900	57	23	10	.6
Aug. 11.....	1825	58	4.0	1	(t)

11-4785. VAN DUZEN RIVER NEAR BRIDGEVILLE, CALIF.

Oct. 2, 1957.....	1315	60	61	6	1.0
Oct. 19.....	1100	53	243	11	7.2
Oct. 17.....	1240	47	1,280	175	605
Dec. 22.....	1605	45	3,860	816	8,500
Jan. 15, 1958.....	0830	46	3,080	1,200	9,980
Feb. 12.....	1250	47	10,900	2,740	80,600
Apr. 8.....	1020	47	1,810	147	718
May 13.....	0955	52	360	9	8.7

MAD RIVER BASIN

11-4805. MAD RIVER NEAR FOREST GLEN, CALIF.

Oct. 2, 1957.....	1540	58	7.5	59	1.2
Nov. 17.....	1455	42	515	13	18
Jan. 15, 1958.....	1045	44	1,380	55	205
Feb. 12.....	1520	41	6,520	765	13,500
Mar. 12.....	1205	41	325	7	6.1
May 13.....	1040	54	176	4	1.9

KLAMATH RIVER BASIN

11-5175. SHASTA RIVER NEAR YREKA, CALIF.

Oct. 16, 1957.....	1300	53	198	11	5.9
Nov. 14.....	1450	45	828	407	910
Dec. 10.....	1450	41	213	11	6.3
Dec. 19.....	1020	42	348	28	26
Jan. 18, 1958.....	1440	43	285	18	14
Feb. 11.....	1300	41	448	25	30
Feb. 20.....	0800	--	1,340	47	170
Mar. 15.....	1150	46	490	8	11
Apr. 10.....	1615	59	780	13	27
June 6.....	1605	63	460	15	19
July 2.....	1310	--	184	11	5.5

t Less than 0.05 ton.

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS IN CALIFORNIA--Continued

Particle-sized analyses of suspended sediment, water year October 1957 to September 1958--Continued
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Sam- pling point	Water tem- per- ature (°F)	Discharge (cfs)	Sediment concen- tration (ppm)	Suspended sediment										Method of analysis	
						Percent finer than size indicated, in millimeters											
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		2.000
SAN FRANCISCO CREEK BASIN																	
11-1645. SAN FRANCISCO CREEK AT STANFORD UNIVERSITY, CALIF.																	
Jan. 26, 1958.....	1540		52	302	286		54		70		87	93	100	--	--	SPWC	
Feb. 2.....	1700		52	824	2,490		32		47		72	85	91	98	100	VPWC	
Feb. 3.....	0820		50	338	327		31		40		90	96	98	100	--	VPWC	
Feb. 12.....	1055		55	901	1,460		29		45		67	78	87	96	100	VPWC	
Mar. 23.....	1610		54	1,220	1,560		30		44		62	73	86	98	100	VPWC	
Apr. 2.....	1540		52	3,420	5,450		17	21	27	33	43	57	75	89	97	100	VPWC
GUADALUPE RIVER BASIN																	
11-1690. GUADALUPE RIVER AT SAN JOSE, CALIF.																	
Jan. 26, 1958.....	1410		54	158	1,440		66	78	89	95	98	100	--	--	100	SPWC	
Mar. 21.....	1600		58	846	2,510		--	34	--	48	--	77	93	99	100	VPWC	
Mar. 25.....	1645		56	459	299		--	69	--	88	--	98	99	100	100	SPWC	
Apr. 2.....	1430		58	1,680	3,130		32	44	48	57	69	81	93	100		VPWC	
PACHECO CREEK BASIN																	
11-1835. WALNUT CREEK AT WALNUT CREEK, CALIF.																	
Jan. 26, 1958.....	1650		52	450	3,650		55	69	83	91	97	98	99	100	--	VPWC	
Feb. 12.....	1415		58	1,580	6,580		--	48	--	70	--	89	97	99	100	VPWC	
Feb. 19.....	1445		55	1,450	2,360		--	46	--	64	--	82	94	98	100	VPWC	
Feb. 25.....	1420		54	330	857		--	61	--	79	--	88	92	96	100	VPWC	
Apr. 3.....	1110		51	2,180	8,260		26	32	41	49	60	71	87	95	98	100	VPWC
SAN JOAQUIN RIVER BASIN																	
11-3235. MOKELUENE RIVER NEAR CLEMENTS, CALIF.																	
Jan. 30, 1958.....	1330		50	1,200	113		62		79			96	98	99	100	SPWC	
Feb. 5.....	1115		49	2,920	184		37		51		71	74	78	96	100	VPWC	
11-3360. COSUMES RIVER AT MCCONNELL, CALIF.																	
Jan. 30, 1958.....	1550		52	3,070	265		--	27	--	37	--	59	77	88	99	100	VPWC
Apr. 2.....	0950		45	19,500	439		20	28	34	46	56	67	74	84	95	100	VPWC
Apr. 3.....	1640		50	32,300	1,310		25	29	49	63	73	77	85	90	95	100	VPWC

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS IN CALIFORNIA--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958--Continued
 (Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
 P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Samp- ling point	Water tem- per- ature (°F)	Discharge (cfs)	Sediment concen- tration (ppm)	Suspended Sediment										Method of analysis
						Percent finer than size indicated, in millimeters										
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		2.000
SACRAMENTO RIVER BASIN																
11-3485. PIT RIVER NEAR CANEY, CALIF.																
Nov. 14, 1957.....	1035		40	351	443		83		96		99	100	--	--		SPWC
Dec. 18.....	1510		36	642	511		82		95		98	99	99	100		SPWC
Jan. 19, 1958.....	1150		33	335	108		75		87		97	98	99	100		SPWC
Feb. 20.....	1320		--	1,180	87	74	77	83	85	89	96	97	98	99	100	SPWC
11-3710. CLEAR CREEK AT FRENCH GULCH, CALIF.																
Feb. 19, 1958.....	1600			5,020	523	20	32	43	53	60	68	76	84	92	100	VPWC
11-3765. BATTLE CREEK NEAR COTTONWOOD, CALIF.																
Feb. 19, 1958.....	1130			2,570	65	29	31	37	54	58	68	78	86	92	100	SPWC
11-3914. LITTLE LAST CHANCE CREEK NEAR CHILCOOT, CALIF.																
Feb. 20, 1958.....	1740			138	330		26		44		74	88	98	100		VPWC
Apr. 11.....	1510	51		242	554	18	20	27	37	46	66	87	98	100		VPWC
11-3915. BIG GRIZZLY CREEK NEAR PORTOLA, CALIF.																
Feb. 20, 1958.....	1815			210	328	18	20	27	34	37	46	64	88	99	100	VPWC
Apr. 11.....	1600	41		109	68		45		66		82	90	97	99	100	SPWC
11-3935. MIDDLE FORK FEATHER RIVER BELOW SLOAT, CALIF.																
Dec. 17, 1957.....	1400		33	797	30		43		72		75	81	86	92	100	SPWC
Apr. 12, 1958.....	0930	51		2,960	62	19	23	28	35	43	50	58	70	88	100	VPWC
Apr. 15.....	1035	--	--	3,250	70	26	26	40	40	47	53	65	85	98	100	VPWC
11-4015. INDIAN CREEK NEAR CRESCENT MILLS, CALIF.																
Dec. 17, 1957.....	1150		37	1,270	210	35	37	50	60	73	83	96	100	--		VPWC
Feb. 20, 1958.....	1155	--	--	3,490	345	--	23	--	38	--	51	62	88	100		VPWC
Feb. 21.....	0900	--	--	3,100	249	22	22	29	36	45	51	64	93	100		VPWC
Apr. 12.....	1220	55		2,900	503	--	22	--	36	--	48	56	66	82	100	VPWC

SANTA CLARA RIVER BASIN
11-1130. SESPE CREEK NEAR FILLMORE, CALIF.

Mar. 16, 1958.....	1100	3,640	2,580	21	29	40	54	69	84	95	100	VPWC
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VENTURA RIVER BASIN
11-1160. NORTH FORK MATILAJA CREEK AT MATILAJA HOT SPRINGS, CALIF.

Dec. 17, 1957.....	1410	54	48	4,140	34	47	64	80	90	96	99	100	--	SPWC
Jan. 26, 1958.....	0930	52	15	1,330	--	43	--	80	--	97	98	99	100	--
Feb. 3.....	1400	52	72	4,580	--	35	--	68	--	84	87	90	92	100
Feb. 4.....	1415	--	--	1,450	20	26	36	49	60	72	80	86	91	98
Feb. 6.....	1350	54	50	1,830	--	35	--	63	--	85	88	90	92	100
Mar. 17.....	1410	55	120	594	--	38	--	58	--	81	85	88	90	100
Mar. 27.....	1350	54	97	786	--	33	--	41	--	74	80	85	89	98
Mar. 28.....	0910	53	74	325	26	28	41	58	73	85	92	96	99	100
Apr. 2.....	1540	53	206	1,710	--	27	--	51	--	75	81	85	91	99
Apr. 3.....	1510	52	1,120	20,600	20	26	35	50	62	72	80	83	90	98

SANTA YNEZ RIVER BASIN
11-1325. SALSIPUEDES CREEK NEAR LOMPOC, CALIF.

Mar. 15, 1958.....	0815	48	542	7,260	39	39	45	55	78	87	94	99	100	VPWC
Mar. 27.....	0830	---	750	21,400	35	37	54	54	79	90	96	98	99	VPWC
Mar. 27.....	1305	53	216	4,630	54	54	74	74	94	99	100	---	---	VPWC
0830	568	---	9,830	40	5830	57	83	57	83	95	99	100	---	VPWC
Apr. 1.....	1200	---	1,220	16,000	33	33	45	45	61	69	77	85	100	VPWC

SANTA MARIA RIVER BASIN
11-1370. CUYAMA RIVER NEAR SANTA MARIA, CALIF.

Dec. 17, 1957.....	1530	52	33	65,800	50	64	89	96	98	100	--	--	--	SPWC
Dec. 20.....	1145	45	21	5,200	--	88	--	99	--	100	--	--	--	SPWC
Jan. 27, 1958.....	1245	50	22	9,460	--	91	--	99	--	100	--	--	--	SPWC
Feb. 3.....	1200	46	290	19,200	41	55	76	92	99	100	--	--	--	VPWC
Mar. 27.....	0850	49	160	1,760	--	56	--	93	--	100	--	--	--	SPWC
Apr. 7.....	1000	--	2,100	8,220	--	43	--	76	--	95	97	99	100	VPWC

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS IN CALIFORNIA--Continued

Particle-size analyses of suspended sediment, water year October 1957 to September 1958--Continued
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water tem- per- ature (°F)	Discharge (cfs)	Sediment concentra- tion (ppm)	Suspended Sediment											Method of analysis
					Percent finer than size indicated, in millimeters											
					0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
SACRAMENTO RIVER BASIN--Continued																
11-4335. MIDDLE FORK AMERICAN RIVER NEAR AUBURN, CALIF.																
Apr. 2, 1958	1020	44	6,150	47		37		51		79	87	93	97	100		SPWC
Apr. 18	0950	54	5,740	53	10	17	21	32	50	74	90	96	98	100		VPWC
11-4455. SOUTH FORK AMERICAN RIVER NEAR LOTUS, CALIF.																
Feb. 5, 1958	1400	49	d 3,000	76						91	97	99	100			V
Mar. 17	1310	49	2,700	15						86	96	99	100			S
Apr. 18	1045	51	3,980	82						77	92	96	100			V
11-4525. CACHE CREEK AT YOLO, CALIF.																
Oct. 14, 1957	1150	60	380	376		65		89		96	99	100				VPWC
Jan. 29, 1958	1430	52	3,440	1,110	30	50		51		70	82	97	100			VPWC
Feb. 10	1145	52	10,700	2,910	37	60		60		87	95	99	100			VPWC
Feb. 25	1215	53	6,820	1,790	20	36		31		61	81	98	100			VPWC
Mar. 16	1255	57	30,700	3,560	55	81		55		97	98	99	100			VPWC
Apr. 13	1110	66	4,070	1,060	25	42		42		67	80	94	100			VPWC
			5,840	1,640	17	35		35		60	76	94	99	100		VPWC
11-4530. YOLO BYPASS NEAR WOODLAND, CALIF.																
Jan. 28, 1958	1400	51	6,540	405	--	80	--	93		98	99	100	--			SPWC
Jan. 29	1600	51	6,940	294	--	85	--	94		99	99	99	100	--		SPWC
Feb. 1	1450	55	94,600	210	71	73	92	97	97	98	99	99	100	--		SPWC
Feb. 20	1500	54	134,000	176	--	66	--	81	--	92	93	95	98	100		SPWC
Feb. 24	1530	54	100,000	332	55	73	85	91	95	98	99	100	--			SPWC
Mar. 4	1500	57	55,700	134	--	73	--	90	--	97	98	98	99	--		SPWC
Apr. 1	1540	51	41,000	269	--	66	--	89	--	99	99	100	--			SPWC
Apr. 4	1530	50	99,800	132	--	64	--	81	--	97	98	99	100	--		SPWC
d Daily mean discharge.																

d Daily mean discharge.

SONOMA CREEK BASIN
11-4595. SONOMA CREEK AT BOYES HOT SPRINGS, CALIF.

Dec. 16, 1957.....	1230	--	414	136	--	72	--	89	--	96	98	100	--	--	--	SPWC
Dec. 21.....	1600	53	526	378	--	47	--	65	--	80	84	87	96	100	--	VPWC
Jan. 30, 1958.....	0800	56	737	356	--	16	--	40	--	58	66	73	84	99	100	VPWC
Feb. 4.....	1200	54	1,930	1,140	16	21	25	33	39	50	64	76	85	98	100	VPWC
Feb. 12.....	1200	55	1,750	1,260	--	21	--	34	--	52	63	75	90	99	100	VPWC
Feb. 18.....	1745	54	2,170	1,760	--	23	--	35	--	56	69	82	90	99	100	VPWC
Apr. 2.....	1400	--	4,580	2,020	24	29	35	48	59	72	87	95	99	100	--	VPWC

EEL RIVER BASIN

11-4755. SOUTH FORK EEL RIVER NEAR BRANSCOMB, CALIF.

Feb. 11, 1958.....	1355	49	845	80	46	72	85	91	93	100	--	--	--	--	--	VPWC
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11-4785. VAN DUZEN RIVER NEAR BRIDGEVILLE, CALIF.

Dec. 22, 1957.....	1605	45	3,860	816	--	29	--	46	--	68	79	89	95	100	100	VPWC
Jan. 15, 1958.....	0830	46	3,080	1,200	--	31	--	50	--	71	82	90	97	100	100	VPWC
Feb. 12.....	1230	47	10,900	2,740	16	21	28	58	49	79	83	86	94	99	100	VPWC
Apr. 8.....	1020	47	1,810	147	35	39	45	58	72	80	88	94	98	100	--	VPWC

MAD RIVER BASIN

11-4805. MAD RIVER NEAR FOREST GLEN, CALIF.

Jan. 15, 1958.....	1045	44	1,350	55	--	22	--	40	--	77	82	91	95	100	100	S
Feb. 12.....	1520	41	6,520	755	--	--	--	--	--	58	68	81	94	99	--	VPWC

KLAMATH RIVER BASIN

11-5175. SHASTA RIVER NEAR YREKA, CALIF.

Nov. 14, 1957.....	1450	45	828	497	88	85	96	99	99	99	99	99	100	--	--	SPWC
Dec. 18.....	0920	42	948	46	75	60	72	81	87	88	91	97	100	100	100	SPWC
Feb. 20, 1958.....	0800	--	1,340	47	47	53	60	72	81	87	91	95	97	100	100	SPWC

PART 12. PACIFIC SLOPE BASINS IN WASHINGTON AND UPPER COLUMBIA RIVER BASIN

WILLAPA RIVER BASIN

12-115. WILLAPA RIVER AT LEBAN, WASH.

LOCATION.--Temperature recorder at gaging station, 0.5 mile west of Leban, Pacific County, and 1 mile upstream from Walker Creek.

DRAINAGE AREA.--41.4 square miles.

RECORDS AVAILABLE.--Water temperatures: March 1952 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 71°F June 22, July 5, 28; minimum, 40°F Mar. 11, 13.

EXTREMES, 1952-58.--Water temperatures: Maximum, 72°F July 19, 20, 1956; minimum, freezing point Jan. 28-30, 1957.

REMARKS.--Records of discharge for water year October 1957 to September 1958.

Month	Day																												Average			
	Temperature (°F) of water, water year October 1957 to September 1958																															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum.....	61	61	58	55	52	52	51	51	52	54	56	55	55	55	53	50	51	51	50	48	47	50	51	52	53	53	52	53	53	53	53	
Minimum.....	60	58	55	52	52	51	51	51	52	54	55	55	55	53	50	50	50	50	48	47	46	47	50	51	52	52	51	50	51	53	51	
November																																
Maximum.....	51	47	46	44	43	43	43	44	47	47	48	48	48	48	48	47	45	46	46	45	44	44	44	44	43	45	43	42	42	44	45	
Minimum.....	47	44	43	42	41	41	43	42	43	44	47	47	48	48	47	44	44	44	43	45	44	42	42	42	41	43	41	42	41	41	41	
December																																
Maximum.....	44	45	45	44	44	45	46	46	46	46	44	44	44	43	42	43	44	44	45	45	45	45	44	44	44	45	45	45	45	44	44	
Minimum.....	44	44	44	44	43	43	45	46	44	42	42	44	44	44	42	41	42	43	44	44	45	45	44	44	44	44	44	45	45	44	44	
January																																
Maximum.....	44	44	45	45	44	43	43	43	43	45	45	45	46	46	47	48	48	48	46	46	46	45	46	46	47	47	47	47	47	47	46	
Minimum.....	43	44	44	44	43	42	42	43	43	45	45	45	46	46	47	48	46	45	45	45	45	45	45	46	46	46	46	47	47	47	46	
February																																
Maximum.....	47	47	46	46	46	46	47	47	47	47	47	47	47	47	47	47	48	48	47	48	48	47	48	48	49	49	47	46	44	43	43	
Minimum.....	46	46	46	46	46	45	46	47	47	46	46	46	46	46	46	46	46	47	47	47	47	47	48	48	49	47	46	44	43	43	43	
March																																
Maximum.....	44	43	44	44	44	43	43	43	43	44	43	43	43	44	43	43	44	45	45	46	48	47	47	48	47	48	48	48	47	47	47	45
Minimum.....	43	42	42	42	43	41	43	42	41	41	40	41	40	42	41	41	42	43	45	45	45	45	45	45	46	45	44	44	44	45	43	43
April																																
Maximum.....	46	46	47	46	48	49	49	49	47	50	52	53	53	53	49	48	48	47	48	49	50	49	48	48	50	50	52	53	54	55	49	
Minimum.....	45	44	44	43	44	44	46	47	44	46	47	47	47	47	47	46	47	46	46	48	49	48	47	48	47	48	47	48	48	49	46	
May																																
Maximum.....	54	54	53	55	55	52	54	55	57	56	55	52	54	57	59	59	61	61	60	61	61	61	61	61	61	63	63	60	57	57	57	
Minimum.....	51	50	51	50	52	51	50	51	51	53	51	48	47	50	53	54	55	58	58	56	57	59	59	59	57	60	60	57	56	57	54	
June																																
Maximum.....	59	59	57	60	64	58	60	58	57	58	58	57	58	59	63	65	67	69	68	65	68	71	70	67	63	62	61	61	60	59	62	
Minimum.....	57	57	56	57	60	58	56	57	58	57	57	56	57	58	59	62	64	67	65	63	64	68	67	63	62	61	60	60	58	57	60	
July																																
Maximum.....	61	64	66	69	71	70	69	67	64	65	67	66	65	67	68	68	66	66	65	64	65	65	65	66	67	68	70	71	70	67	67	
Minimum.....	59	61	64	65	67	67	67	64	63	65	64	63	62	64	66	66	66	64	64	63	64	63	63	64	65	66	67	69	67	66	65	
August																																
Maximum.....	65	63	63	63	64	64	66	64	62	61	63	64	63	65	65	65	64	62	61	62	63	64	65	65	65	65	64	62	61	60	62	63
Minimum.....	62	61	61	61	61	62	64	62	60	59	61	60	61	62	64	63	62	61	59	59	59	59	61	62	63	64	62	61	60	59	60	61
September																																
Maximum.....	62	61	58	57	58	60	63	63	63	63	61	60	58	59	60	60	58	58	58	58	58	57	56	54	52	53	54	56	57	58	58	58
Minimum.....	59	58	57	56	56	57	60	62	63	61	60	58	58	58	59	60	60	58	58	58	58	56	54	51	51	51	53	54	56	57	56	57

CHEHALIS RIVER BASIN
12-275. CHEHALIS RIVER NEAR GRAND ROUND, WASH.
LOCATION ---Temperature recorder at gaging station at highway bridge at Meadows, 1.5 miles southwest of Grand Round, Thurston County, and 6 miles downstream from Skookumchuck River.
DRAINAGE AREA. ---895 square miles.
RECORDS AVAILABLE. ---Water temperatures: Maximum, 77°F July 28, 29; minimum, 40°F Jan. 9-11.
EXTREMES, 1957-58. ---Water temperatures: Maximum, 77°F July 28, 29, 1958; minimum, freezing point Jan. 29 to Feb. 4, 1957.
REMARKS. ---Records of discharge for water year October 1957 to September 1958.

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum.....	63	60	58	56	57	57	56	57	57	57	57	56	55	55	54	54	54	53	53	52	51	50	50	50	50	50	50	51	51	51	51	54	
Minimum.....	64	60	58	55	56	56	56	56	56	56	56	56	55	54	54	54	53	53	52	51	50	50	50	50	50	50	50	50	50	50	50	54	
November																																	
Maximum.....	50	50	49	48	47	46	45	45	45	44	44	44	44	45	45	45	45	44	43	43	43	43	43	42	42	42	42	42	42	42	42	44	
Minimum.....	50	49	48	47	46	45	45	44	44	44	44	44	44	45	45	45	44	43	43	43	43	43	42	42	42	42	42	42	42	42	42	44	
December																																	
Maximum.....	42	42	43	43	43	43	43	44	44	44	44	43	43	43	43	42	42	42	42	42	43	41	42	42	43	43	42	42	42	42	42	43	
Minimum.....	41	41	42	43	43	43	43	44	44	44	43	43	43	43	43	42	42	42	42	42	42	42	41	41	42	42	42	42	42	42	42	42	
January																																	
Maximum.....	42	41	41	42	42	41	41	41	40	41	41	42	42	42	42	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	43	
Minimum.....	41	41	41	42	42	41	41	40	40	40	40	41	42	42	42	42	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	43	
February																																	
Maximum.....	44	44	44	45	45	45	45	46	46	46	46	45	45	45	45	45	46	46	46	46	46	46	46	46	46	46	46	45	45	45	45	45	
Minimum.....	44	44	44	44	44	45	45	45	45	45	45	45	45	45	45	45	45	46	46	46	46	46	46	46	46	46	46	45	45	45	45	45	
March																																	
Maximum.....	44	44	43	42	42	42	42	42	42	42	42	42	42	42	42	42	42	43	43	43	44	44	45	45	45	44	44	44	44	44	44	43	
Minimum.....	44	43	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	43	43	43	44	44	44	44	44	44	44	44	44	44	43	
April																																	
Maximum.....	44	44	44	44	44	44	45	45	45	45	45	46	47	47	47	47	46	46	45	44	44	44	44	44	44	44	44	44	44	46	47	45	
Minimum.....	44	44	44	44	44	44	44	45	45	45	45	46	47	47	47	46	46	45	44	44	44	44	44	44	44	44	44	44	44	44	46	45	
May																																	
Maximum.....	48	48	48	49	49	50	51	52	53	54	54	54	55	54	54	54	57	58	59	61	61	62	63	63	64	66	66	66	68	68	68	58	
Minimum.....	47	48	48	48	49	49	50	51	52	53	54	54	54	54	54	57	58	59	61	61	62	63	63	64	66	66	66	68	68	68	68	57	
June																																	
Maximum.....	67	67	66	66	68	67	67	67	66	66	66	65	65	65	65	66	67	69	69	69	70	72	72	71	70	70	70	69	68	67	68	68	
Minimum.....	67	66	66	66	66	67	67	66	66	66	65	65	65	64	64	65	66	67	69	69	70	71	70	70	70	70	69	68	67	66	67	67	
July																																	
Maximum.....	66	68	69	70	72	73	73	72	72	72	72	71	71	70	71	73	73	72	71	71	72	72	72	72	72	73	73	74	77	75	74	72	
Minimum.....	66	68	68	69	70	72	72	72	72	72	72	71	71	70	70	71	73	72	71	71	71	71	71	71	71	72	73	74	77	75	73	73	
August																																	
Maximum.....	74	74	73	73	74	74	74	73	73	73	73	73	72	72	72	72	72	69	68	68	69	69	69	69	69	68	66	65	65	67	69	71	
Minimum.....	73	73	72	72	72	73	74	73	72	72	72	72	72	72	72	72	69	67	67	68	68	68	67	68	67	66	65	64	64	65	67	70	
September																																	
Maximum.....	69	69	67	66	64	65	66	66	66	66	65	64	63	64	65	65	64	64	64	64	62	62	61	60	59	59	60	60	60	60	60	64	
Minimum.....	69	67	66	64	63	64	64	65	66	65	64	63	63	63	64	64	64	64	64	62	62	61	60	59	58	59	59	60	60	60	60	63	

SKOKOMISH RIVER BASIN

12-600. SOUTH FORK SKOKOMISH RIVER NEAR POTLATCH, WASH.

LOCATION.--Temperature recorder at gaging station at head of canyon, 1 mile upstream from Rock Creek, 3 miles downstream from Brown Creek, and 7.5 miles west of Potlatch, Mason County.

DRAINAGE AREA.--65.6 square miles.

RECORDS AVAILABLE.--Water temperatures: May 1955 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 63°F June 22, 1956; minimum, freezing point Mar. 7, 1956.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1366.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																													Average			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum.....	55	55	53	52	52	53	52	51	53	53	54	52	51	51	51	51	50	51	50	49	48	47	47	47	47	48	48	48	48	49	49	50	
Minimum.....	54	52	51	50	51	51	50	51	50	51	50	51	50	49	49	49	49	48	47	47	47	47	47	47	47	47	48	48	48	48	48	49	
November																																	
Maximum.....	49	49	47	47	47	47	47	47	46	46	46	46	46	46	46	45	45	45	45	45	44	44	44	44	44	45	44	43	43	43	43	46	
Minimum.....	48	47	46	46	45	45	46	46	46	46	46	46	46	46	46	45	45	45	45	44	44	44	44	44	44	44	44	43	42	42	42	45	
December																																	
Maximum.....	43	43	43	43	43	42	42	43	43	43	43	42	42	42	42	42	42	42	42	41	42	42	41	40	40	40	40	40	40	39	39	42	
Minimum.....	43	42	43	43	43	42	42	42	42	42	42	42	42	42	42	42	42	42	41	41	41	41	40	40	39	39	38	39	39	39	39	41	
January																																	
Maximum.....	39	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	
Minimum.....	39	39	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	
February																																	
Maximum.....	41	41	41	42	42	42	42	42	41	41	41	41	41	41	41	42	42	42	42	41	41	41	41	41	41	41	41	41	41	41	41	41	
Minimum.....	41	41	41	41	42	42	42	42	41	41	41	41	41	41	41	42	42	42	42	41	41	41	41	41	41	41	41	41	41	41	41	41	
March																																	
Maximum.....	41	40	41	41	41	41	41	40	41	41	41	39	39	38	38	38	38	38	38	38	39	39	39	39	39	41	42	43	41	41	41	40	
Minimum.....	40	40	39	39	40	39	37	39	39	39	38	38	38	38	38	38	38	38	38	38	38	39	39	39	39	41	42	43	41	41	41	39	
April																																	
Maximum.....	42	41	42	43	44	45	44	44	44	44	45	46	44	42	41	41	41	41	41	40	41	41	41	41	41	41	41	41	41	41	41	41	
Minimum.....	41	41	41	41	42	41	42	43	41	42	43	41	42	41	40	40	40	40	40	40	41	40	40	41	41	41	41	41	42	42	43	43	43
May																																	
Maximum.....	45	45	47	47	46	49	48	49	50	49	47	46	50	51	51	52	53	52	50	52	53	54	51	55	55	56	53	51	50	50	50	50	
Minimum.....	44	44	45	45	44	46	47	46	47	46	46	44	45	46	47	47	47	47	49	47	48	48	48	48	48	49	49	48	48	48	48	47	
June																																	
Maximum.....	52	53	53	54	56	54	51	54	51	50	50	53	52	55	57	59	60	61	60	62	63	62	58	56	58	59	56	55	56	55	56	56	
Minimum.....	47	47	48	48	49	50	48	49	48	49	49	48	49	49	50	50	51	52	53	53	54	54	55	54	54	54	54	53	53	52	52	51	
July																																	
Maximum.....	57	58	59	58	59	60	58	59	60	59	60	59	57	59	60	61	60	59	58	58	58	60	60	61	62	61	62	61	62	60	58	59	
Minimum.....	52	52	49	50	50	51	51	52	52	52	52	52	50	51	52	53	54	54	53	54	53	54	55	54	54	54	54	54	54	54	54	52	
August																																	
Maximum.....	60	59	59	58	59	60	56	57	59	58	59	58	59	59	57	58	58	59	58	58	58	58	58	59	58	58	58	55	54	55	58	58	
Minimum.....	53	52	52	52	51	52	54	52	51	51	52	52	51	52	52	52	53	52	51	52	52	52	52	52	53	53	52	51	50	52	52	52	
September																																	
Maximum.....	55	54	52	55	57	58	58	55	55	55	56	56	56	57	55	57	53	54	53	54	53	54	52	52	50	53	54	54	55	54	54	55	55
Minimum.....	51	50	50	49	51	50	52	53	53	53	53	52	50	51	53	53	52	52	51	51	50	51	50	48	49	50	50	51	51	50	51	50	51

SKOKOMISH RIVER BASIN--Continued
12-620. WEAVER CREEK NEAR POTLATCH, WASH.

LOCATION ---Temperature recorder at gaging station, 0.8 mile upstream from mouth and 5 miles southwest of Potlatch, Mason County.
RECORDS AVAILABLE ---Water temperatures: April 1955 to September 1958.

EXTREMES, 1957-58. ---Water temperatures: Maximum, 54°F Sept. 7; minimum, 41°F Mar. 11, 12.

EXTREMES, 1955-56. ---Water temperatures: Maximum, 54°F on several days during summer months; minimum, 40°F Nov. 2, 17, 1955, Mar. 7, 1956.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October	50	50	48	47	47	49	48	48	50	50	50	48	50	48	48	48	48	48	48	48	47	46	47	48	48	48	49	48	48	48	48	47	48
	49	47	46	45	46	47	47	47	47	48	47	47	47	47	46	45	45	46	46	45	44	45	46	46	47	47	47	47	47	47	47	45	46
November	47	46	46	46	46	47	46	47	48	48	48	48	48	48	47	46	46	47	46	45	44	45	46	47	47	46	45	45	45	46	--	46	48
	45	43	43	44	43	44	45	45	45	45	47	47	47	47	46	45	45	46	45	44	43	44	44	44	44	44	44	44	44	44	44	--	45
December	46	46	47	46	46	46	47	47	47	47	47	47	45	46	46	47	47	46	47	45	45	46	46	46	46	46	45	45	45	45	45	46	46
	46	45	45	45	45	45	46	46	45	45	45	45	44	44	44	46	46	46	45	44	45	44	45	45	44	44	44	45	45	44	43	45	46
January	45	46	46	45	45	45	45	45	45	45	46	46	46	45	46	45	46	46	46	45	44	44	43	44	44	45	44	44	44	44	43	44	45
	43	44	44	45	44	44	43	44	44	45	45	45	45	43	44	45	45	45	45	43	42	43	43	43	44	43	43	43	43	43	43	44	44
February	44	44	44	44	44	44	45	44	44	44	44	45	45	44	45	44	45	44	45	45	45	45	45	45	45	44	44	44	45	45	--	45	45
	43	43	43	43	43	43	44	44	44	44	43	44	44	44	44	43	44	44	44	44	44	44	44	44	44	44	44	44	44	43	--	--	44
March	45	44	45	44	45	44	44	45	44	45	44	44	45	45	45	45	45	46	45	45	45	45	47	47	46	46	47	46	44	45	45	45	45
	43	42	42	42	43	42	43	43	42	41	41	42	42	42	43	43	43	43	43	44	44	44	44	43	45	45	44	43	42	43	44	43	43	44
April	46	45	45	45	--	--	47	46	46	46	47	48	47	45	46	46	45	45	47	45	46	46	46	45	45	46	47	48	48	--	46	46	46
	43	43	43	42	--	--	45	44	42	44	44	44	45	44	44	43	44	43	44	44	44	43	43	43	43	43	43	43	43	44	--	43	43
May	48	48	48	47	47	47	48	48	46	47	47	48	48	48	48	49	49	49	49	49	49	49	49	47	50	47	51	48	48	48	48	48	48
	44	44	45	45	45	45	44	44	44	44	44	43	43	44	44	44	44	45	46	45	45	46	46	46	46	46	46	46	46	45	45	45	45
June	49	49	49	49	50	48	48	49	48	47	47	47	47	49	49	50	50	51	51	50	51	52	51	48	48	49	49	48	47	48	--	49	49
	45	47	46	46	46	46	45	45	46	45	45	45	45	46	46	46	47	47	46	46	47	48	46	46	46	46	46	45	45	46	--	46	46
July	49	50	50	50	50	51	50	49	50	50	50	49	50	50	51	51	51	50	49	50	51	50	50	50	50	51	51	52	51	50	50	50	50
	45	45	45	46	46	46	46	46	46	46	46	46	46	46	46	45	46	47	47	46	46	47	46	45	45	46	46	46	47	47	46	46	46
August	50	51	50	50	51	48	49	50	50	50	50	50	50	50	50	49	49	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
	45	45	46	46	45	46	47	45	45	45	47	45	45	45	45	45	46	46	46	45	45	46	46	46	46	46	46	46	46	46	46	46	46
September	--	52	50	52	53	53	54	53	52	51	52	51	52	52	52	52	52	52	50	51	50	51	50	49	48	50	50	50	50	51	51	51	51
	--	50	48	48	48	48	49	49	51	49	48	48	48	48	50	49	49	49	49	48	49	48	49	48	46	47	48	47	47	48	48	48	48

SKOMISH RIVER BASIN--Continued

12-625, PURDY CREEK NEAR UNION, WASH.

LOCATION.--Temperature recorder at gaging station immediately downstream from county road bridge, 1 mile upstream from Weaver Creek and 5.5 miles downstream of Union, Mason County.

DRAINAGE AREA, 143.

RECORDS AVAILABLE.--Water temperatures: May 1955 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 54°F on several days during July to August; minimum, 39°F Dec. 21, to Jan. 2.

EXTREMES, 1955-58.--Water temperatures: Maximum, 55°F July 20, 1956; minimum, 38°F Dec. 18, 1955, Mar. 7, 1956.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1566.

Month	Temperature (°F) of water, water year October 1957 to September 1958																											Aver- age				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	51	51	50	50	49	50	50	50	50	50	51	51	51	51	50	49	49	49	49	49	48	48	49	49	50	50	50	--	50	50	50	
Minimum.....	51	50	49	49	49	49	50	50	50	50	50	51	51	51	50	49	49	49	49	48	48	48	48	49	49	50	50	--	50	50	50	
November	49	47	46	46	46	46	46	46	46	46	46	47	47	47	46	46	44	44	44	44	43	43	43	43	43	43	42	42	42	42	--	
Maximum.....	47	46	45	45	45	45	46	46	46	46	46	46	47	46	46	44	44	44	44	44	43	43	43	43	43	42	42	42	42	42	--	
Minimum.....	47	46	45	45	45	45	46	46	46	46	46	47	47	46	46	44	44	44	44	44	43	43	43	43	43	42	42	42	42	42	--	
December	42	42	42	42	42	42	43	43	43	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	43	43	42	42	42	42	42	
Maximum.....	42	42	42	42	42	42	43	43	43	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	43	42	42	42	42	42	
Minimum.....	42	42	42	42	42	42	43	43	43	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	
January	40	41	42	42	41	41	41	41	41	42	43	43	42	42	44	44	44	44	44	43	43	42	43	44	44	44	44	44	44	40	40	
Maximum.....	39	39	41	41	41	41	41	41	41	42	43	42	42	42	44	44	44	44	44	43	42	42	43	44	44	44	44	44	44	43	43	
Minimum.....	43	43	43	44	44	44	45	45	45	44	45	45	44	45	46	46	47	47	47	47	47	47	48	48	48	47	47	45	--	--	--	
February	43	43	43	44	44	44	45	45	45	44	45	45	44	45	46	46	47	47	47	47	47	47	48	48	48	47	47	45	--	--	--	
Maximum.....	43	43	43	44	44	44	45	45	45	44	45	45	44	45	46	46	47	47	47	47	47	47	48	48	48	47	47	45	--	--	--	
Minimum.....	44	44	44	45	45	45	46	46	46	45	46	46	45	46	47	47	48	48	48	48	48	48	48	48	48	47	47	45	--	--	--	
March	44	44	44	44	44	44	44	44	44	45	45	45	45	45	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	
Maximum.....	44	44	44	44	44	44	44	44	44	45	45	45	45	45	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	
Minimum.....	44	44	44	44	44	44	44	44	44	45	45	45	45	45	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	
April	46	46	47	47	47	47	47	48	49	49	50	50	50	49	48	49	49	48	48	48	48	49	49	49	49	49	48	50	51	51	--	49
Maximum.....	46	46	47	47	47	47	47	48	49	49	50	50	50	49	48	49	49	48	48	48	48	49	49	49	49	49	48	50	51	51	--	49
Minimum.....	46	46	47	47	47	47	47	48	49	49	50	50	50	49	48	49	49	48	48	48	48	49	49	49	49	49	48	50	51	51	--	49
May	51	50	51	51	50	51	51	51	51	51	51	50	51	52	52	52	52	53	52	52	53	53	53	53	53	53	53	53	51	51	51	
Maximum.....	51	50	51	51	50	51	51	51	51	51	51	50	51	52	52	52	52	53	52	52	53	53	53	53	53	53	53	53	51	51	51	
Minimum.....	50	50	50	50	50	50	50	50	50	51	50	48	49	50	51	50	51	50	51	52	51	52	52	51	52	52	52	51	51	51	51	51
June	51	51	51	51	53	52	51	52	51	51	51	50	50	50	51	52	53	53	53	53	53	54	54	53	52	52	52	52	51	51	--	52
Maximum.....	51	51	51	51	53	52	51	52	51	51	51	50	50	50	51	52	53	53	53	53	53	54	54	53	52	52	52	52	51	51	--	52
Minimum.....	51	51	51	51	51	51	51	51	51	51	51	50	50	50	51	52	53	53	53	53	53	52	52	52	52	52	52	52	51	51	--	52
July	51	52	52	53	53	53	53	52	53	53	53	53	52	52	53	54	54	54	53	53	53	53	53	53	53	53	53	54	54	53	53	
Maximum.....	51	52	52	53	53	53	53	52	53	53	53	53	52	52	53	54	54	54	53	53	53	53	53	53	53	53	53	54	54	53	53	
Minimum.....	50	51	51	52	52	52	52	52	52	52	52	52	51	52	52	53	53	53	52	52	52	52	52	52	52	52	52	53	53	52	52	52
August	52	52	52	52	52	52	52	52	52	52	52	52	52	52	53	52	52	52	52	52	52	53	53	53	52	52	52	52	52	52	52	
Maximum.....	52	52	52	52	52	52	52	52	52	52	52	52	52	52	53	52	52	52	52	52	52	53	53	53	52	52	52	52	52	52	52	
Minimum.....	51	52	52	52	51	52	52	51	51	51	52	52	52	52	53	52	52	52	52	52	52	53	53	52	52	52	52	52	51	51	51	52
September	52	51	50	51	51	52	52	52	52	52	51	51	51	52	52	52	51	51	51	51	51	51	50	49	49	50	50	50	50	50	--	51
Maximum.....	52	51	50	51	51	52	52	52	52	52	51	51	51	52	52	52	51	51	51	51	51	51	50	49	49	50	50	50	50	50	--	51
Minimum.....	51	50	49	50	50	51	52	52	51	51	51	51	51	51	52	51	51	51	51	51	51	50	49	48	49	50	50	50	50	50	--	50

NISQUALLY RIVER BASIN

12-825. NISQUALLY RIVER NEAR NATIONAL, WASH.

LOCATION.--Temperature recorder at gaging station, 100 feet downstream from railroad bridge, 1 mile west of National, Pierce County, 2.5 miles west of Ashford, and 3 miles upstream from Mineral Creek.

DRAINAGE AREA.--133 square miles.

RECORDS AVAILABLE.--Water temperatures: October 1951 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 61°F July 5, 7, Sept. 6; minimum, 36°F Nov. 21, Dec. 31.

EXTREMES, 1951-58.--Water temperatures: Maximum, 63°F July 19, 1957; minimum, freezing point on many days during winter months.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1566.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																															Aver- age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	48	48	47	45	46	46	45	45	50	52	51	49	49	47	47	45	48	47	46	47	45	45	45	47	47	47	46	46	49	49	46	47
Maximum.....	47	44	42	39	42	41	43	43	45	46	46	46	46	47	43	40	41	44	41	40	40	40	44	44	45	46	45	42	46	47	43	43
November	43	42	41	41	42	42	43	42	44	44	44	43	43	43	42	41	40	42	40	42	40	39	42	41	42	42	40	39	39	40	--	42
Maximum.....	40	39	38	37	38	38	40	39	39	43	43	43	43	41	41	39	39	40	40	38	36	39	41	38	41	40	39	38	37	38	--	40
December	40	41	41	40	40	40	41	41	40	41	42	42	40	40	40	40	41	41	39	39	38	38	38	38	39	39	39	39	38	37	40	40
Minimum.....	39	40	39	40	40	40	40	40	39	39	40	40	39	40	39	40	41	39	39	39	38	37	38	38	38	37	38	38	37	36	39	39
January	38	40	39	39	39	39	39	39	39	39	40	40	40	40	40	40	40	40	39	39	39	39	40	40	41	40	40	40	40	40	40	40
Maximum.....	37	38	39	38	38	38	38	39	38	39	40	40	39	40	40	40	40	39	38	39	39	39	39	39	40	39	39	39	39	39	39	39
Minimum.....	41	41	41	41	41	41	41	41	41	41	42	42	40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
February	41	41	41	41	41	41	41	41	41	41	40	39	40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Maximum.....	39	40	40	40	41	40	41	41	41	40	39	40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
March	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Maximum.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
April	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Maximum.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
May	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Maximum.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
June	55	50	49	58	57	49	53	54	49	51	48	47	48	54	58	60	59	58	58	58	60	56	55	52	51	51	51	51	50	50	--	53
Maximum.....	45	44	46	46	47	46	45	44	47	46	46	45	46	45	45	45	46	46	47	46	46	46	46	51	51	51	50	51	50	50	--	47
Minimum.....	52	55	59	58	61	60	61	59	60	60	59	56	56	57	57	56	57	56	54	55	55	55	55	55	55	55	54	54	54	54	54	56
July	50	51	51	50	50	49	50	50	50	50	50	50	50	49	49	51	53	53	54	54	55	55	55	54	54	54	54	54	54	54	54	52
Maximum.....	54	55	55	55	56	56	54	55	55	55	55	56	56	55	55	55	57	60	56	56	56	55	55	55	55	55	55	56	55	56	57	56
Minimum.....	54	54	55	53	53	53	54	54	55	55	55	55	55	55	55	55	55	54	53	51	53	55	55	55	55	55	55	55	54	54	53	54
August	56	56	54	60	60	61	60	54	53	55	54	54	54	54	54	54	53	53	53	53	53	52	49	48	47	48	49	49	49	49	49	55
Maximum.....	55	50	47	48	48	48	49	53	53	53	48	48	49	49	50	49	48	49	48	50	47	49	47	46	47	47	48	49	49	46	--	--
Minimum.....	55	50	47	48	48	48	49	53	53	53	48	48	49	49	50	49	48	49	48	50	47	49	47	46	47	47	48	49	49	46	--	--

DUNAMISH RIVER BASIN

12-1130. GREEN RIVER NEAR AUBURN, WASH.

LOCATION.--Temperature recorder at gaging station, 1.5 miles east of Auburn, King County, and 2 miles downstream from Big Soos Creek. DRAINAGE AREA.--382 square miles (excludes 4 square miles in the vicinity of Youngs Lake, flow from which has been diverted to Cedar River basin since about 1935).

RECORDS AVAILABLE.--Water temperatures: March 1952 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 75°F July 28; minimum, 38°F Dec. 29 to Jan. 2.

EXTREMES, 1952-58.--Water temperatures: Maximum, 75°F July 26, 1958; minimum, 33°F Feb. 16, 17, 1956.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1956.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																														Average		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum.....	62	60	56	55	54	54	54	53	57	56	55	54	54	54	53	50	50	49	48	48	47	47	47	48	49	50	50	48	49	51	51	52	
Minimum.....	60	56	54	53	52	52	51	53	54	53	52	53	53	53	49	49	50	49	47	46	45	47	47	47	48	49	48	48	48	49	49	50	
November																																	
Maximum.....	49	49	49	44	43	42	42	44	44	45	47	47	47	47	47	47	43	43	43	43	42	43	43	43	44	44	44	42	41	40	--	44	
Minimum.....	49	49	43	42	42	42	42	42	44	44	45	47	47	47	47	47	43	42	42	43	42	39	39	43	43	44	42	41	40	40	--	43	
December																																	
Maximum.....	40	40	40	40	40	40	40	43	42	41	40	40	40	40	40	40	40	40	40	40	40	39	40	40	39	39	39	39	38	38	40	40	
Minimum.....	40	40	40	40	40	40	40	40	42	41	40	40	40	40	40	40	40	40	40	40	40	39	39	40	39	39	39	39	38	38	40	40	
January																																	
Maximum.....	38	41	42	42	41	41	41	40	40	40	42	43	43	43	43	43	43	43	41	41	42	42	43	43	42	42	42	43	43	43	42	42	
Minimum.....	38	38	41	41	41	41	40	40	40	40	42	43	43	43	43	43	43	43	41	41	42	42	43	43	42	42	42	43	43	43	42	42	
February																																	
Maximum.....	43	43	44	44	45	45	45	45	45	45	44	43	43	43	43	44	45	45	45	45	45	46	46	46	46	46	45	44	44	--	--	44	
Minimum.....	43	43	43	44	44	44	44	45	45	44	43	43	43	43	43	43	44	45	45	45	45	45	45	46	46	45	44	43	43	--	--	44	
March																																	
Maximum.....	43	43	44	43	43	44	43	43	45	45	44	46	46	45	46	47	47	48	48	50	49	49	49	49	49	50	48	47	47	47	46	46	
Minimum.....	42	43	41	42	43	42	42	42	42	42	42	42	42	42	44	45	46	46	46	48	47	47	47	46	47	46	45	45	46	45	45	44	
April																																	
Maximum.....	49	49	49	50	52	52	53	50	50	50	52	54	51	49	47	48	46	45	44	44	44	44	44	45	47	46	47	50	51	53	53	--	49
Minimum.....	45	47	45	45	46	47	47	48	45	49	46	48	49	47	47	46	45	44	44	44	44	44	44	44	45	44	44	44	46	47	48	--	46
May																																	
Maximum.....	53	52	52	53	51	51	53	56	55	54	50	53	57	59	60	60	58	59	61	62	58	57	62	65	61	59	58	59	58	59	58	57	58
Minimum.....	49	49	50	49	49	48	49	51	51	50	49	47	46	49	51	52	52	54	55	53	54	55	54	53	55	57	58	56	54	54	55	52	
June																																	
Maximum.....	61	62	61	67	66	63	64	62	57	55	56	56	56	63	65	69	71	71	66	69	73	72	68	64	62	62	60	60	61	--	--	64	
Minimum.....	54	54	55	56	57	59	56	55	57	55	54	54	54	56	58	61	62	62	61	61	63	65	60	59	59	58	57	57	56	57	56	--	58
July																																	
Maximum.....	66	68	69	71	73	72	71	69	68	68	70	67	65	68	69	71	70	67	65	64	69	68	70	72	73	75	71	67	68	69	68	69	
Minimum.....	56	58	61	62	64	65	64	62	62	62	62	62	60	59	61	63	63	62	61	60	60	63	62	63	63	64	65	66	67	64	64	62	
August																																	
Maximum.....	69	69	68	68	69	70	69	67	69	68	68	68	68	69	70	67	67	66	67	69	70	69	70	69	71	68	66	62	63	63	67	68	
Minimum.....	61	61	61	60	62	64	60	61	61	63	60	61	62	62	62	62	62	61	60	60	62	63	63	63	63	64	63	61	60	59	61	60	
September																																	
Maximum.....	66	63	61	61	63	64	66	67	65	64	62	61	61	60	62	61	61	60	59	57	57	56	56	56	57	58	58	59	58	57	--	60	
Minimum.....	61	60	56	55	56	57	58	61	61	60	58	57	57	58	57	57	56	57	55	56	53	53	53	52	52	54	55	55	56	54	--	56	

STILLAGUAMISH RIVER BASIN

12-1685. PILCHUCK CREEK NEAR BRYANT, WASH.

LOCATION.--Temperature recorder at gaging station, 500 feet upstream from highway bridge and 2 miles north of Bryant, Snohomish County.
 DRAINAGE AREA.--49.7 square miles.

RECORDS AVAILABLE.--March 1952 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 82°F July 28; minimum, 38°F Jan. 27.

EXTREMES, 1952-58.--Water temperatures: Maximum, 82°F July 28, 1958; minimum, 33°F Mar. 7, 1955.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1586.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October	59	59	57	53	51	49	49	50	53	53	53	52	52	52	51	49	49	49	47	45	44	44	45	47	49	51	49	49	49	49	49	50	
Maximum.....	56	57	53	50	49	48	48	48	50	51	51	51	51	52	51	48	48	46	44	43	43	44	44	45	47	49	51	49	48	48	48	49	
Minimum.....	45	43	42	41	41	41	41	41	41	43	45	45	45	45	45	45	45	44	44	42	42	41	41	44	46	46	46	46	44	43	44	44	44
November	46	45	44	44	44	44	44	45	46	46	45	45	45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
Maximum.....	44	44	44	44	44	44	44	45	46	46	45	45	45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
Minimum.....	44	44	44	44	44	44	44	45	46	45	45	45	45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
December	41	41	41	41	41	41	40	40	40	41	40	40	40	40	40	42	42	42	42	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Maximum.....	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Minimum.....	39	39	39	39	39	39	39	39	40	40	40	41	41	41	41	41	41	41	41	43	43	43	44	44	44	44	44	44	44	44	44	44	44
January	40	40	40	40	40	40	40	40	41	41	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Maximum.....	39	39	39	39	39	39	39	39	40	40	40	41	41	41	41	41	41	41	41	43	43	43	44	44	44	44	44	44	44	44	44	44	44
Minimum.....	39	39	39	39	39	39	39	39	40	40	40	41	41	41	41	41	41	41	41	43	43	43	44	44	44	44	44	44	44	44	44	44	44
February	40	40	40	40	40	40	40	40	41	41	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Maximum.....	40	40	40	40	40	40	40	40	41	41	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Minimum.....	44	44	44	44	44	44	44	45	46	45	45	45	45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
March	41	41	41	41	41	41	40	40	40	41	40	40	40	40	40	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
Maximum.....	43	44	44	44	45	46	46	46	45	43	45	47	46	44	43	42	42	42	43	43	45	45	45	46	45	46	47	47	47	47	47	47	47
Minimum.....	43	44	44	44	44	44	44	45	43	43	43	45	46	44	43	42	42	43	43	45	44	44	44	44	44	44	44	44	44	44	44	44	44
April	51	51	52	51	51	54	56	57	56	54	51	54	58	61	62	62	64	63	64	67	68	66	68	68	70	72	70	66	65	64	62	60	60
Maximum.....	49	50	51	48	51	51	53	53	54	51	50	48	52	55	56	55	57	61	59	59	61	62	62	62	64	65	66	63	62	62	56	56	56
Minimum.....	58	62	64	66	68	68	63	63	59	58	59	63	66	70	73	74	72	68	74	78	76	71	67	67	67	69	63	62	63	61	61	61	61
May	56	56	59	61	62	63	61	59	59	58	58	57	58	58	62	65	66	67	65	68	70	71	70	70	70	71	71	71	71	71	71	71	71
Maximum.....	67	69	73	76	78	79	77	72	71	73	74	71	69	72	74	76	75	71	69	68	73	73	75	76	76	77	80	82	77	73	74	74	74
Minimum.....	60	63	64	66	68	68	68	66	66	66	65	63	66	66	66	66	66	66	66	64	64	66	66	66	67	67	69	71	71	68	67	66	66
June	75	73	71	74	72	71	72	71	72	73	74	74	75	74	75	74	72	71	72	74	75	74	74	75	76	72	68	64	65	64	68	72	72
Maximum.....	64	63	63	59	61	63	67	62	63	62	64	63	64	63	64	63	61	62	61	62	64	64	64	65	66	66	64	62	61	62	64	64	64
Minimum.....	65	62	59	62	64	66	68	65	66	69	64	63	61	61	61	61	57	57	56	56	54	52	50	49	49	51	53	53	54	54	54	54	54
July	62	59	56	56	57	58	59	61	63	61	60	58	61	58	59	57	56	56	55	54	52	50	49	48	48	49	50	51	52	51	51	51	51
Maximum.....	62	59	56	56	57	58	59	61	63	61	60	58	61	58	59	57	56	56	55	54	52	50	49	48	48	49	50	51	52	51	51	51	51
Minimum.....	62	59	56	56	57	58	59	61	63	61	60	58	61	58	59	57	56	56	55	54	52	50	49	48	48	49	50	51	52	51	51	51	51
August	67	69	73	76	78	79	77	72	71	73	74	71	69	72	74	76	75	71	69	68	73	73	75	76	76	77	80	82	77	73	74	74	74
Maximum.....	60	63	64	66	68	68	68	66	66	66	65	63	66	66	66	66	66	66	66	64	64	66	66	66	67	67	69	71	71	68	67	66	66
Minimum.....	75	73	71	74	72	71	72	71	72	73	74	74	75	74	75	74	72	71	72	74	75	74	74	75	76	72	68	64	65	64	68	72	72
September	64	63	63	59	61	63	67	62	63	62	64	63	64	63	64	63	61	62	61	62	64	64	64	65	66	66	64	62	61	62	64	64	64
Maximum.....	65	62	59	62	64	66	68	65	66	69	64	63	61	61	61	61	57	57	56	56	54	52	50	49	49	51	53	53	54	54	54	54	54
Minimum.....	62	59	56	56	57	58	59	61	63	61	60	58	61	58	59	57	56	56	55	54	52	50	49	48	48	49	50	51	52	51	51	51	51

SKAGIT RIVER BASIN--Continued

12-1825. CASCADE RIVER AT MARBLEMOUNT, WASH.

LOCATION.--Temperature recorder at gaging station, 1.5 miles downstream from Boulder Creek, 2 miles east of Marblemount, Skagit County, and 2.5 miles upstream from mouth.

DRAINAGE AREA--171 square miles.

RECORDS AVAILABLE.--Water temperatures: May 1932 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 58°F July 27-29; minimum, 37°F Mar. 15.

EXTREMES, 1952-58.--Water temperatures: Maximum, 58°F July 27-29, 1958; minimum, freezing point Feb. 1, 2, 18, 1956.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1566.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																																	Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
October																																			
Maximum.....	51	51	49	48	47	47	47	48	49	49	49	49	49	49	47	46	45	45	44	43	43	43	42	44	44	45	45	44	45	46	45	46			
Minimum.....	51	49	48	47	46	47	47	47	48	48	49	49	48	48	48	46	45	45	43	43	42	42	41	42	44	44	44	44	44	44	45	44	46		
November																																			
Maximum.....	44	42	41	40	41	41	41	40	41	43	43	43	43	43	43	43	42	41	42	42	39	41	41	41	42	42	42	40	40	40	--	42			
Minimum.....	42	41	40	40	40	41	40	40	41	40	41	43	43	43	43	43	42	41	41	39	38	39	41	41	41	42	40	40	39	39	--	41			
December																																			
Maximum.....	40	41	41	41	41	41	40	40	40	40	40	41	41	40	40	40	40	40	39	39	39	39	39	39	39	39	39	39	39	38	38	40			
Minimum.....	40	40	41	41	41	39	39	40	40	40	40	40	40	40	39	39	40	40	39	39	39	39	39	39	39	39	39	39	39	38	39	39			
January																																			
Maximum.....	38	39	39	39	39	39	39	39	39	39	40	40	40	40	40	40	40	40	39	40	40	39	39	39	40	40	40	40	40	40	40	40	40		
Minimum.....	38	38	39	39	39	39	39	39	39	39	39	40	40	40	40	40	40	39	39	39	39	39	39	39	39	39	39	39	40	40	39	39			
February																																			
Maximum.....	40	40	40	40	40	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	42	42	42	41	40	40	40	--	--	41	41			
Minimum.....	39	39	40	40	40	40	40	41	41	41	40	40	41	40	40	41	41	41	41	41	41	41	41	42	41	40	40	40	--	--	40	40			
March																																			
Maximum.....	39	40	40	40	40	40	39	40	40	39	39	39	39	39	39	39	39	39	40	41	41	42	43	43	42	42	42	42	42	42	42	41	40		
Minimum.....	38	39	39	39	39	39	39	39	39	39	38	38	38	38	37	39	39	39	40	40	41	41	41	43	43	41	41	39	40	41	41	40	39		
April																																			
Maximum.....	43	43	43	43	44	44	44	44	45	45	46	46	46	44	43	44	44	44	44	44	44	46	45	46	45	48	48	47	48	48	--	45			
Minimum.....	40	41	42	43	40	41	41	43	42	43	43	44	43	44	42	41	43	42	43	43	43	43	43	43	43	43	44	43	43	43	43	43	42	41	
May																																			
Maximum.....	48	47	46	47	46	49	48	48	47	46	45	44	48	49	49	49	49	49	49	49	49	50	50	51	51	51	50	48	47	47	48	48	45		
Minimum.....	43	44	44	43	44	44	44	43	45	44	43	42	44	45	44	44	44	45	44	45	45	45	45	46	46	46	46	46	46	46	46	46	44		
June																																			
Maximum.....	50	52	53	53	50	49	52	51	49	49	48	48	51	53	54	54	55	54	55	56	56	56	56	56	56	55	55	51	50	50	--	52			
Minimum.....	47	47	49	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48		
July																																			
Maximum.....	52	52	54	55	55	54	55	55	56	56	56	56	55	54	55	56	56	57	57	57	57	57	57	57	56	57	58	58	57	57	56	56	56		
Minimum.....	49	51	51	52	53	53	53	53	53	53	54	54	53	52	52	53	54	54	55	54	55	54	55	54	54	54	54	55	56	55	54	54	53		
August																																			
Maximum.....	57	56	56	54	55	55	55	56	56	56	56	57	56	56	56	56	56	56	56	56	57	57	57	57	56	56	56	53	53	52	53	56			
Minimum.....	54	53	53	51	52	53	54	54	54	54	54	55	54	54	54	54	55	54	54	54	55	55	55	55	55	55	53	53	52	52	52	54	54		
September																																			
Maximum.....	53	52	50	52	53	53	54	54	53	53	53	53	52	51	52	52	52	50	49	48	48	48	47	47	47	48	48	49	50	50	51	51	51		
Minimum.....	52	50	49	50	51	52	53	53	53	53	53	52	51	50	51	52	50	49	48	48	48	47	47	46	46	47	47	47	48	49	48	--	50		

PEND OREILLE RIVER BASIN

12-3400. BLACKFOOT RIVER NEAR BONNER, MONT.

LOCATION.--Temperature recorder at gaging station, 5 miles northeast of Bonner, Missoula County, 5 miles downstream from Union Creek, and 7 miles upstream from mouth.

DRAINAGE AREA.--2,290 square miles.

RECORDS AVAILABLE.--Water temperatures: October 1955 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 69°F July 28, Aug. 12; minimum, freezing point on many days during December to February.

EXTREMES, 1955-58.--Water temperatures: Maximum, 70°F July 23-25, 30, 1956; minimum, freezing point on many days during winter months.

REMARKS.--Flow affected by ice Jan. 2 to Feb. 13. Records of discharge for water year October 1957 to September 1958 given in WSP 1566.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																														Average		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October	58	55	53	48	45	46	45	46	48	49	49	50	51	51	50	48	46	45	44	46	45	44	38	38	41	42	42	42	42	42	42	46	
Maximum.....	58	55	53	48	45	46	45	46	48	49	49	50	51	51	50	48	46	45	44	46	45	44	38	38	41	42	42	42	42	42	42	46	
Minimum.....	52	53	48	45	44	43	43	43	44	45	45	46	47	48	47	44	44	43	43	43	44	38	37	37	38	40	41	41	40	40	41	43	
November	41	40	38	37	36	37	36	37	36	36	35	36	37	37	37	37	37	37	37	37	37	36	36	35	35	36	36	36	36	36	36	38	
Maximum.....	41	40	38	37	36	37	36	37	36	36	35	36	37	37	37	37	37	37	37	37	37	36	36	35	35	36	36	36	36	36	36	38	
Minimum.....	39	38	36	35	35	35	35	36	35	35	35	36	37	37	37	37	37	37	37	37	37	36	35	35	35	36	36	36	36	36	36	36	
December	36	35	35	36	36	35	34	34	34	35	35	34	34	33	33	33	33	32	32	32	32	32	34	34	33	32	32	32	32	32	32	34	
Maximum.....	36	35	35	36	36	35	34	34	34	35	35	34	34	33	33	33	33	32	32	32	32	32	34	34	33	32	32	32	32	32	32	34	
Minimum.....	35	35	35	35	35	34	34	34	32	32	32	33	33	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	33	
January	36	36	35	35	35	35	35	35	34	33	33	33	33	33	33	32	32	32	32	34	33	33	33	33	32	32	32	32	32	32	32	33	
Maximum.....	36	36	35	35	35	35	35	35	34	33	33	33	33	33	33	32	32	32	32	34	33	33	33	33	32	32	32	32	32	32	32	33	
Minimum.....	35	35	34	34	34	34	34	33	33	33	33	33	33	33	32	32	32	32	32	33	33	33	33	32	32	32	32	32	32	32	32	33	
February	33	34	34	34	33	33	33	34	34	34	34	34	34	34	34	34	34	33	34	35	34	34	34	34	34	34	33	33	33	33	33	34	
Maximum.....	33	34	34	34	33	33	33	34	34	34	34	34	34	34	34	34	34	33	34	35	34	34	34	34	34	34	33	33	33	33	33	34	
Minimum.....	32	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	33	
March	34	34	34	34	35	36	35	35	35	35	35	35	36	36	36	36	36	35	38	38	41	43	44	44	42	41	40	40	41	40	39	37	
Maximum.....	34	34	34	34	35	36	35	35	35	35	35	35	36	36	36	36	36	35	38	38	41	43	44	44	42	41	40	40	41	40	39	37	
Minimum.....	33	33	33	33	34	34	33	34	34	34	34	34	34	34	34	34	34	34	34	35	36	37	37	37	39	38	36	37	38	37	35	35	
April	41	42	41	40	41	43	44	45	43	41	44	47	48	47	45	44	43	42	43	43	42	42	42	42	43	42	44	44	47	49	49	44	
Maximum.....	41	42	41	40	41	43	44	45	43	41	44	47	48	47	45	44	43	42	43	43	42	42	42	42	43	42	44	44	47	49	49	44	
Minimum.....	37	39	39	39	39	39	44	42	41	40	40	41	42	44	43	42	42	41	42	41	41	41	41	40	40	41	41	42	42	45	45	41	
May	51	52	51	51	51	49	47	48	49	49	48	45	49	51	51	52	53	53	55	55	55	55	55	55	55	55	54	55	56	56	54	52	
Maximum.....	51	52	51	51	51	49	47	48	49	49	48	45	49	51	51	52	53	53	55	55	55	55	55	55	55	55	54	55	56	56	54	52	
Minimum.....	46	47	48	48	47	47	46	46	47	48	47	44	43	45	49	50	51	52	52	52	52	54	52	53	54	53	54	54	55	54	53	50	
June	54	55	55	53	56	56	57	57	56	54	53	55	55	56	58	60	60	60	59	59	59	61	62	59	61	62	59	61	63	60	58	57	58
Maximum.....	54	55	55	53	56	56	57	57	56	54	53	55	55	56	58	60	60	60	59	59	59	61	62	59	61	62	59	61	63	60	58	57	58
Minimum.....	53	53	53	52	55	55	56	55	54	53	53	54	55	57	58	59	57	58	59	57	57	57	57	57	57	59	60	58	56	55	55	56	
July	58	58	56	59	62	63	62	62	61	64	66	66	64	61	62	65	67	68	66	67	67	67	68	67	66	65	67	69	67	66	68	64	
Maximum.....	58	58	56	59	62	63	62	62	61	64	66	66	64	61	62	65	67	68	66	67	67	67	68	67	66	65	67	69	67	66	68	64	
Minimum.....	54	56	55	57	60	59	58	58	58	59	60	62	61	58	57	58	61	63	62	63	61	62	63	62	62	62	62	63	64	62	60	60	
August	68	67	66	65	64	66	66	66	67	68	68	69	68	67	67	67	67	67	67	67	67	67	67	67	67	67	66	65	65	61	58	61	66
Maximum.....	68	67	66	65	64	66	66	66	67	68	68	69	68	67	67	67	67	67	67	67	67	67	67	67	67	67	66	65	65	61	58	61	66
Minimum.....	62	62	63	61	58	59	61	61	62	62	62	60	60	59	61	62	60	59	61	60	60	61	61	61	61	61	61	59	57	53	53	60	60
September	60	59	57	59	60	61	61	61	64	65	65	64	59	57	58	59	57	54	54	53	52	50	48	51	53	52	50	48	51	53	55	53	57
Maximum.....	60	59	57	59	60	61	61	61	64	65	65	64	59	57	58	59	57	54	54	53	52	50	48	51	53	52	50	48	51	53	55	53	57
Minimum.....	55	54	51	53	53	53	53	53	57	57	59	59	56	54	52	52	54	50	50	50	50	51	49	48	47	47	47	49	50	48	48	52	52

COLUMBIA RIVER MAIN STEM

12-3995, COLUMBIA RIVER AT NORTHPORT, WASH.

(Formerly published as Columbia River at international boundary)

LOCATION (revised).--At bridge on State Highway 22 at Northport, Stevens County and 12 miles downstream from gaging station at international boundary.

DRAINAGE AREA.--59,700 square miles, approximately, upstream from gaging station.

RECORDS AVAILABLE.--Chemical analyses: February 1910 to January 1911, November 1951 to September 1958.

Water temperatures: November 1951 to September 1958.

EXTREMES, 1951-57.--Dissolved solids: Maximum, 110 ppm Apr. 11-20, 1953; minimum, 72 ppm Aug. 12-31, 1957.

Hardness: Maximum, 92 ppm Mar. 1-10, 1953; minimum, 61 ppm Aug. 1-13, 1955.

Specific conductance: Maximum daily, 192 micromhos Dec. 3, 1955; minimum daily, 126 micromhos June 21, 1957.

Water temperatures: Maximum, 69°F Aug. 31, 1955; minimum, freezing point Jan. 2, 11, 1952, Jan. 29, 1957.

REMARKS.--Chemical quality samples were collected at station at international boundary, 2.2 miles downstream from gaging station, for the period February 1910 to January 1911, November 1951 to June 1958. Extremes for period 1951-57 are for station at international boundary. Records of specific conductance of daily samples available in district office at Portland, Oreg. Discharge records for gaging station at international boundary for water year October 1957 to September 1958 given in WSP 1586. No appreciable inflow between sampling point and gaging station except during periods of heavy local runoff.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃	Non-carbonate	Sodium-sorption ratio	Specific conductance (micro-mhos at 25°C)
															Parts per million	Tons per acre-foot	Tons per day	Calcium-Magnesium			
Oct. 1-31, 1957...	54,630	5.6	0.00	23	4.5	2.1	0.9	76	0	14	0.8	0.2	1.5	0.02	89	0.12	13,130	76	14	0.1	159
Nov. 1-30.....	49,550	--	--	--	--	2.4	--	86	0	--	--	--	--	--	104	.14	13,910	83	12	--	169
Dec. 1-31.....	40,140	--	--	--	--	2.1	--	86	0	--	--	--	--	--	101	.14	10,950	84	13	--	174
Jan. 1-31, 1958...	30,960	7.2	26	26	4.6	1.8	.8	80	0	19	.5	.1	.6	.04	102	.14	8,526	84	18	.1	174
Feb. 1-28.....	33,270	--	--	--	--	2.1	--	82	0	--	--	--	--	--	100	.14	8,983	65	0	--	170
Mar. 1-31.....	47,690	--	--	--	--	1.9	--	76	0	--	--	--	--	--	82	.12	11,720	76	14	--	155
Apr. 1-30.....	57,790	7.2	20	20	3.9	1.9	1.2	72	0	11	.5	.1	1.2	.00	82	.11	12,790	86	7	.1	138
May 1-23.....	146,700	--	--	--	--	1.7	--	67	0	--	--	--	--	--	75	.10	23,000	83	8	--	136
May 24-July 12...	265,400	--	--	--	--	1.4	--	67	0	--	--	--	--	--	73	.10	23,000	83	8	--	132
July 13-Aug. 31...	103,800	--	--	--	--	1.4	--	68	0	--	--	--	--	--	78	.11	21,860	65	11	--	132
Sept. 1-30.....	81,590	--	--	--	--	1.5	--	66	0	--	--	--	--	--	79	.11	13,140	67	13	--	135
Weighted average a	90,980	--	--	--	--	1.6	--	70	0	--	--	--	--	--	81	0.11	19,900	68	10	--	140

a Includes estimated data for missing periods. Represents 100 percent of runoff for water year.

COLUMBIA RIVER BASIN--Continued
12-3995. COLUMBIA RIVER AT NORTHEAST, WASH.--Continued

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																															Aver- age			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
October....	55	55	55	56	54	56	55	55	55	55	54	53	54	53	50	55	50	55	54	54	54	53	53	52	54	54	54	54	54	53	55	54			
November....	52	54	54	53	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54			
December....	50	50	49	49	47	49	49	48	47	45	49	48	--	54	50	47	47	40	50	55	52	53	45	45	--	--	50	55	48	47	49	48	49		
January....	--	48	50	52	49	48	47	48	48	47	49	--	--	--	46	47	45	44	47	45	42	--	46	49	46	47	--	50	46	--	42	--	--		
February....	42	43	41	40	43	42	40	43	42	42	41	40	42	41	39	39	42	40	40	40	--	40	40	39	--	39	40	42	--	40	42	--	41	--	
March....	43	45	--	45	--	45	47	47	47	47	47	--	48	48	--	47	52	54	52	52	--	52	52	50	54	52	51	50	--	51	52	49	49	--	
April....	--	53	52	53	--	--	53	51	52	53	54	54	55	54	54	53	56	54	54	54	54	55	53	55	53	54	53	54	53	57	--	54	--	54	
May....	56	56	57	56	57	56	57	56	57	56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	58	57	58	57	56	58	58	59	--	--
June....	57	59	58	60	--	58	60	60	60	59	60	61	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
July....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
August....	--	--	--	--	--	--	--	--	--	--	--	66	69	68	68	69	--	66	67	68	70	69	66	66	68	69	68	68	65	66	66	66	--	--	
September..	--	65	65	66	66	67	63	66	67	66	67	64	64	61	64	64	--	--	61	60	60	60	59	59	58	59	58	59	60	61	59	--	63	--	63

SPOKANE RIVER BASIN

12-4135. COEUR D'ALENE RIVER AT CATALDO, IDAHO

LOCATION.--At wooden bridge, just upstream from bridge on U.S. Highway 10, at Cataldo, Kootenai County, 1.5 miles downstream from gaging station, and 4.5 miles downstream from South Fork.

DRAINAGE AREA.--1,220 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1958.

Water temperatures: October 1952 to September 1958.

EXTREMES, 1957-58.--Dissolved solids: Maximum, 114 ppm Sept. 6-13; minimum, 34 ppm May 1-22.

Hardness: Maximum, 87 ppm Sept. 6-13; minimum, 18 ppm May 1-22; 114 ppm Sept. 6-13; minimum, 34 ppm May 1-22.

Specific conductance: Maximum daily, 176 micromhos Aug. 6, 11, 20, Sept. 11; minimum daily, 45 micromhos May 12.

Water temperatures: Maximum, 73°F Aug. 26; minimum, 34°F Jan. 1, 1958; minimum, 33 ppm May 1-21, 1957.

EXTREMES, 1952-58.--Dissolved solids: Maximum, 114 ppm Sept. 6-13, 1958; minimum, 34 ppm May 1-21, 1957.

Hardness: Maximum, 87 ppm Sept. 6-13, 1958; minimum, 18 ppm May 1-21, 1957.

Specific conductance: Maximum daily, 176 micromhos Aug. 6, 11, 20, Sept. 11; minimum daily, 45 micromhos May 12.

Water temperatures: Maximum, 73°F Aug. 26, 1958; minimum, 34°F Jan. 1, 1958; minimum, 33 ppm May 1-21, 1957.

REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Ore. Discharge records for water year October 1957 to September 1958 given in WSP 1566.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 1-15, 1937...	420			13	5.8	4.3		31	0	40	1.2		0.9	0.05	83	0.13	105	56	31	0.3	150	6.7
Oct. 16-31.....	450			13	5.8	3.8		31	0	39	1.2		.8		89	.12	108	56	31	.2	145	6.8
Nov. 1-10.....	404			13	5.8	4.7		30	0	42	1.2		1.1		95	.13	104	56	31	.3	153	6.9
Nov. 11-18.....	863			11	4.6	3.6		30	0	32	1.5		.8	.02	79	.11	184	46	21	.2	125	6.9
Nov. 19-30.....	557			12	5.9	4.4		28	0	40	1.0		1.1		90	.12	135	54	31	.3	145	6.8
Dec. 1-10.....	568			12	5.9	4.9		28	0	40	1.8		1.2		92	.13	141	54	31	.3	143	6.8
Dec. 11-20.....	764			12	4.7	2.6		29	0	34	1.0		1.0	.03	79	.11	163	50	36	.2	127	6.8
Dec. 21-31.....	1,650			9.9	3.8	2.2		26	0	26	1.5		1.0		67	.09	298	40	19	.2	106	6.9
Jan. 1-17, 1958...	803			12	4.4	3.2		26	0	34	.8		.9	.02	81	.11	176	48	0	.2	129	7.0
Jan. 18-31.....	1,832			9.6	3.9	2.5		26	0	26	.8		.6		68	.09	336	40	0	.2	106	6.9
Feb. 1-11.....	2,000			9.6	3.9	2.4		25	0	27	.5		.7		70	.10	378	40	20	.2	105	6.9
Feb. 12-28.....	5,510			7.5	2.7	1.8		22	0	16	1.0		.5	.00	55	.07	818	30	12	.1	83	6.9
Mar. 1-11.....	2,844			8.0	2.9	1.9		23	0	18	.8		.7		61	.07	392	32	13	.1	81	6.9
Mar. 12-22.....	1,495			9.0	3.3	2.6		25	0	23	.8		.6	.00	61	.08	246	36	16	.2	99	6.9
Mar. 23-31.....	4,239			6.0	1.9	1.6		22	0	10	1.0		.4		40	.05	458	23	5	.1	63	6.7

SPOKANE RIVER BASIN--Continued

12-4135. COEUR D'ALENE RIVER AT CATALDO, IDAHO--Continued

Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180° C)			Hardness as CaCO ₃		Sodium carbonate ratio	Specific conductance (micro-mhos at 25° C)	pH	
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate				
Apr. 1-14, 1958...	4,527			5.5	2.3	1.6		24	0	11	0.2			0.1	0.04	42	0.06	513	23	4	0.1	62	6.7
Apr. 15-30.....	9,212			5.2	1.7	1.5		20	0	9.0	.2			.1	--	39	.05	970	20	4	.2	54	6.9
May 1-14.....	8,806			4.8	1.5	1.3		20	0	7.2	.0			.2	.01	34	.05	808	18	2	.1	48	6.8
May 15-22.....	6,589			4.5	1.6	1.3		17	0	8.1	.5			.5	--	34	.05	605	18	4	.1	50	6.6
May 23-31.....	4,281			5.5	1.8	1.3		17	0	10	.5			.4	--	39	.05	451	21	7	.1	56	6.5
June 1-16.....	1,864			7.2	3.3	1.8		25	0	18	.2			.4	.06	53	.07	267	32	12	.1	78	6.7
June 17-July 13..	1,015			9.5	4.3	2.4		29	0	25	.5			.4	--	68	.09	186	42	18	.2	102	6.7
July 14-Aug. 4....	533			12	5.5	3.2		31	0	36	.8			.3	.02	84	.11	121	52	27	.2	130	6.7
Aug. 5-10.....	415			13	6.7	3.4		32	0	41	1.0			.5	.03	100	.14	112	60	34	.3	148	6.7
Aug. 11-20.....	352			14	6.6	3.0		32	0	40	.9			.4	.00	98	.13	92	61	35	.2	141	6.7
Aug. 21-30.....	352			14	6.3	3.0		32	0	40	.9			.4	.00	98	.13	92	61	35	.2	141	6.7
Sept. 1-5.....	352			14	6.6	3.0		32	0	40	.9			.4	.00	98	.13	92	61	35	.2	141	6.7
Sept. 6-13.....	310			14	7.8	4.2		32	0	48	.8			.8	--	114	.16	95	67	41	.2	167	6.7
Sept. 14-30.....	388			13	6.2	3.2		34	0	38	.2			.7	.00	93	.13	97	58	30	.2	143	6.7
Weighted average	2,242			7.0	2.7	1.9		23	0	16	0.5			0.4	--	50	0.07	303	28	9.2	0.2	75	--

Temperature (°F) of water, water year October 1957 to September 1958

Month		Day																												Average		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		29	30	31
October....	60	57	53	52	49	--	48	50	50	52	53	54	53	54	54	51	51	50	49	--	47	--	42	45	47	47	42	49	49	50	--	50
November....	47	45	41	41	42	41	42	41	38	43	42	38	44	43	43	44	43	42	41	42	40	38	40	41	42	38	42	40	37	38	--	41
December...	40	41	40	40	40	38	39	40	39	40	38	40	39	41	40	37	39	38	40	40	39	--	37	39	39	38	38	39	37	37	--	39
January....	34	35	37	36	36	37	35	--	37	37	38	39	38	37	40	41	40	40	42	38	38	37	37	37	38	39	38	40	38	39	39	38
February....	39	40	39	41	--	41	40	43	41	42	42	42	39	41	42	42	41	44	43	43	42	42	43	--	--	--	--	--	--	--	--	43
March....	--	--	41	40	40	40	42	40	42	42	40	40	40	40	40	40	41	42	44	--	42	46	48	47	46	45	43	44	45	46	44	44
April....	45	45	44	43	46	47	45	45	45	43	47	48	49	45	43	--	48	42	43	45	45	45	45	45	46	44	44	--	49	50	--	46
May....	52	51	50	50	49	42	49	50	52	50	52	50	49	48	52	55	54	--	55	57	57	59	60	57	59	60	60	59	61	60	55	54
June....	58	58	58	60	62	63	64	63	64	63	57	56	59	63	64	65	65	68	68	68	69	69	69	69	69	67	68	60	58	68	58	63
July....	62	60	64	67	68	68	69	69	69	69	70	68	65	65	66	67	70	70	71	72	71	70	71	69	68	70	71	71	67	71	70	68
August....	70	69	69	67	67	68	69	67	69	70	70	70	68	67	68	66	70	69	68	68	68	68	71	72	70	73	66	65	66	63	65	59
September...	62	61	--	--	62	63	66	--	71	67	65	62	60	58	60	61	59	59	57	56	56	56	58	53	53	55	55	57	57	55	--	59

COLUMBIA RIVER MAIN STEM

12-4365. COLUMBIA RIVER AT GRAND COULEE DAM, WASH.

LOCATION.--At Grand Coulee Dam, 2,500 feet upstream from gaging station, 1.5 miles north of Grand Coulee, Grant County, and 14.5 miles upstream from Nespelen River. DRAINAGE AREA.--74,100 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: November 1950 to September 1958.

Water temperatures: November 1950 to September 1958. Maximum, 98 ppm May 1-12; minimum, 76 ppm Oct. 1-31, June 1-30, Sept. 1-30.

EXTREMES, 1957-58.--Dissolved solids: Maximum, 98 ppm May 1-12; minimum, 76 ppm Oct. 1-31, June 1-30, Sept. 1-30.

Specific conductance: Maximum, 66, 170 micromhos Jan. 1-10, minimum, 39 micromhos June 1-10, 1957; 39 micromhos Jan. 1-10, 1958.

EXTREMES, 1950-58.--Dissolved solids: Maximum, 66, 170 micromhos Jan. 1-10, 1957; 39 micromhos June 1-10, 1958.

Specific conductance: Maximum, 66, 170 micromhos Jan. 1-10, 1957; 39 micromhos June 1-10, 1958.

Water temperatures: Maximum, 66°F on several days during September 1958; minimum, 34°F on several days during winter months, 1956, 1957.

REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Discharge records for water year October 1957 to September 1958 given in WSP 1586.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue at 160°C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)		
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-31, 1957...	59,240	5.1	0.00	19	4.5	1.4	0.9	68	0	11	0.5	0.1	0.5	0.03	76	0.10	12,160	66	10	0.1	133	7.2
Nov. 1-30	57,510	---	---	---	---	---	---	---	---	---	---	---	---	---	80	11	12,420	---	---	---	151	---
Dec. 1-31	52,780	---	---	---	---	---	---	---	---	---	---	---	---	---	86	12	12,540	---	---	---	155	---
Jan. 1-31, 1958...	56,920	5.9	---	24	3.6	1.9	1.0	80	0	13	.8	.2	.4	.05	90	12	13,830	73	9	1	157	7.5
Feb. 1-28	62,730	---	---	---	---	---	---	---	---	---	---	---	---	---	90	12	15,240	---	---	---	161	---
Mar. 1-31	78,530	---	---	---	---	---	---	---	---	---	---	---	---	---	97	13	20,570	---	---	---	166	---
Apr. 1-30	84,810	9.4	---	22	5.4	2.6	1.1	79	0	16	1.2	.2	.8	.05	97	13	22,210	77	12	1	164	7.4
May 1-12	115,060	---	---	---	---	---	---	---	---	---	---	---	---	---	99	13	30,760	---	---	---	156	---
May 13-31	247,200	---	---	---	---	---	---	---	---	---	---	---	---	---	84	11	56,060	---	---	---	137	---
June 1-30	298,700	---	---	---	---	---	---	---	---	---	---	---	---	---	76	10	61,290	---	---	---	126	---
July 1-31	153,600	5.8	---	20	3.4	1.6	1.4	68	0	9.9	.5	.3	.5	.01	79	11	32,760	64	8	1	129	7.1
Aug. 1-31	87,520	---	---	---	---	---	---	---	---	---	---	---	---	---	76	11	16,430	---	---	---	129	---
Sept. 1-30	63,840	---	---	---	---	---	---	---	---	---	---	---	---	---	76	10	13,100	---	---	---	130	---
Weighted average	104,500	---	---	---	---	---	---	---	---	---	---	---	---	---	83	0.11	23,420	---	---	---	140	---

COLUMBIA RIVER MAIN STEM--Continued

12-4365. COLUMBIA RIVER AT GRAND COULEE DAM, WASH.--Continued

Temperature (°F) of water, water year October 1957 to September 1958

/Once-daily measurement at approximately 10 a.m.7

[illegible]

YAKIMA RIVER BASIN

12-5105. YAKIMA RIVER AT KIONA, WASH.

LOCATION.--At highway bridge just downstream from gaging station at Kiona, Benton County, 3.5 miles downstream from intake of Kiona Canal, and 25 miles upstream from mouth.

DRAINAGE AREA.--5,600 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: December 1952 to September 1958.

TEMPERATURES.--December 1952 to September 1958.

EXTREMES 1957-58: Maximum daily, 21.9 ppm July 16-31, Aug. 1-13; minimum, 84 ppm May 21-31.

EXTREMES 1957-59: Maximum daily, 21.9 ppm Aug. 14-31; minimum, 43 ppm May 21-31.

Hardness: Maximum, 140 ppm Aug. 14-31; minimum, 43 ppm May 21-31.

Specific conductance: Maximum daily, 366 micromhos July 14, 15; minimum daily, 114 micromhos May 27.

Water temperatures: Maximum, 82°F. June 22, July 28; minimum, 33°F. Jan. 7.

EXTREMES, 1952-58.--Dissolved solids: Maximum, 236 ppm Sept. 11-20, 1953; minimum, 76 ppm May 1-23, 1957.

Hardness: Maximum, 145 ppm Sept. 11-30, 1953; minimum, 42 ppm May 1-23, 1957.

Specific conductance: Maximum daily, 387 micromhos Sept. 29, 1955; minimum daily, 101 micromhos May 9-10, 1957.

Water temperatures: Maximum, 82°F. June 22, July 28, 1958; minimum, freezing point on several days during winter months.

REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1957 to September 1958 given in WSP 1566.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃	Sodium adsorption ratio (micro-mhos at 25°C)	pH			
														Parts per million	Tons per acre-foot	Tons per day						
Oct. 1-17, 1957..	2,750	25	0.02	33	11	21	3.8	165	0	23	7.8	0.2	3.2	0.02	210	0.29	1,559	128	0	0.8	332	7.5
Oct. 18-31.....	2,684	---	---	---	---	20	---	162	0	---	---	---	---	---	206	0.28	1,493	124	0	---	321	7.9
Nov. 1-30.....	2,088	---	---	---	---	19	---	167	0	---	---	---	---	---	209	0.28	1,178	130	0	---	331	7.8
Dec. 1-15.....	2,149	---	---	---	---	21	---	153	0	---	---	---	---	---	193	0.26	1,120	120	0	---	302	7.9
Dec. 16-31.....	2,247	---	---	---	---	18	---	148	0	---	---	---	---	---	182	0.25	1,104	112	0	---	286	7.8
Jan. 1-20, 1958..	2,186	30	---	27	9.8	18	2.9	144	0	18	7.0	0.2	2.7	0.05	174	0.24	1,027	108	0	0.8	286	8.0
Jan. 21-31.....	2,767	---	---	---	---	15	---	124	0	---	---	---	---	---	159	0.22	1,188	96	0	---	248	7.8
Feb. 1-20.....	3,345	---	---	---	---	14	---	119	0	---	---	---	---	---	154	0.21	1,391	72	0	---	238	7.7
Feb. 21-28.....	7,072	---	---	---	---	9.8	---	90	0	---	---	---	---	---	123	0.17	2,349	53	0	---	176	7.5
Mar. 1-11.....	5,228	---	---	---	---	12	---	100	0	---	---	---	---	---	126	0.17	1,779	58	0	---	189	7.9
Mar. 12-23.....	2,834	---	---	---	---	14	---	126	0	---	---	---	---	---	154	0.21	1,178	74	0	---	240	8.0
Mar. 24-31.....	3,746	---	---	---	---	12	---	113	0	---	---	---	---	---	140	0.19	1,416	68	0	---	215	7.8
Apr. 1-20.....	4,313	20	---	19	6.7	11	1.7	102	0	9.9	4.5	0.2	1.1	0.04	127	0.17	1,479	75	0	0.6	191	7.8
Apr. 21-27.....	6,654	---	---	---	---	8.5	---	80	0	---	---	---	---	---	100	0.14	1,797	58	0	---	148	7.8
Apr. 28-30.....	3,817	---	---	---	---	11	---	98	0	---	---	---	---	---	125	0.17	1,288	72	0	---	185	7.9

YAKIMA RIVER BASIN--Continued
12-5105. YAKIMA RIVER AT KIONA, WASH.--Continued

Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (residue at 180° C)			Hardness as CaCO ₃		Sodium adsorption ratio (micro-mhos at 25° C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
May 1-4, 1958.....	3,552	---	---	---	---	12	---	106	0	---	---	---	---	129	0.18	1,237	76	0	---	193	7.9
May 5-14.....	5,639	---	---	---	---	8.8	---	78	0	---	---	---	---	103	.14	1,568	58	0	---	148	7.4
May 15-20.....	4,452	---	---	---	---	10	---	89	0	---	---	---	---	118	.16	1,418	66	0	---	170	7.6
May 21-31.....	8,020	---	---	---	---	8.8	---	65	0	---	---	---	---	84	.11	1,819	48	0	---	125	7.3
June 1-8.....	4,400	---	---	---	---	10	---	93	0	---	---	---	---	117	.16	1,390	72	0	---	173	7.2
June 9-20.....	2,448	---	---	---	---	14	---	119	0	---	---	---	---	144	.20	952	90	0	---	229	7.1
June 21-July 15.....	1,355	27	---	32	11	22	3.8	185	0	22	8.0	0.3	2.4	202	.27	739	126	0	0.9	318	7.4
July 16-Aug. 13.....	1,167	---	---	---	---	24	---	183	0	---	---	---	---	219	.30	690	136	0	---	349	7.3
Aug. 14-31.....	1,577	---	---	---	---	22	---	177	0	---	---	---	---	218	.30	928	140	0	---	343	7.3
Sept. 1-30.....	1,814	---	---	---	---	20	---	176	0	---	---	---	---	213	.29	1,043	138	0	---	343	7.4
Weighted average	2,957	---	---	---	---	15	---	122	0	---	---	---	---	153	0.21	1,222	89	0	---	237	---

Temperature (°F) of water, water year October 1957 to September 1958

Once-daily measurement at approximately 5 p.m.

Month		Day																		Average												
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
October....	62	60	58	58	58	55	53	49	56	56	58	57	59	58	57	56	56	55	55	54	54	51	50	57	50	52	53	54	53	50	53	55
November...	52	50	49	47	47	46	46	45	45	47	48	--	49	48	47	42	45	45	45	44	42	42	42	43	43	43	42	44	41	41	--	45
December...	42	40	--	41	44	44	45	43	42	--	39	39	39	39	40	40	42	42	44	44	44	43	42	43	43	42	41	42	41	39	--	42
January....	36	36	36	37	38	38	33	38	38	--	40	40	--	41	44	44	39	42	42	41	39	40	40	42	43	42	42	43	44	43	40	40
February....	43	42	44	44	45	44	45	45	46	45	--	44	45	44	44	45	46	--	48	--	50	49	50	49	48	46	44	45	--	46	47	
March.....	45	43	44	44	45	44	43	44	43	44	--	44	44	44	44	45	47	48	49	49	48	48	52	53	52	53	52	52	52	51	49	47
April.....	50	49	48	49	48	51	49	--	55	55	54	52	--	58	52	55	54	52	52	53	53	52	49	54	53	51	54	55	58	59	--	53
May.....	62	63	63	62	59	--	59	59	59	59	58	54	56	58	61	65	61	66	66	66	66	66	66	65	65	66	64	64	64	63	62	61
June.....	63	63	60	67	68	68	--	68	66	68	68	--	69	70	72	76	74	76	--	79	81	82	80	72	76	76	71	70	71	70	--	71
July.....	72	70	72	75	77	--	72	78	--	78	80	77	76	74	76	77	77	--	79	78	80	79	77	79	79	79	80	82	79	79	79	77
August.....	79	78	79	79	75	76	77	76	77	76	77	76	76	75	75	75	75	74	75	75	75	75	76	76	75	75	71	74	68	68	75	75
September..	66	66	65	65	67	68	69	67	70	70	69	65	64	64	64	62	64	64	61	60	60	--	58	57	58	60	61	62	61	62	61	64

PART 13. SNAKE RIVER BASIN

SNAKE RIVER MAIN STEM

13-375. SNAKE RIVER NEAR HEISE, IDAHO

LOCATION.--At Eagle Rock canal headgate, 1.2 miles upstream from Heise, Bonneville County, 1.6 miles downstream from Anderson Canal headgate, 1.8 miles downstream from gaging station, about 4.8 miles east ofirie, and about 21 miles upstream from Henrys Fork.

DRAINAGE AREA.--5,752 square miles upstream from gaging station.

RECORDS AVAILABLE.--Chemical analyses: January 1953 to September 1958.

Water temperatures: January 1953 to September 1958.

EXTREMES, 1957-58.--Dissolved solids: Maximum, 362 ppm Dec. 4-6; minimum, 188 ppm July 1-31.

Hardness: Maximum, 264 ppm Dec. 4-6; minimum, 149 ppm July 1-31.

Specific conductance: Maximum daily, 639 micromhos Dec. 5; minimum daily, 307 micromhos July 2.

Water temperatures: Maximum, 61°F on several days during August; minimum, freezing point on many days November to March.

EXTREMES, 1953-58.--Dissolved solids: Maximum, 378 ppm Nov. 11-20, 1956; minimum, 161 ppm July 1-10, 1954.

Hardness: Maximum, 276 ppm Feb. 1-10, 19-20-28, 1955; minimum, 117 ppm July 21-31, Aug. 1-10, 1955.

Specific conductance: Maximum daily, 791 micromhos Nov. 13, 1956; minimum daily, 240 micromhos June 27, 1954.

Water temperatures: Maximum, 67°F July 18, 1955; minimum, freezing point on many days during winter months.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in RSP 1567, about 2 miles upstream from Heise, Idaho, at district office at Salt Lake City, Utah, 5,000,000 acre feet diverted by Anderson Canal between sampling point and gaging station. This diversion occurs during May to November except for leakage through the headgate. No other diversion or appreciable inflow between sampling point and gaging station except during periods of local rains.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)		Hardness as CaCO ₃	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)			
														Parts per million	Tons per acre-foot				Tons per day	Calcium, Magnesium	Non-carbonate
Oct. 1-31, 1957...	3,405	8.1	53	13	13	11	1.9	174	0	49	14	0.9	0.08	246	0.33	2,260	185	42	0.4	415	7.4
Nov. 1-30.....	2,809	6.3	57	14	14	13	1.6	186	0	56	14	1.7	0.08	262	0.36	1,990	198	45	0.4	444	7.2
Dec. 1-3, 7-31....	2,362	7.0	67	12	14	2.4	2.4	186	0	63	17	1.9	0.06	274	0.37	1,750	215	62	0.4	461	7.6
Dec. 4-6.....	1,172	8.0	68	23	24	3.6	218	0	88	32	2.4	1.06	0.16	362	0.49	1,150	264	85	0.6	595	7.8
Jan. 1-31, 1958..	2,300	7.0	60	16	15	2.2	193	0	62	17	1.9	0.07	0.282	282	0.38	1,750	214	56	0.4	474	7.6
Feb. 1-28.....	2,346	6.9	61	15	15	2.2	196	0	60	18	1.7	0.08	0.282	282	0.38	1,790	213	52	0.4	480	7.7
Mar. 1-31.....	2,304	7.2	62	16	15	2.2	199	0	60	19	1.7	0.08	0.288	288	0.39	1,790	218	55	0.4	491	7.9
Apr. 1-30.....	3,200	9.8	57	15	14	2.0	186	0	62	17	1.9	0.07	0.272	272	0.37	2,350	205	52	0.4	462	8.0
May 1-31.....	13,490	12	50	12	10	1.7	166	0	47	1.5	1.3	0.02	0.230	31	0.03	8,380	172	36	0.3	375	7.9
June 1-30.....	12,680	9.5	45	9.6	8.3	1.5	150	0	36	3.5	1.0	0.03	0.200	27	0.03	6,850	151	28	0.3	332	7.5
July 1-31.....	12,410	9.1	43	10	7.4	1.7	147	0	35	6.8	1.8	0.06	0.188	26	0.27	6,300	149	28	0.3	321	7.4
Aug. 1-31.....	8,560	8.9	44	11	11	9.0	155	0	36	8.2	1.5	0.05	0.202	27	0.30	4,670	156	29	0.3	341	7.5
Sept. 1-30.....	5,987	9.1	47	12	11	1.9	164	0	43	11	1.3	0.05	0.218	30	0.37	3,530	166	32	0.4	371	7.9
Weighted average	6,007	9.3	49	12	10	1.8	164	0	44	8.2	1.4	0.05	0.224	0.30	3,630	172	38	0.3	375	--	

SNAKE RIVER MAIN STEM--Continued
13-375. SNAKE RIVER NEAR HEISE, IDAHO--Continued

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October.....	56	56	54	50	50	50	50	50	51	51	52	54	53	53	52	50	51	49	50	50	49	48	49	50	46	49	47	47	46	47	47	50	
November....	45	45	45	44	46	44	44	43	43	43	44	44	44	43	41	39	38	39	38	33	32	35	35	38	40	34	33	34	33	--	40	34	
December....	34	35	37	34	36	35	39	39	34	33	32	33	33	35	35	39	37	36	33	35	36	34	32	32	34	33	32	33	32	32	32	34	
January.....	32	32	32	32	32	32	32	32	33	32	34	35	32	33	34	33	32	34	32	32	32	32	32	32	35	34	36	34	35	36	35	33	
February....	36	33	35	36	35	35	34	36	36	36	36	34	35	34	35	35	36	36	37	35	35	37	38	37	38	37	35	34	--	--	35	33	
March.....	33	35	32	32	33	34	37	37	35	36	34	36	37	36	34	35	33	34	35	36	40	40	40	36	40	39	37	40	42	41	38	36	
April.....	37	39	40	37	35	38	42	42	41	40	40	42	43	44	46	45	43	41	42	41	39	34	39	43	40	39	39	37	41	--	40	40	
May.....	42	43	--	44	44	46	41	44	46	42	43	44	44	44	45	45	44	46	44	46	46	46	47	46	47	47	46	48	48	47	45	45	
June.....	47	47	46	48	48	49	50	48	47	48	49	49	48	49	49	50	51	51	52	50	51	52	51	51	52	50	52	51	51	50	--	50	
July.....	52	52	53	52	52	54	53	54	54	54	54	54	54	55	54	55	54	56	55	56	--	57	57	57	--	57	56	57	57	58	57	55	55
August.....	57	58	58	57	57	57	57	59	61	60	59	60	60	60	61	60	61	60	61	60	61	60	59	60	59	61	60	61	60	58	58	59	
September...	58	60	58	59	59	59	58	59	60	59	59	60	53	51	56	55	55	56	53	55	55	55	52	50	53	53	54	54	54	53	--	56	

HENRYS FORK BASIN

13-565. HENRYS FORK NEAR REXBURG, IDAHO

LOCATION.--Temperature recorder at gaging station, 200 feet downstream from highway bridge, downstream from all tributaries, and 6 miles west of Rexburg, Madison County.

DRAINAGE AREA.--2,920 square miles.

RECORDS AVAILABLE.--Water temperatures: July 1953 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 73° F Aug. 11-16; minimum, freezing point on many days.

EXTREMES, 1953-58.--Water temperatures: Maximum, 77° F July 17-19, 1955; minimum, freezing point on many days during winter months.

REMARKS.--Records of discharge for water year October 1957 to September 1958.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																															Aver- age	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum.....	59	58	57	50	47	46	48	46	47	49	50	52	52	51	49	49	49	48	49	49	47	46	45	48	48	46	46	45	44	44	45	49	
Minimum.....	57	56	50	46	46	46	46	44	44	47	46	50	50	51	49	48	47	46	48	47	46	45	45	46	46	45	45	44	44	42	43	47	
November																																	
Maximum.....	45	43	40	41	41	42	41	40	40	40	40	40	40	40	40	38	37	37	37	37	35	35	34	34	34	34	34	34	33	33	--	38	
Minimum.....	43	40	40	40	41	41	41	40	40	40	40	40	40	40	40	38	37	37	37	35	35	34	34	34	34	34	34	34	33	33	--	38	
December																																	
Maximum.....	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	34	34	34	34	34	34	33	33	33	33	33	33	33	33	33	33	33	
Minimum.....	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	34	33	33	34	33	33	33	33	33	33	33	33	33	33	33	
January																																	
Maximum.....	33	33	33	33	33	33	33	33	33	33	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	
Minimum.....	33	33	33	33	33	33	33	33	33	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	
February																																	
Maximum.....	32	32	32	32	32	32	32	32	32	32	34	34	34	35	35	37	39	40	40	40	40	40	40	40	41	42	41	40	40	--	--	36	
Minimum.....	32	32	32	32	32	32	32	32	32	32	34	34	34	34	35	35	37	39	38	39	40	40	40	40	41	40	39	39	--	--	--	36	
March																																	
Maximum.....	39	39	38	38	38	39	39	39	39	40	39	40	39	40	39	41	41	42	42	42	44	44	44	44	47	46	45	47	46	46	47	45	42
Minimum.....	38	36	38	37	36	36	39	39	39	39	37	37	38	38	38	38	39	39	40	41	42	42	44	44	44	44	44	45	46	45	44	40	
April																																	
Maximum.....	45	45	44	43	46	47	48	49	48	49	52	53	53	53	53	53	53	53	52	52	52	45	47	47	46	45	46	51	53	--	--	49	
Minimum.....	44	44	44	42	41	43	45	46	46	45	46	46	49	50	50	51	51	51	50	50	49	45	43	44	46	45	44	44	46	49	--	46	
May																																	
Maximum.....	55	57	57	59	59	59	59	55	56	57	57	55	54	54	56	57	59	61	61	62	62	62	62	63	64	63	65	64	64	62	60	60	
Minimum.....	51	53	55	56	57	57	53	50	54	54	55	52	49	52	53	54	56	57	58	59	60	59	60	59	61	60	60	62	61	61	59	56	
June																																	
Maximum.....	59	61	61	58	63	65	63	65	63	63	62	63	63	65	66	69	70	70	70	70	70	71	71	71	69	69	67	67	65	--	66	66	
Minimum.....	57	58	58	55	58	62	62	59	58	62	59	58	60	61	63	66	66	67	66	67	65	66	66	65	68	65	64	67	62	60	--	62	
July																																	
Maximum.....	64	68	68	68	68	69	68	68	70	70	71	70	68	68	70	69	71	71	70	71	72	71	72	71	72	72	70	70	72	71	70	71	70
Minimum.....	60	61	63	63	62	64	64	60	64	64	65	65	63	62	64	65	64	66	64	66	65	66	67	66	67	66	62	66	68	67	66	64	
August																																	
Maximum.....	72	71	70	70	70	71	71	72	72	72	73	73	73	73	73	73	73	71	71	70	66	68	67	68	67	68	67	66	65	63	64	70	
Minimum.....	68	67	67	64	65	64	64	66	69	68	69	70	70	70	69	69	66	67	64	66	65	64	64	64	64	64	62	64	62	62	60	66	
September																																	
Maximum.....	64	62	58	58	60	63	64	63	64	63	63	63	63	69	67	57	57	55	56	57	56	57	56	57	50	51	54	55	56	55	56	56	
Minimum.....	60	58	56	58	56	58	59	61	62	59	57	59	55	55	54	55	53	54	55	53	54	53	54	50	48	48	51	51	53	53	53	--	

SNAKE RIVER MAIN STEM

13-1545. SNAKE RIVER AT KING HILL, IDAHO

LOCATION --At county highway bridge about 400 yards downstream from gaging station at King Hill, Elmore County, and 20 miles downstream from Malad River. DRAINAGE AREA --35,800 square miles, approximately. RECORDS AVAILABLE --Chemical analyses: March 1951 to September 1958.

Water temperatures: March 1951 to September 1958.

EXTREMES, 1957-58 --Dissolved solids: Maximum, 355 ppm Sept. 16-30; minimum, 278 ppm May 16-31.

Hardness: Maximum, 214 ppm Sept. 16-30; minimum, 178 ppm May 16-31.

Specific conductance: Maximum daily, 573 microhmhos Oct. 10; minimum daily, 413 microhmhos June 1.

Water temperatures: Maximum, 69°F on several days during summer months; minimum, 45°F Jan. 3-5, 7, 8.

EXTREMES, 1951-58 --Dissolved solids: Maximum, 359 ppm Sept. 1-10, 1952; minimum, 252 ppm May 1-10, 1952.

Hardness: Maximum, 220 ppm Nov. 1-10, 21-30, 1953; minimum, 166 ppm May 1-10, 1952.

Specific conductance: Maximum daily, 594 microhmhos Oct. 3, 1952; minimum daily, 394 microhmhos May 7, 1952.

Water temperatures: Maximum, 73°F Aug. 2, 1955; minimum, 40°F Feb. 2, 1956.

REMARKS --Records of specific conductance of daily samples available in district office at Portland, Ore. Discharge records for water year October 1957 to September 1958 given in WSP 1567.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bi-carbonate (HCO ₃)	Car-bonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluo-ride (F)	Ni-trate (NO ₃) (B)	Bo-ron (B)	Dissolved solids (residue at 180° C)			Hardness as CaCO ₃		So-dium ad-sorp-tion micro-ratio at 25° C	Specific con-ductance (micro-mhos at 25° C)	
															Parts per million	Tons per acre-foot	Tons per day	Cal-cium, Mag-ne-sium	Non-car-bonate			
Oct. 1-31, 1957..	9,887			50	21	36		227	0	61	27		4.0	0.06	350	0.48	9,343	212	26	1.1	553	7.9
Nov. 1-30.....	9,350			52	20	36		228	0	60	26		4.1	.03	345	.47	8,691	212	25	1.1	548	8.0
Dec. 1-31.....	9,861			50	20	35		224	0	60	26		3.8	.05	339	.46	9,026	207	23	1.1	543	7.9
Jan. 1-31, 1958..	10,370			54	17	33		222	0	56	27		3.4	.10	334	.45	9,352	206	24	1.0	537	8.0
Feb. 1-28.....	10,920			50	18	31		211	0	52	25		3.5	.10	321	.44	9,464	198	25	1.0	519	8.0
Mar. 1-31.....	10,960			46	21	30		189	8	51	25		3.4	.07	308	.42	9,114	198	30	.9	499	8.4
Apr. 1-30.....	11,510			47	13	28		204	0	52	23		3.1	.09	302	.41	9,385	192	25	.9	483	8.0
May 1-15.....	9,981			46	17	28		200	0	49	21		2.4	.12	296	.40	7,977	186	22	.9	461	7.7
May 16-31.....	9,956			44	17	26		191	0	45	19		2.7	.11	278	.38	7,473	178	21	.8	436	7.6
June 1-30.....	9,102			46	20	30		210	0	53	24		3.0	.11	311	.42	7,643	196	24	.9	488	7.9
July 1-19.....	7,738			46	20	32		216	0	55	25		3.2	.09	328	.45	6,853	198	21	1.0	504	7.7
July 20-Aug. 7..	8,311			46	21	33		218	0	56	25		3.5	--	326	.44	7,315	202	23	1.0	508	7.9
Aug. 8-31.....	8,411			49	22	34		223	0	57	24		3.4	.06	340	.46	7,720	212	30	1.0	526	7.7
Sept. 1-15.....	8,923			50	21	35		227	0	60	26		3.6	--	348	.47	8,361	211	25	1.1	535	7.7
Sept. 16-30.....	9,301			49	22	36		229	0	61	26		3.8	.09	355	.48	8,915	214	26	1.1	544	7.8
Weighted average	9,772			49	19	32		214	0	55	25		3.4	0.08	325	0.44	8,575	203	28	1.0	515	--

SNAKE RIVER MAIN STEM--Continued
13-1545. SNAKE RIVER AT KING HILL, IDAHO--Continued

Temperature (°F) of water, water year October 1957 to September 1958
/Once-daily measurement at approximately 11:30 a.m./

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October.....	62	62	60	58	56	56	57	56	58	59	60	60	58	58	58	57	57	57	56	57	57	57	57	58	57	57	57	57	56	57	55	58	
November.....	54	54	52	53	53	54	54	53	53	54	53	53	53	52	51	51	50	51	50	50	50	49	50	50	50	50	49	48	46	--	51	51	
December.....	48	49	49	48	48	49	49	49	50	49	49	49	49	49	50	51	51	50	49	49	49	49	47	47	48	48	47	48	49	46	49	49	
January.....	46	46	45	45	45	46	45	46	46	46	46	46	46	46	47	48	48	48	46	46	46	46	47	47	47	47	47	48	48	49	48	47	
February.....	48	47	47	47	48	49	49	49	50	48	47	48	49	49	50	50	50	52	52	52	52	53	53	53	53	53	52	51	51	--	50	50	
March.....	50	51	51	51	50	50	51	50	51	49	50	50	50	51	51	52	52	52	52	52	52	53	53	53	53	53	53	53	54	53	53	52	52
April.....	50	53	52	52	52	52	53	54	53	54	54	54	56	56	56	57	57	57	57	56	58	56	54	52	52	52	52	55	55	56	--	54	
May.....	57	59	59	60	62	61	61	62	62	63	63	61	61	62	62	63	63	64	65	66	67	66	67	68	68	67	68	68	66	66	65	64	
June.....	63	62	61	62	63	64	65	65	65	65	64	63	64	65	65	67	67	67	68	68	68	68	69	68	68	66	66	66	66	65	--	65	
July.....	65	65	65	65	66	67	68	68	69	68	68	67	67	67	67	67	68	68	67	67	67	67	66	68	68	68	68	67	67	67	67	67	
August.....	67	66	68	67	67	68	66	68	68	68	68	69	69	69	69	69	69	68	68	68	68	69	68	67	67	67	67	67	67	66	66	65	
September.....	65	65	65	64	65	65	65	65	65	66	65	65	64	63	63	62	62	62	62	61	61	60	59	58	58	59	59	60	61	61	--	62	

BOISE RIVER BASIN

13-2125. BOISE RIVER AT NOTUS, IDAHO

LOCATION.--At steel highway bridge, 1,100 feet downstream from gaging station, a quarter of a mile southeast of Notus, Canyon County, and 7 miles north-west of Caldwell.

DRAINAGE AREA.--3,820 square miles, approximately

RECORDS AVAILABLE.--Chemical analyses: January 1939 to January 1940, November 1950 to September 1958.

Water temperatures: November 1930 to September 1958.

Water conductance: January 1934 to June 1940. 451 ppm Jan. 1-31; minimum, 87 ppm May 16-31.

Hardness: Maximum 222 ppm Jan. 1-31; minimum, 39 ppm May 16-31.

Specific conductance: Maximum daily, 722 micromhos Jan. 2; minimum daily, 117 micromhos May 18.

Water temperatures: Maximum 83°F July 11; minimum, 42°F Dec. 23, Jan. 9, Feb. 25, Mar. 15.

Hardness: 1939-40, 1950-58.--Dissolved solids: Maximum, 914 ppm Aug. 21-31, 1939; minimum, 77 ppm May 1-10, 1952, June 11-20, 1953.

Specific conductance: Maximum daily, 1,470 micromhos July 30, Aug. 26, 1939; minimum daily, 82 micromhos Apr. 27, 1952.

Water temperatures: Maximum, 85°F on several days during summer months, 1951, 1952 and 1954; minimum, freezing point Jan. 31, 1956.

REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Ore. Discharge records for water year October 1957 to September 1958 given in WSP 1567.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium	Non-carbonate			
Oct. 1-18, 1957..	1,220			36	8.9	46		190	0	55	12		3.1	0.06	283	0.38	932	126	0	1.8	447	8.1
Oct. 19-31.....	955			50	14	56		261	0	78	18		5.2	.03	431	.53	1,091	182	0	2.1	622	7.6
Nov. 1-30.....	767			63	13	70		284	0	87	18		5.2	.05	438	.59	891	207	0	2.1	667	7.7
Dec. 1-31.....	631			66	14	67		310	0	37	19		3.6	.09	451	.61	838	210	0	2.1	677	7.7
Jan. 1-31, 1958..	717			58	13	65		278	0	81	19		5.8	.12	422	.87	768	222	0	2.0	684	8.0
Feb. 1-13.....	3,340			32	4.4	21		126	0	27	6.0		4.2	--	177	.24	1,596	98	0	.9	285	7.4
Feb. 14-19.....																						
Feb. 20-27.....	1,237			43	11	53		207	0	71	16		6.8	.11	334	.45	1,116	154	0	1.9	532	7.8
Feb. 28-Mar. 4...	2,680			22	4.6	19		97	0	24	3.5		3.4	--	150	.20	1,085	74	0	1.0	233	7.5
Mar. 5-8.....	2,480			29	7.2	32		138	0	43	10		4.3	--	227	.36	1,520	102	0	1.4	348	8.2
Mar. 9-31.....	4,084			18	3.2	15		80	0	19	3.5		2.2	.08	115	.13	1,268	58	0	.9	182	7.5
Apr. 1-12.....	4,012			18	2.7	14		78	0	16	2.8		1.8	--	116	.16	1,257	56	0	.8	169	7.3
Apr. 13-23, 25-30	3,451			15	3.0	11		70	0	12	3.5		1.6	.04	101	.14	941	50	0	.7	147	7.3
Apr. 24.....	2,700			23	2.1	12		2	45	--	1.5		1.2	--	118	.16	860	66	0	.6	231	10.2

Temperature (°F) of water, water year October 1957 to September 1958
 /Once-daily measurement at approximately 1 P.M./

Temperature (°F) of water, water year October 1957 to September 1958																																
Once-daily measurement at approximately 1 p.m.																																
Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October....	68	59	58	55	52	53	57	55	58	60	60	60	59	57	57	58	56	56	56	56	56	56	57	57	57	57	57	57	55	55	55	58
November....	52	52	52	52	52	52	50	51	51	53	49	49	47	45	47	48	47	45	45	45	46	45	46	45	45	45	45	45	45	43	43	49
December...	45	48	46	45	45	45	47	50	49	47	46	45	45	46	50	50	50	50	50	50	48	48	48	47	47	47	47	45	45	44	47	
January....	45	45	45	45	45	44	43	42	47	49	48	48	47	48	46	46	45	45	47	47	45	47	47	48	45	48	45	50	48	50	46	
February....	50	50	50	54	55	50	53	52	48	48	50	46	48	47	52	52	50	53	58	48	42	45	43	43	42	45	45	45	45	45	45	50
March.....	43	44	44	45	45	44	44	44	44	44	44	45	44	45	44	46	46	44	46	46	46	46	46	47	48	48	49	47	45	45	45	45
April.....	47	45	45	46	45	45	47	47	48	49	52	54	55	55	49	52	54	51	49	46	50	52	49	53	53	54	54	54	54	54	54	50
May.....	56	56	56	60	58	52	55	58	59	56	57	59	59	59	60	60	60	61	64	64	65	65	63	63	62	63	62	63	58	59	59	59
June.....	61	60	59	64	64	63	62	62	61	63	62	58	61	63	60	67	68	68	68	68	70	70	68	67	68	69	70	70	68	69	65	65
July.....	68	69	69	72	73	70	70	80	80	83	78	78	77	78	80	80	78	75	78	79	79	80	80	79	80	79	80	79	80	76	78	77
August....	79	80	78	77	78	78	78	80	78	80	80	80	80	80	80	80	78	75	78	76	77	75	75	77	74	70	72	72	77	77	77	77
September..	70	68	66	67	70	70	70	70	69	72	70	61	63	65	68	67	67	63	60	65	63	59	60	62	65	65	65	65	65	65	65	66
Weighted average	1,775					25	5.1	25			119	--		29	7.1	2.5	--	178	0.18	853	84	0	1.2	270	--						--	--

SALMON RIVER BASIN--Continued

13-3130. JOHNSON CREEK AT YELLOW PINE, IDAHO

LOCATION.--Temperature recorder at gaging station, 700 feet upstream from mouth and 0.2 mile southwest of Yellow Pine, Valley County. DRAINAGE AREA.--213 square miles.

RECORDS AVAILABLE.--Water temperatures: October 1957 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 62° F Aug. 12; minimum, 33° F on many days during December and January.

REMARKS.--Records of discharge for water year October 1957 to September 1958.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	42	43	42	40	41	41	40	40	40	--
Minimum.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	42	42	40	40	40	40	39	40	40	--
November																																
Maximum.....	40	39	37	36	36	36	35	35	35	35	35	36	36	36	36	36	35	35	34	34	34	34	34	34	34	34	34	34	34	34	34	35
Minimum.....	39	37	36	36	36	35	35	35	35	35	35	35	36	36	36	35	35	34	34	34	34	34	34	34	34	34	34	34	34	34	34	35
December																																
Maximum.....	34	34	34	34	34	34	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
Minimum.....	34	34	34	34	34	34	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
January																																
Maximum.....	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33
Minimum.....	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33
February																																
Maximum.....	34	35	35	35	35	35	35	35	36	36	36	35	35	35	35	35	36	37	37	37	37	37	36	37	36	36	36	36	35	--	--	36
Minimum.....	34	34	35	35	35	35	35	35	35	36	36	35	35	35	35	35	36	37	37	37	37	36	36	36	36	36	36	36	34	--	--	35
March																																
Maximum.....	34	34	34	34	34	34	35	36	36	36	36	36	36	36	36	36	36	36	37	37	38	39	39	39	38	40	40	39	40	40	39	37
Minimum.....	34	34	34	34	34	34	35	35	34	34	34	34	34	36	35	35	36	35	36	37	38	39	39	38	36	38	36	37	38	38	37	36
April																																
Maximum.....	39	39	39	37	36	39	39	41	42	42	44	44	44	44	44	40	40	41	40	40	40	40	36	39	38	37	39	39	43	44	--	40
Minimum.....	37	38	37	36	36	36	39	39	40	40	40	40	40	40	40	38	38	38	38	39	37	36	37	35	36	34	35	36	35	36	--	38
May																																
Maximum.....	44	44	42	40	38	38	40	41	41	38	38	39	42	41	42	42	42	42	42	42	42	42	44	45	43	44	45	46	45	45	43	42
Minimum.....	37	36	35	35	36	36	37	36	36	36	36	37	36	37	37	37	37	37	37	37	38	39	40	39	40	41	41	42	42	41	38	
June																																
Maximum.....	43	43	43	43	46	47	46	45	42	45	44	44	46	47	49	51	50	50	52	52	54	55	55	55	53	54	54	52	51	49	--	48
Minimum.....	40	41	41	41	41	43	42	41	41	41	44	44	44	44	44	45	46	47	48	48	49	51	52	51	50	51	50	51	47	47	--	45
July																																
Maximum.....	48	50	49	54	54	55	56	57	56	59	60	58	58	58	58	58	57	55	53	58	50	52	53	54	52	52	52	53	56	60	60	57
Minimum.....	45	47	46	47	46	50	51	50	50	51	52	52	52	52	52	52	52	52	50	50	52	52	53	54	52	52	53	56	56	53	51	51
August																																
Maximum.....	60	59	57	56	58	59	60	59	58	61	61	62	61	61	60	60	60	61	61	60	59	59	59	59	58	57	55	55	54	54	59	59
Minimum.....	53	53	51	51	51	52	53	54	52	53	54	55	54	55	54	53	57	58	57	54	56	54	53	53	53	53	52	52	48	49	53	53
September																																
Maximum.....	54	53	51	53	53	53	55	55	55	55	55	54	50	51	51	53	52	51	47	48	48	48	46	47	47	46	48	48	46	--	51	47
Minimum.....	50	50	46	49	48	49	50	51	51	51	51	51	50	48	48	47	50	48	47	44	45	46	46	42	44	43	44	45	46	44	--	41

GRANDE RONDE RIVER BASIN

13-3300. LOSTINE RIVER NEAR LOSTINE, OREG.

LOCATION.--Temperature recorder at gaging station, 3.5 miles south of Lostine, Wallawa County, and 9 miles upstream from mouth.

DRAINAGE AREA.--70 square miles approximately.

RECORDS AVAILABLE.--Water temperatures: October 1957 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 64°F on several days during July and August; minimum, 33°F on several days during December and March.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1567.

Temperature (°F) of water, water year October 1957 to September 1958 [Recorder with temperature attachment, continuous ethyl alcohol-actuated thermograph.]																																	
Month	Day																																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Aver- age	
October	53	51	47	46	43	43	44	44	48	48	49	49	48	49	49	46	44	45	43	46	44	45	44	47	45	45	44	43	42	45	43	46	
Maximum.....	51	47	44	42	41	42	41	42	41	43	42	44	44	47	47	44	42	42	42	40	40	42	42	42	42	42	44	41	39	39	40	41	43
Minimum.....	41	41	40	40	40	40	40	40	40	40	40	41	42	40	39	38	39	38	37	38	37	36	37	37	37	36	36	36	36	36	--	38	
November	39	37	36	35	35	35	36	36	35	36	38	39	38	37	37	36	35	35	35	34	34	34	34	35	35	34	34	34	34	--	--	36	
Maximum.....	35	37	36	34	35	35	35	35	36	36	35	35	35	36	36	35	36	36	36	36	36	37	35	36	37	36	37	37	37	36	35	36	
Minimum.....	34	34	33	33	33	33	34	34	34	34	34	34	34	34	34	35	35	35	35	34	34	35	35	36	35	36	35	35	35	34	34	34	
January	35	36	37	36	37	37	37	36	38	37	38	37	38	36	36	37	37	37	36	36	37	37	35	38	38	38	37	38	37	38	37	37	
Maximum.....	35	35	35	34	35	35	34	35	35	36	37	36	35	35	35	36	35	34	34	34	35	34	35	35	35	35	35	36	36	35	35	35	35
February	38	40	38	38	39	38	38	39	40	39	37	40	38	38	40	38	38	40	41	40	41	42	43	39	38	38	36	37	35	--	--	39	
Maximum.....	34	35	35	35	35	35	36	37	37	36	35	36	36	36	36	37	38	37	37	37	37	37	37	38	38	36	36	35	35	--	--	36	
Minimum.....	39	38	37	39	38	39	37	39	37	41	40	37	39	39	38	41	42	40	43	41	43	42	44	42	39	43	46	43	43	43	40	40	
Maximum.....	34	34	35	34	34	33	34	34	34	33	34	34	34	35	36	35	36	35	36	37	38	38	38	38	37	38	37	38	38	37	36	36	
April	45	42	41	45	43	43	43	48	49	46	48	50	48	49	45	43	42	43	44	43	43	44	41	43	43	45	44	44	49	50	--	45	
Maximum.....	38	39	39	38	38	37	39	39	40	40	39	39	40	42	42	41	39	38	40	41	40	39	39	39	39	40	40	39	40	40	--	39	
Minimum.....	51	50	50	49	46	43	46	47	50	49	44	43	45	48	50	50	50	49	48	48	48	47	48	49	48	50	48	47	47	44	48	48	
May	42	40	41	40	41	41	42	40	41	42	40	41	40	40	40	41	42	42	42	41	42	42	43	43	43	43	43	42	42	42	42	42	
Maximum.....	45	46	44	46	50	50	45	47	44	46	46	45	45	47	50	52	52	50	52	53	52	54	54	49	50	54	50	51	50	58	--	49	
Minimum.....	41	42	42	42	43	43	43	42	43	42	43	44	43	43	43	44	44	44	45	45	45	45	46	47	46	46	47	45	45	46	--	44	
June	49	47	48	55	55	55	55	55	55	58	59	58	55	56	58	59	59	58	60	61	60	62	62	60	60	62	62	64	64	63	58	58	
Maximum.....	44	47	47	46	48	48	50	49	50	51	51	52	50	50	50	52	53	54	53	54	54	55	53	53	53	54	54	55	58	57	54	52	
Minimum.....	62	60	60	59	60	62	63	58	62	63	64	63	62	63	63	62	60	64	64	62	63	64	64	62	64	63	61	57	61	62	62	62	
July	55	56	56	52	51	53	54	56	54	56	56	56	54	53	54	55	58	56	54	55	55	55	55	55	55	55	54	54	53	52	54	54	
Maximum.....	61	58	54	57	58	59	61	56	61	62	60	54	52	52	55	55	56	54	53	52	53	50	47	48	52	51	53	54	54	52	--	55	
Minimum.....	52	50	47	48	48	49	50	52	51	52	51	50	48	49	48	48	48	48	45	46	47	42	40	42	44	43	45	46	47	47	--	48	

CLEARWATER RIVER BASIN

13-3367. LOCHSA RIVER NEAR POWELL RANGER STATION, IDAHO

LOCATION.--Temperature recorder, 200 yards upstream from mouth of Warm Springs Creek and 8.5 miles southwest of Powell ranger station, Idaho County.

RECORDS AVAILABLE.--October 1957 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Minimum, freezing point on many days during December to February.

REMARKS.--Air temperature, 9 to 86°F, Dec. 23 to Feb. 1, Mar. 24 to May 11, May 25 to July 12, July 19 to Aug. 13; range 32°F to 34°F, 36°F to 45°F, 36°F to 46°F, 43°F to 66°F, 56°F to 71°F respectively.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum.....																																
Minimum.....																																
November																																
Maximum.....	42	40	36	34	33	33	33	33																								
Minimum.....	40	36	34	33	33	33	33	33																								
December																																
Maximum.....																																
Minimum.....																																
January																																
Maximum.....																																
Minimum.....																																
February																																
Maximum.....																																
Minimum.....																																
March																																
Maximum.....	34	34	34	34	34	34	34	34	34	34	34	34	34	34	35	34	34	35	37	38	36	38	39	39								
Minimum.....	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	35	36	36								
April																																
Maximum.....																																
Minimum.....																																
May																																
Maximum.....																																
Minimum.....																																
June																																
Maximum.....																																
Minimum.....																																
July																																
Maximum.....																																
Minimum.....																																
August																																
Maximum.....																																
Minimum.....																																
September																																
Maximum.....	61	57	56	60	60	60	61	59	64	63	64	64	60	55	56	56	58	56	53	51	50	50	49	46	46	48	48	50	49	48	--	55
Minimum.....	56	54	50	53	52	53	54	55	57	57	56	59	55	54	52	51	54	52	49	48	49	49	46	44	45	44	45	46	44	--	51	

CLEARWATER RIVER BASIN--Continued

13-3367.5. WARM SPRINGS CREEK ABOVE JERRY JOHNSON HOT SPRINGS, NEAR POWELL RANGER STATION, IDAHO

LOCATION.--Temperature recorder, 0.9 mile upstream from gaging station, 1 mile upstream from mouth, and 8.5 miles southwest of Powell ranger station, Clearwater County.

RECORDS AVAILABLE.--Water temperatures: November 1956 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 85° F Aug. 12; minimum, freezing point on several days in January.

EXTREMES, 1956-58.--Water temperatures: Maximum, 85° F Aug. 12; minimum, freezing point on many days during most winter months.

REMARKS.--Recorder stopped: Nov 2 to Dec 1, Dec 10 to Feb 30, range 38° F to 40° F, 32° F to 35° F, respectively. Records of discharge for gaging station near Powell ranger station for water year October 1957 to September 1958 given in WSP 1957.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October	53	52	50	46	44	44	43	43	43	43	43	44	45	46	45	43	42	41	40	40	---	---	---	---	---	---	---	42	42	42	42	42	44
	51	50	46	44	43	42	42	41	42	41	41	43	44	45	43	41	41	40	39	38	---	---	---	---	---	---	---	41	42	41	42	41	43
November	41	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	40	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
December	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	---	---	---	---	---	---	---	33	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
January	---	---	---	---	---	---	---	33	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
February	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
March	---	34	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	34	34	34	34	---	---	35	
	---	34	34	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	34	34	35	35	34	34	34	34	34	34	---	---	35	
April	34	34	33	34	34	34	34	34	34	33	33	33	33	33	33	34	35	36	36	36	37	37	37	37	37	36	37	37	38	38	38	35	
	34	33	33	33	34	34	34	34	33	33	33	33	33	33	33	33	34	35	34	35	34	35	34	35	36	35	34	35	36	37	36	34	
May	38	40	38	38	38	40	39	39	38	40	41	41	40	39	40	39	39	39	39	39	39	39	39	39	39	39	39	40	41	42	---	39	
	35	37	37	37	37	36	37	38	37	37	37	37	37	38	38	38	38	37	38	38	38	38	38	38	38	38	36	36	39	38	39	---	
June	42	42	41	42	41	40	39	40	41	41	40	37	40	42	42	43	43	43	42	43	42	43	42	43	44	45	45	47	45	44	44	42	
	39	39	39	39	39	38	37	38	37	38	37	36	37	38	38	38	38	38	38	38	38	38	38	39	39	39	40	41	41	41	41	39	
July	44	45	44	45	48	49	46	45	46	45	46	46	46	48	49	50	51	52	52	53	53	55	56	56	52	55	55	51	50	49	---	49	
	42	41	42	42	42	44	44	43	44	44	44	44	44	46	46	47	48	49	50	50	50	51	52	52	51	50	51	49	48	48	---	47	
August	50	50	50	52	53	54	55	55	56	57	57	57	57	57	57	58	60	59	60	61	61	62	62	60	59	61	62	62	62	62	62	58	
	46	49	48	48	50	51	52	52	54	54	55	55	55	55	55	55	55	55	56	56	57	57	57	57	57	57	56	57	59	59	57	54	
September	62	60	60	59	59	61	62	60	62	64	65	64	63	62	61	60	63	62	63	62	63	63	63	63	63	64	61	59	58	56	57	61	
	57	57	58	55	53	55	56	58	57	60	60	59	58	57	57	58	60	58	57	58	57	58	58	58	58	59	56	57	55	54	53	57	
October	57	55	53	55	55	55	56	54	56	57	57	54	52	51	51	52	52	49	49	49	49	48	45	46	45	45	46	47	45	---	---	51	
	53	53	49	51	50	50	51	51	53	53	53	54	52	51	50	48	50	48	47	48	48	45	44	43	43	43	43	42	45	43	---	49	

CLEARWATER RIVER BASIN--Continued

13-3368. WARM SPRINGS CREEK NEAR POWELL RANGER STATION, IDAHO

LOCATION.--Temperature recorder, 0.12 mile upstream from mouth, and 8.5 miles southwest of Powell ranger station, Idaho County.
DRAINAGE AREA--74.7 square miles.

RECORDS AVAILABLE.--water temperatures: January 1957 to September 1958.

EXTREMES 1957-58.--water temperature: Maximum, 67°F; minimum, 35°F Nov. 19.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1567.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																														Average		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum.....	58	58	54	49	46	48	46	46	48	47	48	49	49	50	49	47	46	45	44	43	44	44	44	42	43	44	45	46	45	46	46	47	
Minimum.....	55	54	49	46	44	45	43	45	44	44	44	46	48	49	46	44	45	43	43	41	41	41	41	41	41	42	44	44	45	44	45	44	45
November.....																																	
Maximum.....	44	43	41	40	39	40	40	40	40	39	40	40	40	40	40	40	39	39	38	38	38	38	38	39	39	39	39	38	38	37	37	37	39
Minimum.....	43	41	40	38	38	38	38	38	38	38	39	40	40	40	40	40	40	38	37	35	37	37	37	37	38	39	38	38	36	37	37	37	37
December.....																																	
Maximum.....	38	38	39	39	38	37	38	39	39	38	37	37	37	37	38	38	38	38	38	38	38	38	38	37	36	37	37	37	37	38	38	36	38
Minimum.....	37	37	38	38	37	36	37	38	36	36	36	37	37	36	37	38	38	38	38	38	37	36	36	36	36	36	36	37	37	36	37	36	37
January.....																																	
Maximum.....	36	36	36	37	37	37	37	38	39	39	39	39	39	39	39	39	39	40	39	38	39	39	39	39	40	40	39	40	40	40	40	40	39
Minimum.....	36	36	36	36	36	37	37	37	37	38	38	39	39	39	39	39	39	39	39	37	38	39	37	38	39	39	39	39	39	39	39	39	38
February.....																																	
Maximum.....	40	39	39	40	39	40	40	40	40	40	40	39	39	40	40	40	40	40	40	40	39	39	39	39	38	38	38	38	39	39	39	39	39
Minimum.....	39	38	38	39	38	38	39	40	40	40	39	39	39	39	39	39	39	39	39	39	38	38	38	38	38	38	38	38	38	38	38	38	38
March.....																																	
Maximum.....	38	37	38	38	38	39	39	39	39	39	39	39	39	39	39	39	39	40	42	41	42	42	42	42	40	41	41	41	41	41	41	41	40
Minimum.....	36	36	36	37	38	38	37	37	37	37	36	37	37	37	37	37	37	38	38	38	38	39	39	39	39	39	39	37	38	39	39	39	38
April.....																																	
Maximum.....	43	43	41	40	41	44	42	42	41	41	43	45	45	42	40	41	40	40	40	40	40	40	40	41	40	42	40	42	42	42	43	41	41
Minimum.....	38	39	40	39	39	39	39	40	40	39	40	39	39	40	40	39	38	37	38	38	38	38	38	38	38	39	37	37	39	38	39	39	39
May.....																																	
Maximum.....	43	45	44	43	44	40	40	42	43	44	42	38	40	43	43	43	43	43	43	43	43	44	43	44	45	45	45	47	45	44	44	44	43
Minimum.....	40	39	39	38	39	38	38	38	38	38	38	37	38	38	39	38	38	38	38	39	39	39	39	39	39	40	40	40	40	41	41	40	39
June.....																																	
Maximum.....	44	44	44	46	49	49	46	46	45	46	46	47	47	48	50	52	53	52	53	55	54	56	58	57	52	56	55	51	49	49	47	50	50
Minimum.....	41	41	41	42	42	44	44	43	44	44	43	44	44	45	45	46	47	48	49	49	49	49	50	52	50	49	50	48	46	47	46	46	46
July.....																																	
Maximum.....	51	50	51	53	56	56	55	56	57	59	60	60	58	56	58	60	62	62	62	62	62	63	64	64	61	62	64	65	64	65	64	64	59
Minimum.....	44	48	48	49	50	52	51	51	52	54	54	55	52	51	52	56	55	55	55	57	55	56	58	58	56	56	57	60	60	60	57	54	54
August.....																																	
Maximum.....	64	63	62	60	60	62	64	61	63	67	66	67	66	65	64	65	64	62	65	65	65	65	66	66	66	66	66	64	60	58	61	64	64
Minimum.....	57	58	58	55	53	54	56	57	59	59	59	59	58	57	56	56	58	60	59	57	57	58	58	58	58	58	57	59	56	55	54	57	57
September.....																																	
Maximum.....	59	56	55	58	58	59	60	58	62	62	62	62	58	54	52	54	56	54	51	51	52	52	50	46	47	48	48	50	51	49	48	54	54
Minimum.....	54	53	50	52	51	51	52	53	56	53	53	56	54	52	50	52	50	52	50	49	50	49	50	46	45	46	44	46	47	46	47	46	46

CLEARWATER RIVER BASIN--Continued

13-3369. FISH CREEK NEAR LOCHSA RANGER STATION, IDAHO

LOCATION.--Temperature recorder at gaging station, 640 feet upstream from mouth, 1.3 miles southwest of Lochsa ranger station, Idaho County, and 18 miles northeast of Lowell.

DRAINAGE AREA.--89.2 square miles.

RECORDS AVAILABLE.--October 1957 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 74°F July 28, Aug. 1, 10, 12; minimum, freezing point on several days during January.

REMARKS.--Records of discharge for water year October 1957 to September 1958.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																															Aver- age	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October	59	58	52	46	46	48	46	45	49	49	49	50	50	50	51	46	46	46	45	46	44	45	44	47	45	46	47	46	45	46	46	48	
	56	52	47	46	43	44	44	41	44	44	45	46	48	48	47	43	43	42	41	41	41	44	42	43	43	45	46	45	43	44	43	45	
November	43	40	39	38	38	37	37	37	35	34	37	38	38	38	37	38	38	35	35	34	35	33	35	36	38	38	36	35	33	33	37	37	
	40	37	35	34	33	33	33	33	33	34	34	36	38	37	36	36	36	33	33	33	33	33	33	35	36	36	34	33	33	34	34	34	
December	33	34	35	34	33	33	34	35	34	34	33	34	33	33	33	34	35	35	35	34	35	35	34	33	35	35	34	34	34	33	34	33	
	33	33	34	33	33	33	33	34	33	33	33	33	33	33	33	33	34	35	33	33	34	34	33	33	33	33	34	33	34	33	33	33	
January	33	33	33	33	33	33	33	33	33	32	32	32	32	32	32	33	33	34	34	33	33	34	33	34	35	35	35	35	35	35	35	33	
	33	33	33	33	33	33	33	33	32	32	32	32	32	32	32	32	33	33	33	33	32	32	33	33	33	34	35	35	35	34	35	33	
February	36	35	35	37	35	37	36	37	36	37	36	38	38	38	37	38	38	39	39	38	40	41	40	37	40	37	38	40	40	39	38	38	
	35	34	34	35	34	34	36	36	36	36	36	35	35	36	36	37	37	37	37	37	36	36	37	36	37	37	37	36	37	36	36	36	
March	38	36	38	38	38	38	39	38	38	36	38	39	39	38	36	39	37	39	42	40	42	43	44	42	42	41	42	42	43	41	41	40	
	34	33	33	36	36	34	33	35	33	33	33	33	33	33	34	36	33	35	35	35	38	35	37	36	37	37	35	36	37	38	36	35	
April	43	43	43	40	44	46	45	42	43	42	46	46	46	43	41	41	40	42	41	41	41	42	43	43	44	42	44	45	47	47	43	43	
	36	38	39	38	38	37	38	40	39	38	39	37	38	40	40	39	38	37	39	39	38	39	39	38	40	40	40	38	39	39	39	39	
May	48	48	48	48	46	43	46	47	48	49	47	44	46	49	49	50	50	50	50	51	51	51	50	52	53	54	53	54	51	49	49	49	
	40	40	40	40	40	42	42	41	42	41	42	40	40	42	42	42	42	42	43	44	45	44	44	44	45	46	46	48	47	46	43	43	
June	52	53	51	54	58	58	55	55	50	53	51	52	54	56	57	61	60	62	62	65	63	66	68	63	61	67	62	59	58	55	58	58	
	47	47	47	48	48	52	51	49	49	48	49	49	49	50	50	50	52	54	54	55	54	55	56	57	56	55	54	53	51	53	51	51	
July	62	59	60	66	66	68	64	69	67	71	71	67	69	69	70	72	71	72	73	73	73	73	73	73	70	72	72	74	73	73	73	70	
	50	52	53	53	55	57	59	57	57	57	59	59	60	57	56	60	61	62	60	60	60	62	60	61	60	61	60	61	65	63	61	58	
August	74	67	67	68	69	70	72	66	71	74	73	74	73	72	71	71	71	71	71	71	71	71	71	71	71	71	72	70	68	65	63	66	70
	61	62	62	57	56	57	59	61	60	64	63	64	61	59	59	59	64	64	62	60	60	61	61	61	61	61	64	60	63	60	58	56	61
September	64	61	58	63	63	63	65	62	67	66	66	64	61	56	57	57	59	58	56	54	53	53	51	49	50	52	53	54	55	52	58	58	
	58	56	51	54	53	53	54	56	58	58	58	57	56	54	53	50	56	52	51	49	52	51	47	45	47	46	48	49	46	46	46	46	46

CLEARWATER RIVER BASIN--Continued

13--3370. LOCHSA RIVER NEAR LOWELL, IDAHO--Continued

LOCATION.--Temperature recorder at gaging station, 0.7 mile upstream from Lowell, Idaho County, 0.9 mile upstream from mouth, 1.2 miles downstream from Pete King Creek, and 19 miles east of Kootenai.

DRAINAGE AREA.--1,160 square miles, approximately.

RECORDS AVAILABLE.--Water temperatures: July 1956 to September 1958.

EXTREMES, 1956-58.--Water temperatures: Maximum, 78°; July 28; minimum, freezing point on many days during January.

EXTREMES, 1956-58.--Water temperatures: Maximum, 78°; July 30, 1956; minimum, freezing point on many days during January 1957 and 1958.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1567.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																															Aver- age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	62	61	58	53	51	49	48	47	51	52	52	54	53	53	55	52	50	49	48	47	46	47	46	46	46	46	47	47	46	46	47	50
	60	58	53	51	48	47	47	46	47	48	50	51	52	52	52	50	49	47	46	45	45	46	45	44	45	45	46	46	46	46	48	48
November	46	44	41	39	38	37	37	36	36	35	36	38	39	39	40	40	40	39	37	37	37	37	36	37	38	38	38	38	36	35	--	38
	44	41	39	37	36	36	35	35	35	35	35	36	38	39	39	39	39	39	37	36	36	35	35	35	36	37	38	38	36	35	--	37
December	35	36	37	36	36	35	--	--	37	36	35	34	34	34	34	35	36	36	36	35	35	35	35	34	34	34	34	34	34	35	34	35
	35	35	36	36	35	34	--	--	36	35	34	34	34	34	34	34	34	35	35	34	34	35	34	33	33	33	34	34	34	34	35	34
January	33	33	33	33	33	33	33	33	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	33	33	33	33	33	32
	33	33	33	33	33	33	33	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	33	33	33	33	33	32
February	36	35	34	36	35	36	37	37	38	38	39	38	37	38	38	39	39	40	40	40	40	39	40	39	40	39	40	39	--	--	38	38
	34	34	34	34	34	35	35	36	37	37	37	37	37	37	37	37	38	38	38	38	39	39	39	38	38	39	38	38	--	--	37	37
March	39	38	39	39	38	38	40	40	39	40	40	40	40	39	38	41	39	42	44	43	45	46	47	46	45	44	44	43	45	44	44	42
	37	37	37	37	37	37	37	38	37	38	36	36	36	36	37	38	37	38	40	40	42	42	42	43	44	42	42	42	43	42	39	39
April	43	45	44	44	44	46	46	45	44	43	47	48	48	47	46	44	44	43	43	43	42	42	43	44	44	44	44	45	46	48	--	45
	42	43	44	42	42	42	44	44	43	42	43	44	44	46	44	44	44	43	41	42	42	41	42	42	42	43	42	43	43	45	--	43
May	49	49	49	48	48	47	45	46	47	47	46	46	45	47	48	48	48	48	48	48	48	48	48	49	50	50	52	52	50	48	48	48
	46	46	46	45	45	44	43	43	44	44	44	41	41	43	45	45	45	45	45	45	45	45	46	46	47	48	48	50	48	45	45	45
June	51	51	51	52	54	56	56	54	53	52	52	52	54	55	57	59	61	61	62	63	63	65	67	67	67	61	64	61	60	58	--	58
	48	50	50	50	51	54	54	52	51	50	51	51	52	53	54	56	58	59	59	60	61	60	63	61	59	59	57	57	55	--	55	
July	58	60	60	64	67	69	66	67	68	71	72	73	70	69	70	71	73	73	73	75	76	75	76	76	74	75	76	78	77	77	77	71
	54	58	57	58	61	62	65	63	64	66	66	67	65	64	62	63	65	67	68	68	67	68	67	67	67	67	67	67	69	68	65	
August	77	72	70	71	72	73	73	71	72	75	75	77	75	74	73	72	71	74	73	73	74	74	73	74	73	74	75	73	72	69	68	73
	66	67	66	64	62	62	63	65	64	66	67	68	67	65	65	65	67	68	66	64	65	67	67	67	67	69	66	68	65	63	62	66
September	67	65	61	63	64	66	67	66	70	69	70	68	65	61	61	61	63	63	60	60	59	58	55	54	51	55	56	57	56	56	--	57
	62	61	57	58	58	59	60	62	63	64	65	64	60	59	58	56	58	58	56	55	55	56	55	51	50	50	50	51	52	51	--	52

CLEARWATER RIVER BASIN--Continued
13-3390. CLEARWATER RIVER AT KAMIAH, IDAHO

LOCATION.--Temperature recorder at gaging station, 0.2 mile downstream from highway bridge at Kamiah, Lewis County, 0.8 mile downstream from Lawyer Creek, and 6 miles downstream from South Fork.
DRAINAGE AREA.--4,850 square miles, approximately.
RECORDS AVAILABLE.--Water temperatures: June 1956 to September 1958.
EXTREMES, 1957-58.--Water temperatures: Maximum, 80°F July 28, 29; minimum, 34°F Dec. 31 to Jan. 10.
EXTREMES, 1956-58.--Water temperatures: Maximum, 80°F July 28, 29, 1958; minimum, 33°F on several days during winter months 1956-57.
REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1567.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																															Aver- age		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
October	65	60	58	56	53	54	52	53	55	56	56	57	55	56	56	54	53	53	52	51	50	51	49	51	50	51	50	51	52	50	50	50	54	
	61	58	54	53	50	50	50	49	49	50	52	52	53	54	51	50	49	48	48	48	48	48	48	48	48	48	49	50	49	48	49	48	50	
November	49	48	46	45	44	42	42	40	40	38	40	42	44	43	44	43	44	42	41	41	41	40	41	41	42	42	40	40	39	37	--	42	40	
	46	44	42	40	40	40	39	38	37	37	38	40	42	42	42	42	42	40	40	40	38	40	38	38	38	40	38	38	37	36	--	40	40	
December	38	40	40	39	39	38	40	41	40	39	38	37	36	37	36	35	37	38	38	40	40	38	38	38	38	38	38	39	38	39	37	39	39	
	36	38	38	38	38	38	39	39	38	38	37	36	35	35	37	37	38	38	38	38	39	38	38	36	37	38	37	37	38	37	34	37	34	
January	36	35	36	35	36	35	35	35	35	36	36	36	36	36	38	38	36	37	38	39	36	37	37	36	39	39	39	38	38	41	39	38	40	37
	34	34	34	34	34	34	34	34	34	34	35	36	36	36	36	35	36	37	36	35	36	36	35	36	37	37	37	38	38	38	38	38	36	36
February	40	40	38	40	39	41	41	41	43	43	44	41	43	42	42	44	45	45	45	46	46	45	47	43	45	42	42	43	--	--	--	43	43	
	38	38	37	37	38	39	40	40	41	41	41	40	41	41	39	41	41	42	43	43	43	42	42	43	41	40	38	39	--	--	--	40	40	
March	43	41	44	42	41	42	45	43	45	46	46	46	47	43	49	43	47	49	45	48	51	52	48	51	49	51	48	50	49	48	46	46	46	
	38	38	39	39	39	38	38	40	38	38	38	38	38	39	41	42	41	41	42	42	44	44	44	44	44	44	44	42	43	44	45	44	41	
April	48	49	48	47	51	52	52	51	52	48	54	55	55	54	50	50	48	47	47	47	46	46	47	50	47	50	47	49	51	53	54	--	50	50
	43	44	45	44	44	44	45	47	46	45	45	45	47	50	48	48	46	45	45	46	44	44	45	44	46	46	45	45	45	47	--	45	45	
May	55	55	54	53	51	50	49	48	48	48	48	48	46	49	51	50	49	49	50	50	50	50	50	50	50	51	51	51	53	53	51	50	50	50
	49	50	50	50	50	47	47	48	48	48	48	48	46	48	48	48	49	49	49	49	49	48	48	49	50	50	51	51	49	49	49	49	49	
June	52	54	52	55	56	59	57	56	54	55	59	55	59	60	62	63	65	65	66	67	68	69	71	69	65	69	67	65	64	62	--	61	61	
	49	51	51	51	53	54	55	53	53	52	53	54	54	55	56	58	59	60	61	62	63	65	65	63	62	61	62	60	59	59	--	57	57	
July	65	63	65	70	71	73	71	72	73	74	75	76	73	73	74	74	76	76	77	78	78	78	78	78	78	76	78	80	80	78	77	74	74	
	57	60	61	61	62	65	67	65	66	66	67	69	68	66	66	66	68	68	70	70	71	71	71	70	70	70	71	72	74	72	70	67	67	
August	78	75	73	73	75	71	75	78	77	78	77	78	77	77	77	77	76	71	75	75	76	76	76	76	76	77	75	75	72	73	75	73	75	73
	70	71	68	65	65	66	68	67	66	70	71	71	70	69	69	68	70	68	67	67	68	68	68	67	67	67	67	67	65	63	64	68	68	
September	71	65	66	68	69	71	72	69	72	74	73	70	63	63	65	63	67	67	62	63	60	59	56	56	54	58	59	60	61	60	--	65	65	65
	65	60	58	59	59	60	61	62	62	63	65	63	61	60	59	59	61	60	57	56	58	56	52	50	52	51	52	54	55	52	--	58	58	58

CLEARWATER RIVER BASIN--Continued

13-3422. TWENTY ONE RANCH SPRING NEAR WAHA, IDAHO

LOCATION.--Temperature recorder at gaging station, 1 mile north of Waha, Nez Perce County, and 15 miles southeast of Lewistown. RECORDS AVAILABLE.--January to September 1958.

EXTREMES, January to September 1958. --Water temperatures: Maximum, 50°F on many days during July to September. Records of discharge for water year October 1957 to September 1958 given in WSP 1567.

[illegible]

SNAKE RIVER MAIN STEM

13-3435. SNAKE RIVER AT CENTRAL FERRY, NEAR POMEROY, WASH.

LOCATION.--At bridge on U.S. Highway 295 at Central Ferry, Garfield County, 14 miles northwest of Pomeroy and about 36 miles downstream from gaging station near Clarkston.

DRAINAGE AREA.--103,200 square miles, approximately, upstream from gaging station.

RECORDS AVAILABLE.--Chemical analyses: October 1955 to July 1958 (discontinued).

Water temperatures: October 1955 to July 1958 (discontinued).

EXTREMES, 1955-57.--Dissolved solids: Maximum, 269 ppm Oct. 1-15, 1956; minimum, 68 ppm May 15, 18-19, 21-29, 1956.

Hardness: Maximum, 150 ppm Jan. 1-31, 1957; minimum, 22 ppm Apr. 27-30, 1957.

Specific conductance: Maximum daily, 449 micromhos Oct. 18, 1956; minimum daily, 73 micromhos May 25, 27, 1956.

Water temperatures: Maximum 71° F July 25, 1956; minimum, freezing point several days during winter months.

REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Discharge records for gaging station near Clarkston for water year October 1957 to September 1958 given in WSP 1567. No appreciable inflow between sampling point and gaging station except during periods of heavy local runoff.

Chemical analyses, in parts per million, October 1957 to July 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180° C)			Hardness as CaCO ₃		Sodium adsorption ratio (micro-mhos at 25° C)	Specific conductance (micro-mhos at 25° C)	
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 1-31, 1957...	25,560			34	14	39		167	0	52	17		1.9	0.04	264	0.36	18,220	142	5	1.4	418	7.7
Nov. 1-30,	23,570			37	11	30		161	0	48	16		2.3	.07	247	.34	15,720	138	6	1.1	406	7.8
Dec. 1-31,	26,550			34	11	27		150	0	43	14		2.3	.08	238	.32	17,060	130	7	1.0	379	7.7
Jan. 1-21, 1958...	24,960			33	12	29		154	0	45	17		.3	.02	223	.30	15,030	132	6	1.1	386	8.0
Jan. 22-31,	27,030			24	8.8	21		115	0	31	12		.4	--	172	.23	12,950	96	2	.9	284	8.2
Feb. 1-11,	34,380			24	8.3	19		114	0	27	9.8		1.9	.08	176	.24	16,340	94	1	.9	267	8.0
Feb. 12-23,	56,470			20	6.6	15		94	0	21	7.2		1.6	--	152	.21	23,180	77	0	.7	220	8.0
Feb. 24-Mar. 5...	62,410			20	7.8	16		100	0	23	8.5		1.9	--	159	.22	26,790	82	0	.8	235	7.8
Mar. 6-12,	39,060			14	3.4	9.9		65	0	14	4.5		.5	--	100	.14	10,550	49	0	.6	147	7.9
Mar. 13-23,	37,640			12	2.9	8.7		57	0	12	.8		1.0	.04	99	.13	10,060	42	0	.6	126	7.6
Mar. 24-30,	54,440			6.2	1.6	3.6		31	0	4.6	.5		.3	--	58	.08	8,525	22	0	.3	61	6.9
Mar. 31-Apr. 21...	77,820			9.2	2.4	6.8		45	0	8.9	2.5		.3	.00	72	.10	15,130	33	0	.5	98	7.0
May 22-June 14...	167,500			12	2.7	8.2		55	0	10	3.0		.4	.00	87	.12	39,350	41	0	.6	121	6.9
June 15-July 2...	76,190			14	3.2	8.6		63	0	11	3.0		.6	.00	93	.13	19,130	48	0	.5	133	7.0
July 3-16,	32,860			25	8.2	25		121	0	36	12		.7	.06	190	.26	16,860	96	0	1.1	299	7.3
Weighted average	51,850			18	5.6	15		85	0	21	6.7		0.9	--	133	0.18	18,620	68	2	0.8	201	--

PART 14. PACIFIC SLOPE BASINS IN OREGON AND LOWER COLUMBIA RIVER BASIN

JOHN DAY RIVER BASIN

14-410. DESOLATION CREEK NEAR DALE, OREG.

LOCATION.--Temperature recorder at gaging station, 0.8 mile upstream from mouth and 1.5 miles east of Dale, Grant County.
DRAINAGE AREA.--108 square miles.

RECORDS AVAILABLE.--Water temperatures: July 1950 to September 1958 (discontinued).

EXTREMES, 1957-58.--Water temperatures: Maximum, 76°F July 28; minimum, freezing point many days November to January.

EXTREMES, 1950-58.--Water temperatures: Maximum, 76°F July 24, 1951, July 28, 1958; minimum, freezing point many days during winter months.
REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1568.

Temperature (°F) of water, water year October 1957 to September 1958
[Recorder with temperature attachment, continuous ethyl alcohol-actuated thermograph]

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum.....	59	53	50	49	49	47	47	49	51	51	51	52	51	51	48	47	46	44	43	43	44	44	44	46	47	47	44	42	42	44	44	47	
Minimum.....	55	50	46	44	43	43	45	42	45	44	43	50	47	44	40	38	40	38	40	37	35	41	41	40	44	44	41	39	37	39	39	43	
November																																	
Maximum.....	39	37	34	32	32	32	34	32	36	38	38	39	37	37	34	33	35	35	34	32	32	32	32	32	32	32	32	32	32	32	32	34	
Minimum.....	37	33	32	32	32	32	32	32	32	32	35	36	37	36	34	32	32	32	34	32	32	32	32	32	32	32	32	32	32	32	32	33	
December																																	
Maximum.....	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	33	34	33	32	32	32	32	32	33	35	34	33	33	
Minimum.....	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	33	33	32	32	32	32	32	32	32	32	32	32	
January																																	
Maximum.....	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	33	33	33	33	33	33	34	34	35	35	34	34	34	34	34	34	37	33
Minimum.....	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	33	33	33	33	34	34	34	34	34	34	34	33	33	33
February																																	
Maximum.....	36	37	37	37	38	36	38	38	38	38	37	38	37	38	37	36	37	36	39	40	40	41	40	40	38	38	37	37	37	37	37	37	38
Minimum.....	34	35	35	34	35	35	36	35	36	35	34	35	35	35	35	35	36	36	37	36	37	36	37	36	38	38	37	36	34	---	---	---	36
March																																	
Maximum.....	36	36	38	38	37	36	34	36	38	36	38	35	36	38	35	37	41	42	41	39	41	43	42	41	42	41	42	42	41	41	42	42	39
Minimum.....	34	35	34	34	34	34	34	34	34	34	34	34	34	34	34	34	35	35	35	37	37	37	36	38	36	36	35	37	37	38	36	35	35
April																																	
Maximum.....	43	42	39	43	44	42	45	43	47	46	47	48	47	46	45	45	44	43	45	43	41	38	40	41	43	42	44	46	48	48	49	---	44
Minimum.....	38	37	36	36	37	36	40	40	39	42	38	40	40	40	41	41	38	39	41	38	37	38	37	38	37	38	38	37	38	39	---	---	38
May																																	
Maximum.....	50	50	49	50	48	45	44	49	49	50	46	42	46	49	49	50	50	51	48	50	48	50	50	50	50	50	50	48	50	51	50	49	49
Minimum.....	41	40	41	41	41	41	40	40	41	41	39	38	39	41	41	41	41	42	41	42	41	42	43	43	43	43	43	44	43	44	43	41	41
June																																	
Maximum.....	47	48	47	50	55	52	51	49	47	50	52	49	55	56	58	59	60	62	63	63	65	63	58	57	63	59	58	54	54	54	54	55	55
Minimum.....	43	43	43	44	45	47	46	45	45	44	44	46	46	45	47	48	50	51	52	53	52	54	55	53	51	50	53	50	50	49	---	---	48
July																																	
Maximum.....	55	54	58	63	66	68	65	68	68	70	72	70	67	69	70	68	70	68	71	73	72	71	70	72	71	70	72	74	76	74	73	73	69
Minimum.....	48	51	50	50	53	55	59	56	57	58	59	56	54	55	56	57	58	57	58	60	57	58	60	57	57	58	59	61	63	60	59	57	57
August																																	
Maximum.....	74	69	70	68	70	72	72	69	74	70	73	71	70	69	70	69	67	65	69	69	66	70	70	70	70	70	68	66	65	62	64	65	69
Minimum.....	59	62	60	56	55	56	59	60	61	61	59	57	54	56	58	63	58	56	56	59	57	58	58	58	58	58	59	56	57	57	54	53	58
September																																	
Maximum.....	63	61	57	59	60	62	64	63	64	63	62	60	55	55	59	59	58	57	57	54	53	53	51	52	51	52	55	55	54	52	54	52	57
Minimum.....	55	52	48	48	48	50	52	55	54	53	53	52	52	51	50	53	50	49	45	46	46	50	47	48	48	48	44	45	46	47	44	---	49

DESCHUTES RIVER BASIN
14-875. CROOKED RIVER NEAR CULVER, OREG.

LOCATION.--Temperature recorder at gaging station, 1 mile upstream from mouth, 1.2 mile downstream from Cove powerplant, and 4 miles northwest of Culver, Jefferson County.
DRAINAGE AREA.--4 330 square miles, approximately, of which 500 square miles is probably noncontributing.
RECORDS AVAILABLE.--Water temperatures: July 1952 to September 1958.
EXTREMES, 1957-58.--Water temperatures: Maximum, 62°F several days during May; minimum, 42°F Feb. 27.
EXTREMES, 1952-58.--Water temperatures: Maximum, 63°F July 14, 1953; minimum, 40°F Dec. 24, 25, 1955.
REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1568.

Month	Day																														Average		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum.....	56	56	55	55	55	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	
Minimum.....	56	55	55	55	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	
November																																	
Maximum.....	53	53	53	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	
Minimum.....	53	53	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	
December																																	
Maximum.....	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	
Minimum.....	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	
January																																	
Maximum.....	51	51	51	51	51	51	51	51	51	51	51	52	52	52	51	51	51	51	50	50	50	50	50	50	50	50	50	50	50	50	50	50	
Minimum.....	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	
February																																	
Maximum.....	45	46	47	48	48	48	48	48	48	48	48	48	48	47	46	46	46	46	46	45	45	46	46	46	46	46	46	43	43	43	43	43	
Minimum.....	43	45	46	47	48	48	48	48	48	48	48	48	48	47	46	46	46	45	45	45	45	46	46	46	46	46	46	43	43	43	43	43	
March																																	
Maximum.....	44	44	45	45	45	46	46	46	46	46	47	47	47	47	47	49	49	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	
Minimum.....	43	44	44	45	45	46	46	46	46	46	47	47	47	47	47	49	49	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	
April																																	
Maximum.....	49	49	49	49	49	49	49	49	49	50	50	51	52	52	52	51	51	52	52	51	53	52	51	50	50	50	50	51	52	53	54	55	55
Minimum.....	49	49	49	49	49	49	49	49	49	50	50	51	52	52	50	51	51	51	50	51	52	51	50	50	50	50	50	50	50	52	53	54	55
May																																	
Maximum.....	56	57	57	57	57	57	56	57	58	60	59	56	57	59	56	57	59	60	61	62	62	62	62	62	61	61	61	61	60	60	59	58	
Minimum.....	55	56	56	57	57	57	56	56	57	58	59	56	55	55	55	57	59	60	61	61	61	61	61	61	61	60	60	60	59	59	59	58	
June																																	
Maximum.....	60	59	59	59	60	59	60	59	59	59	59	60	60	60	60	61	61	61	61	61	61	61	61	60	59	60	60	59	59	59	59	60	
Minimum.....	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	60	60	60	60	60	60	60	60	59	59	59	59	59	59	59	59	59	
July																																	
Maximum.....	59	59	60	61	61	61	61	61	60	60	61	60	60	60	58	58	59	59	60	60	60	60	60	60	60	60	60	60	60	60	60	60	
Minimum.....	59	59	59	59	60	60	60	60	59	59	59	59	59	58	58	58	58	59	59	58	58	58	58	58	58	58	58	58	58	58	58	58	
August																																	
Maximum.....	60	59	59	59	59	59	59	59	59	59	59	59	59	59	59	58	58	59	59	59	59	59	59	59	58	58	58	57	57	57	58	58	
Minimum.....	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	57	57	57	58	
September																																	
Maximum.....	58	57	57	57	57	57	57	58	57	57	57	57	57	56	56	56	56	56	56	56	56	56	56	55	55	55	56	56	56	56	56	56	
Minimum.....	57	56	56	56	56	56	56	57	57	57	57	57	57	56	56	56	56	56	56	56	56	56	55	55	55	55	55	55	55	55	55	56	

[Recorder with temperature attachment, continuous ethyl alcohol-actuated thermograph]

Temperature (°F) of water, water year October 1957 to September 1958

DESCHUTES RIVER BASIN--Continued

14-915. METOLIUS RIVER NEAR GRANDVIEW, OREG.

LOCATION.--Temperature recorder at gaging station, 0.7 mile upstream from Street Creek, 7.5 miles northwest of Grandview, and 13 miles northwest of Culvet, Jefferson County.

DRAINAGE AREA.--324 square miles, hydrologic drainage boundary uncertain owing to ground-water exchange.

RECORDS AVAILABLE.--Water temperatures: July 1952 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 58°F June 22, July 11, 12, Aug. 8, 11; minimum, 39°F Dec. 31, Jan. 5, 7, 19.

EXTREMES, 1952-58.--Water temperatures: Maximum, 56°F July 5, 1957; minimum, 38°F Jan. 31, Feb. 1, 2, 1956.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1568.

Temperature (°F) of water, water year October 1957 to September 1958

/Recorder with temperature attachment, continuous ethyl alcohol-actuated thermometer⁷

Month	Day																														Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum.....	49	48	47	47	47	46	47	47	46	47	48	48	47	47	46	46	46	46	46	46	45	45	45	45	45	45	45	45	45	46	45	46
Minimum.....	47	47	45	45	45	45	46	45	46	45	46	45	46	46	44	44	44	44	45	45	43	45	45	45	45	45	45	44	45	45	45	45
November																																
Maximum.....	44	43	43	43	43	43	43	43	43	43	44	44	44	44	43	42	42	42	42	42	42	42	42	42	42	42	42	41	41	41	42	41
Minimum.....	43	43	43	42	42	42	42	43	42	43	43	43	43	43	42	41	41	41	41	41	41	41	41	41	41	41	41	40	41	40	40	40
December																																
Maximum.....	42	42	41	41	41	42	42	42	41	41	41	41	41	42	42	42	42	42	42	42	41	41	41	41	41	41	41	41	41	41	41	42
Minimum.....	41	42	41	40	41	41	42	41	40	40	40	40	40	40	42	41	41	42	40	41	41	40	40	40	41	42	40	41	41	41	40	39
January																																
Maximum.....	40	40	40	40	40	40	41	41	42	42	42	42	42	42	42	42	42	42	42	41	41	41	41	41	41	42	42	41	41	41	41	40
Minimum.....	40	40	40	40	40	39	40	41	41	42	41	41	41	41	42	41	42	40	39	40	41	40	40	41	41	41	42	43	42	41	41	41
February																																
Maximum.....	42	42	43	43	43	43	43	43	43	43	43	43	43	42	42	42	42	42	42	43	43	43	44	44	43	42	42	42	42	42	42	41
Minimum.....	41	42	42	42	42	42	43	43	42	42	41	42	41	42	42	42	42	42	42	42	42	42	43	43	42	41	41	41	41	41	41	41
March																																
Maximum.....	42	42	42	43	43	43	42	42	43	43	43	42	42	43	43	42	43	44	44	44	44	44	45	45	44	44	45	44	45	44	44	45
Minimum.....	41	42	41	42	41	41	41	41	42	42	42	42	42	42	42	42	42	42	42	42	42	42	43	43	42	41	41	41	41	41	41	41
April																																
Maximum.....	45	44	46	46	46	45	46	46	46	46	48	48	48	47	47	48	47	47	49	48	47	47	47	47	46	48	48	49	49	50	50	47
Minimum.....	43	43	43	43	43	43	44	44	44	45	44	44	45	44	45	45	46	46	46	45	45	44	44	44	44	44	45	45	45	45	45	44
May																																
Maximum.....	52	52	52	51	50	52	52	53	52	53	52	50	51	52	53	53	53	53	52	51	53	51	52	50	52	52	52	52	52	52	52	52
Minimum.....	47	47	48	47	48	47	47	48	48	48	48	46	46	47	48	48	48	48	48	48	48	48	48	48	48	47	48	48	48	48	48	48
June																																
Maximum.....	51	50	50	51	52	52	50	51	50	50	51	52	53	53	53	54	54	54	54	54	54	54	55	54	50	52	53	52	52	51	51	52
Minimum.....	47	48	48	48	48	49	47	48	48	48	47	47	47	48	48	48	49	49	49	49	49	49	50	49	48	48	48	48	48	48	48	48
July																																
Maximum.....	51	51	53	54	54	54	54	54	54	54	55	55	53	53	53	53	54	53	53	53	53	53	53	53	53	53	53	53	54	54	54	53
Minimum.....	48	48	48	49	49	49	49	49	49	49	50	50	49	48	48	48	48	49	49	48	48	48	48	48	48	48	48	48	49	49	49	48
August																																
Maximum.....	53	53	53	52	52	54	54	55	54	54	55	54	54	54	54	54	53	53	53	53	53	53	53	53	53	53	53	52	51	50	51	53
Minimum.....	48	49	49	48	48	48	48	48	50	50	50	49	49	49	49	50	50	50	49	49	50	50	49	50	49	49	49	48	48	48	48	49
September																																
Maximum.....	51	50	49	50	51	51	51	51	51	51	50	50	49	48	47	48	49	49	49	48	50	48	47	46	46	48	48	48	48	48	48	47
Minimum.....	48	47	47	47	47	47	48	48	48	48	48	48	48	48	47	47	46	46	47	46	47	47	47	47	45	46	45	45	45	45	45	45

DESCUTES RIVER BASIN--Continued

14-1030. DESCUTES RIVER AT WOODY, NEAR BIGGS, OREG.

LOCATION.--Temperature recorder at gaging station at Woody, 1.5 miles upstream from mouth, and 5 miles southwest of Biggs, Sherman County. DRAINAGE AREA.--10,500 square miles, approximately 1954 to September 1958 (discontinued). RECORDS AVAILABLE.--Water temperatures: November 1954 to September 1958 (discontinued).
 EXTREMES, 1957-58.--Water temperatures: Maximum, 71°F June 21, July 27-29; Minimum, 41°F on several days in January.
 EXTREMES, 1954-56.--Water temperatures: Maximum, 71°F June 21, July 27-29, 1958; Minimum, 33°F Dec. 30, 1955.
 REMARKS.--Temperature recorder not operating Aug. 20 to Sept. 4. Records of discharge for water year October 1957 to September 1958 given in WSP 1568.

Month	Day																																Average
	Temperature (°F) of water, water year October 1957 to September 1958																																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum.....	59	57	56	54	54	54	53	53	54	54	55	55	55	55	54	54	54	53	52	53	52	52	52	52	52	53	53	53	52	53	53	54	
Minimum.....	57	56	54	53	53	53	52	52	52	52	54	54	54	54	53	52	52	52	51	51	51	51	51	51	51	52	52	52	51	52	52	53	
November																																	
Maximum.....	52	51	49	47	46	46	47	47	47	47	46	48	49	49	48	47	47	47	46	45	44	45	46	46	47	48	47	47	46	45	--	47	
Minimum.....	51	49	47	46	45	45	46	45	46	46	47	48	48	49	46	47	47	46	46	45	44	44	45	45	46	47	46	46	45	44	--	46	
December																																	
Maximum.....	45	46	45	44	46	47	47	46	45	45	45	45	45	45	45	45	45	45	45	44	44	44	43	44	45	44	44	44	44	43	42	45	
Minimum.....	44	45	44	42	42	44	46	46	45	45	44	44	44	44	44	44	44	44	44	44	44	43	43	43	44	44	44	43	43	42	42	44	
January																																	
Maximum.....	42	42	41	41	41	41	41	42	43	43	44	45	45	45	45	45	45	45	45	44	44	44	44	44	45	45	45	45	45	45	45	44	
Minimum.....	41	41	41	41	41	41	41	41	42	43	44	45	45	45	45	45	45	45	44	43	43	44	44	44	45	44	43	43	43	45	45	43	
February																																	
Maximum.....	45	45	45	46	46	46	47	48	48	48	48	48	48	48	48	48	48	49	49	49	49	49	49	49	49	49	48	47	47	--	--	48	
Minimum.....	45	44	44	44	45	46	46	47	48	48	48	47	47	48	48	48	48	49	49	49	49	49	49	49	49	48	47	47	--	--	--	47	
March																																	
Maximum.....	45	44	45	45	45	45	44	44	45	46	45	45	45	46	47	47	48	49	49	49	49	49	51	52	52	52	52	53	52	52	52	48	
Minimum.....	44	44	44	44	44	44	44	44	44	44	44	44	44	45	46	47	47	47	48	48	48	49	50	51	51	50	51	51	51	50	50	47	
April																																	
Maximum.....	52	51	51	52	52	52	52	52	52	54	55	55	55	54	54	54	54	54	54	54	53	52	53	53	53	53	54	55	56	57	--	54	
Minimum.....	50	50	50	49	49	50	50	51	51	51	52	53	54	53	53	53	54	53	53	53	52	51	51	52	52	52	52	52	53	54	--	52	
May																																	
Maximum.....	58	58	59	58	58	60	61	61	62	60	57	59	60	62	63	63	63	64	65	66	66	66	66	66	64	66	65	65	65	64	62	60	
Minimum.....	55	56	57	57	57	56	58	59	59	57	56	57	56	57	58	60	61	61	62	63	64	63	63	64	63	64	63	63	63	63	63	60	
June																																	
Maximum.....	63	63	63	64	64	62	63	62	62	62	62	62	63	65	66	67	69	70	70	71	70	69	68	67	68	67	65	63	64	63	--	65	
Minimum.....	61	62	61	61	62	61	60	61	60	60	60	59	60	61	63	64	65	66	67	67	67	67	68	68	62	63	62	63	61	61	--	63	
July																																	
Maximum.....	62	70	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	68	70	71	71	69	69	69	69	69	
Minimum.....	60	61	65	65	65	66	66	66	65	66	66	67	64	65	65	66	67	67	66	65	65	66	66	65	66	66	66	66	67	66	66	65	
August																																	
Maximum.....	69	69	68	67	68	68	69	66	68	67	66	67	67	67	67	67	68	64	65	65	66	66	66	66	66	66	66	65	--	--	--	67	
Minimum.....	66	66	65	64	65	65	65	65	65	65	65	64	63	64	64	64	64	63	62	62	63	63	64	63	64	63	63	63	63	63	63	64	
September																																	
Maximum.....	--	--	--	--	--	63	64	65	63	63	63	61	61	61	60	61	61	61	61	61	61	60	58	57	56	57	58	58	58	58	58	--	60
Minimum.....	--	--	--	--	--	60	61	61	62	62	61	61	60	60	60	58	59	60	60	59	60	58	57	57	56	55	56	56	57	57	--	59	

/Recorder with temperature attachment, continuous ethyl alcohol-actuated thermograph

COLUMBIA RIVER MAIN STEM

14-1057. COLUMBIA RIVER AT MARYHILL FERRY NEAR RUFUS, OREG.

LOCATION.--At Maryhill Ferry about 2.5 miles downstream from Rufus, Sherman County, about 20 miles upstream from gaging station at The Dalles, Wasco County, and about 6 miles upstream from the Deschutes River.

DRAINAGE AREA.--237,000 square miles, approximately upstream from gaging station.

RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1958.

Water temperatures: December 1950 to September 1958.

EXTREMES, 1957-58.--Dissolved solids: Maximum, 138 ppm Dec. 1-31, Feb. 1-16; minimum, 76 ppm May 18-31.

Hardness: Maximum, 94 ppm Dec. 1-31; minimum, 38 ppm May 18-31.

Specific conductance: Maximum daily, 240 micromhos Dec. 3; minimum daily, 103 micromhos May 30.

WATER TEMPERATURES: Maximum, 81.2° Aug. 12, 13; minimum, 34.6° Jan. 21, 1956.

Specific conductance: Maximum, 104 micromhos Dec. 3; minimum, 38 ppm May 18-31.

WATER TEMPERATURES: Maximum, 81.2° Aug. 12, 13; minimum, 34.6° Jan. 21, 1956.

Specific conductance: Maximum, 104 micromhos Dec. 3; minimum, 38 ppm May 18-31.

Water temperatures: Maximum, 81.2° Aug. 12, 13; minimum, 34.6° Jan. 21, 1956.

Specific conductance: Maximum, 104 micromhos Dec. 3; minimum, 38 ppm May 18-31.

Water temperatures: Maximum, 81.2° Aug. 12, 13; minimum, 34.6° Jan. 21, 1956.

Specific conductance: Maximum, 104 micromhos Dec. 3; minimum, 38 ppm May 18-31.

Water temperatures: Maximum, 81.2° Aug. 12, 13; minimum, 34.6° Jan. 21, 1956.

Specific conductance: Maximum, 104 micromhos Dec. 3; minimum, 38 ppm May 18-31.

Water temperatures: Maximum, 81.2° Aug. 12, 13; minimum, 34.6° Jan. 21, 1956.

Specific conductance: Maximum, 104 micromhos Dec. 3; minimum, 38 ppm May 18-31.

Water temperatures: Maximum, 81.2° Aug. 12, 13; minimum, 34.6° Jan. 21, 1956.

Specific conductance: Maximum, 104 micromhos Dec. 3; minimum, 38 ppm May 18-31.

Water temperatures: Maximum, 81.2° Aug. 12, 13; minimum, 34.6° Jan. 21, 1956.

Specific conductance: Maximum, 104 micromhos Dec. 3; minimum, 38 ppm May 18-31.

Water temperatures: Maximum, 81.2° Aug. 12, 13; minimum, 34.6° Jan. 21, 1956.

Specific conductance: Maximum, 104 micromhos Dec. 3; minimum, 38 ppm May 18-31.

Water temperatures: Maximum, 81.2° Aug. 12, 13; minimum, 34.6° Jan. 21, 1956.

Specific conductance: Maximum, 104 micromhos Dec. 3; minimum, 38 ppm May 18-31.

Water temperatures: Maximum, 81.2° Aug. 12, 13; minimum, 34.6° Jan. 21, 1956.

Specific conductance: Maximum, 104 micromhos Dec. 3; minimum, 38 ppm May 18-31.

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Specific conductance: Maximum, 104 micromhos Dec. 3; minimum, 38 ppm May 18-31.

Water temperatures: Maximum, 81.2° Aug. 12, 13; minimum, 34.6° Jan. 21, 1956.

Specific conductance: Maximum, 104 micromhos Dec. 3; minimum, 38 ppm May 18-31.

Water temperatures: Maximum, 81.2° Aug. 12, 13; minimum, 34.6° Jan. 21, 1956.

Specific conductance: Maximum, 104 micromhos Dec. 3; minimum, 38 ppm May 18-31.

Water temperatures: Maximum, 81.2° Aug. 12, 13; minimum, 34.6° Jan. 21, 1956.

Specific conductance: Maximum, 104 micromhos Dec. 3; minimum, 38 ppm May 18-31.

Water temperatures: Maximum, 81.2° Aug. 12, 13; minimum, 34.6° Jan. 21, 1956.

Specific conductance: Maximum, 104 micromhos Dec. 3; minimum, 38 ppm May 18-31.

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Water temperatures: Maximum, 81.2° Aug. 12, 13; minimum, 34.6° Jan. 21, 1956.

Specific conductance: Maximum, 104 micromhos Dec. 3; minimum, 38 ppm May 18-31.

Water temperatures: Maximum, 81.2° Aug. 12, 13; minimum, 34.6° Jan. 21, 1956.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Bo- ton (B)	Dissolved solids (residue at 180° C)			Hardness as CaCO ₃		So- dium sorp- tion ratio	Specific conductance (micro-mhos at 25° C)	
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 1-31, 1957..	99,550	9.4	0.00	25	6.7	12	1.9	101	0	23	5.2	0.2	0.9	0.04	134	0.18	36,020	90	7	0.5	230	7.5
Nov. 1-30.....	95,330	--	--	--	--	11	--	102	0	--	--	--	--	--	136	.18	35,010	93	9	--	231	7.6
Dec. 1-31.....	96,650	--	--	--	--	11	--	104	0	--	--	--	--	--	138	.19	36,010	94	9	--	231	7.6
Jan. 1-31, 1958..	99,970	18	--	25	6.7	10	1.8	102	0	20	5.5	.2	1.0	.04	135	.18	36,440	90	6	.5	223	7.9
Feb. 1-29.....	118,100	--	--	--	--	10	--	100	0	--	--	--	--	--	138	.19	44,000	89	7	--	221	7.7
Feb. 17-28.....	190,000	--	--	--	--	9	--	88	0	--	--	--	--	--	128	.17	65,660	98	0	--	188	7.4
Mar. 1-31.....	152,100	--	--	--	--	8.9	--	96	0	--	--	--	--	--	126	.17	51,740	65	0	--	198	8.0
Apr. 1-17.....	169,600	15	--	22	4.9	8.6	1.8	89	0	16	3.8	1.1	1.1	.02	124	.17	56,780	75	2	.4	188	7.7
Apr. 18-22.....	264,800	--	--	--	--	7.7	--	79	0	--	--	--	--	--	111	.15	79,360	54	0	--	168	7.9
Apr. 23-30.....	262,400	--	--	--	--	5.9	--	69	0	--	--	--	--	--	105	.13	68,010	45	0	--	140	8.1
May 1-9.....	252,100	--	--	--	--	6.6	--	76	0	--	--	--	--	--	96	.14	71,470	51	0	--	157	7.5
May 10-17.....	335,800	--	--	--	--	5.3	--	65	0	--	--	--	--	--	90	.12	81,600	43	0	--	133	7.5
May 18-31.....	521,900	--	--	--	--	4.0	--	54	0	--	--	--	--	--	76	.10	107,100	38	0	--	113	7.2

REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Discharge records for gaging station at The Dalles for water year October 1957 to September 1958 given in WSP 1568. Discharge records include the flow of the Deschutes River, which on the average amounts to less than 5 percent of the flow at the gaging station.

COLUMBIA RIVER MAIN STEM--Continued

14-1057. COLUMBIA RIVER AT MARYHILL FERRY NEAR RUFUS, OREG.--Continued

Chemical analyses, in parts per million, water year October 1957 to September 1958--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonyl sulfide (CO ₂)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Boron (B)	Dissolved solids (residue at 180°C)				Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)
														Parts per million	Tons per acre-foot	Tons per day	Tons per day	Calcium Magnesium	Non-boronate		
June 1-22, 1958..	495,600	--	--	--	--	4.0	--	62	0	--	--	--	--	79	0.11	105,700	54	3	--	--	121.7
June 23-30.....	337,400	--	--	--	--	3.8	--	92	0	--	--	--	--	109	0.15	99,300	82	7	--	--	172.7
July 1-31.....	201,200	7.2	--	18	5.8	3.7	1.1	78	0	12	1.8	0.2	0.2	91	0.12	49,430	69	5	0.2	149	7.0
Aug. 1-13.....	132,500	--	--	--	--	5.7	--	80	0	--	--	--	--	100	0.14	35,780	71	5	--	--	165.7
Aug. 14-31.....	112,100	--	--	--	--	6.6	--	82	0	--	--	--	--	102	0.14	30,870	75	8	--	--	172.7
Sept. 1-14.....	96,860	--	--	--	--	5.2	--	79	0	--	--	--	--	97	0.13	25,370	73	8	--	--	162.7
Sept. 15-30.....	96,250	--	--	--	--	11	--	98	0	--	--	--	--	133	0.18	34,560	88	8	--	--	220
Weighted average	180,700	--	--	--	--	6.7	--	80	0	--	--	--	--	106	0.14	51,720	66	4	--	--	167

Temperature (°F) of water, water year October 1957 to September 1958

Month		Day																												Average			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		29	30	31
October.....	70	68	68	68	68	69	69	69	69	70	70	60	60	61	60	60	60	59	59	57	57	57	57	57	56	56	56	56	56	52	52	61	
November.....	52	52	52	50	50	50	50	50	50	51	51	51	50	--	50	48	49	47	46	46	47	47	47	46	46	48	48	46	46	43	43	49	
December.....	45	44	44	44	45	46	48	48	47	47	47	47	47	44	45	44	42	43	41	41	40	42	--	--	38	38	39	39	40	36	36	43	
January.....	34	35	36	37	37	38	38	38	37	38	38	40	40	41	41	41	43	42	41	41	41	42	42	43	43	40	40	41	43	44	40	40	
February.....	43	44	46	46	45	44	44	45	45	45	44	46	45	45	45	46	47	47	47	47	47	48	48	48	50	49	49	49	49	46	46	46	
March.....	49	49	48	47	47	49	49	50	49	50	49	50	51	51	52	51	51	50	49	49	49	49	49	49	50	50	50	52	52	51	50	50	
April.....	52	52	53	53	54	54	53	53	54	54	55	54	54	55	55	55	56	56	56	55	53	54	54	54	55	55	55	58	58	58	55	55	
May.....	58	57	57	57	58	58	58	58	58	58	58	59	59	59	59	60	59	60	61	61	60	62	62	62	63	64	65	65	65	64	60	60	
June.....	64	63	62	63	63	63	62	62	63	63	64	65	65	66	68	68	70	71	73	73	65	66	66	66	67	67	66	66	65	64	66	66	
July.....	65	66	67	67	66	68	68	69	69	70	70	70	69	70	70	71	72	72	72	73	72	72	73	73	74	75	78	78	77	78	77	71	71
August.....	76	78	77	77	78	78	78	79	79	80	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	75	75
September.....	73	70	71	71	73	71	71	70	68	70	70	68	68	67	67	67	65	65	65	64	64	64	64	64	65	65	65	65	65	64	64	68	68

CLICKITAT RIVER BASIN

14-1130. CLICKITAT RIVER NEAR PITT, WASH.

LOCATION.--Temperature recorder at gaging station, 3.5 miles south of Pitt, Klickitat County, 5 miles upstream from Silvias Creek, and 7 miles upstream from mouth.

DRAINAGE AREA.--1,290 square miles, approximately.

RECORDS AVAILABLE.--Water temperatures: August 1950 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 69°F July 28, 29; minimum, 36°F Dec. 31 to Jan. 2.

EXTREMES, 1950-58.--Water temperatures: Maximum, 69°F July 28, 29, 1956; minimum, freezing point Jan. 31, Feb. 1-4, 1956.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1568.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																													Average			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum.....	54	52	41	51	50	50	51	51	51	52	53	53	54	54	52	50	50	48	48	46	46	49	49	49	49	50	50	50	50	52	52	51	
Minimum.....	54	52	49	47	46	49	50	50	50	50	51	51	51	51	48	47	48	46	46	46	46	47	49	49	49	50	50	50	49	50	49	49	
November																																	
Maximum.....	49	46	45	43	42	44	46	45	44	44	45	46	47	47	47	44	44	44	44	42	41	41	40	40	42	42	40	42	39	38	36	44	
Minimum.....	46	44	43	41	41	41	44	43	42	43	44	45	46	47	44	42	43	43	43	42	40	40	40	39	40	42	39	39	38	36	42	42	
December																																	
Maximum.....	42	42	42	41	40	42	43	43	43	41	39	40	40	40	40	40	41	41	41	41	41	41	41	40	40	42	42	41	41	41	40	38	41
Minimum.....	39	42	41	40	40	40	42	43	41	39	39	40	40	39	40	39	40	41	40	40	41	41	40	40	40	41	40	40	40	38	40	40	
January																																	
Maximum.....	36	37	37	38	38	38	38	38	39	40	41	41	40	40	42	42	42	41	39	39	39	40	40	41	41	41	41	41	42	42	42	40	
Minimum.....	36	36	37	37	38	38	38	36	36	39	40	40	39	39	40	42	41	39	38	38	39	39	40	40	41	41	41	41	41	42	42	39	
February																																	
Maximum.....	42	42	42	42	43	43	44	44	44	44	44	43	42	42	43	43	44	45	45	45	45	45	46	46	46	46	44	43	41	41	41	44	
Minimum.....	42	42	42	42	42	42	42	43	44	43	42	42	42	42	43	44	44	45	45	45	45	45	46	46	46	44	43	41	41	41	41	41	
March																																	
Maximum.....	42	42	43	43	44	43	41	41	41	41	41	42	43	44	44	45	45	45	45	45	46	47	48	48	47	47	47	47	47	46	46	44	
Minimum.....	41	41	41	41	41	42	40	40	40	40	40	41	41	42	43	44	43	43	43	44	44	45	45	46	45	44	43	41	41	41	44	43	
April																																	
Maximum.....	46	46	46	47	47	47	50	49	48	51	51	51	50	48	47	50	48	48	48	48	46	47	46	47	47	47	46	48	51	52	48	48	
Minimum.....	45	44	43	44	43	44	45	46	47	47	47	47	49	47	47	47	48	45	46	44	44	44	44	44	44	46	45	45	46	48	46	46	
May																																	
Maximum.....	53	52	52	51	50	52	52	51	52	51	48	49	51	53	54	53	53	54	53	54	53	54	53	54	52	54	55	54	54	55	54	53	
Minimum.....	50	49	49	49	49	49	49	50	50	50	47	46	47	49	51	51	52	51	52	51	52	52	52	51	52	53	53	51	51	52	50	50	
June																																	
Maximum.....	55	55	56	56	57	56	56	56	56	59	57	59	60	60	61	62	63	64	64	64	64	64	64	64	61	60	61	60	60	59	60	60	
Minimum.....	50	52	52	52	53	55	52	53	53	54	54	54	55	55	56	56	57	58	58	59	58	59	59	60	57	55	57	55	55	55	55	55	
July																																	
Maximum.....	62	63	64	64	66	66	66	65	66	66	67	66	65	65	65	66	67	67	67	66	67	67	67	66	67	67	67	68	69	69	67	66	
Minimum.....	55	56	57	58	59	60	61	59	60	61	62	60	59	59	59	59	62	63	62	61	61	61	62	62	60	61	62	62	64	62	62	60	
August																																	
Maximum.....	67	67	66	64	65	66	67	66	64	65	64	65	64	64	65	64	62	64	64	65	64	65	65	64	65	65	64	64	59	60	61	61	
Minimum.....	61	61	58	59	60	62	61	61	59	60	60	58	59	60	60	60	59	58	58	59	59	59	60	60	60	60	60	59	56	56	56	59	
September																																	
Maximum.....	61	59	55	56	58	59	59	61	61	59	58	57	55	57	56	55	56	55	55	53	53	53	51	50	53	52	52	55	55	54	56	56	
Minimum.....	57	54	52	51	53	54	55	55	56	55	54	53	54	54	53	52	52	52	53	50	51	50	48	48	48	49	48	50	52	50	52	52	

WILLAMETTE RIVER BASIN--Continued

LOCATION.--Temperature recorder at gaging station, 0.8 mile upstream from Lost Creek and 2 miles northwest of Dexter, Lane County.
DRAINAGE AREA.--1,001 square miles.

RECORDS AVAILABLE:--Water temperatures: August 1955 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 64°F July 10; minimum, 42°F many days in December and January.

EXTREMES, 1954-58. ---Water temperatures: Maximum, 64°F July 10, 1958; minimum, 38°F several on several days during January and February 1957.

REMARKS.--Water stage below temperature bulb Dec. 19-21, Feb. 15-18; range not defined. Records of discharge for water year October 1957 to September 1958 given in WSP 1568.

Temperature (°F) of water, water year October 1957 to September 1958 Recorder with temperature attachment, continuous ethyl alcohol-actuated thermometer																																		
Month	Day																														Average			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		31		
October	61	61	61	60	60	60	60	60	60	60	61	60	60	60	60	60	59	58	58	58	58	58	58	58	58	59	59	58	58	57	57	59		
	61	61	60	60	60	59	59	60	60	60	60	60	60	60	59	59	58	58	58	57	58	58	58	58	58	58	57	57	57	56	55	59		
	56	56	55	55	54	54	53	53	53	53	53	53	53	53	53	52	51	51	51	51	50	50	50	50	50	49	49	49	48	49	--	52		
November	55	55	54	53	53	53	53	53	53	53	53	53	53	53	52	51	51	51	51	50	50	50	49	49	49	49	49	49	48	47	--	51		
	48	49	47	47	47	47	47	48	47	46	46	45	45	44	44	44	44	44	--	--	--	--	44	44	43	43	43	43	43	43	45	45		
	43	43	43	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	43	42	42		
December	42	43	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	43	42	42		
	43	43	43	43	43	43	44	44	44	44	44	44	44	44	44	--	--	--	--	46	46	45	45	46	46	46	46	46	46	--	--	44	44	
	43	43	43	43	43	43	44	44	44	44	44	44	44	44	44	44	--	--	--	46	45	45	45	46	46	46	46	46	46	--	--	44	44	
January	46	46	46	46	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	47	47	47	48	48	49	50	50	49	48	48	48	48	48	
	46	46	46	46	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	47	47	47	48	48	48	49	50	49	48	48	48	48	48	
	49	50	50	51	48	50	49	51	52	53	50	53	49	50	49	50	49	51	50	50	49	50	49	48	48	48	48	48	48	50	49	48	48	
February	48	48	48	48	48	48	48	48	48	47	47	47	48	48	48	48	48	48	48	48	48	48	47	47	47	47	47	47	47	47	47	47	47	
	50	51	52	51	51	51	51	51	51	51	51	51	51	51	52	52	53	53	53	53	53	53	53	52	53	54	53	54	54	53	52	52	52	
	48	49	49	50	51	50	49	50	50	49	49	49	49	49	50	50	50	51	51	51	52	52	52	51	51	51	51	52	52	52	52	52	52	
March	54	53	54	53	52	54	52	54	52	52	52	52	53	54	56	55	56	56	57	57	57	58	57	57	57	59	58	58	58	60	--	55	55	
	52	52	52	52	52	52	52	52	52	52	52	52	52	53	54	54	54	54	54	54	54	55	55	56	56	57	58	57	57	57	57	57	57	
	60	61	62	61	62	61	60	63	64	63	63	63	63	63	63	62	61	61	61	61	61	62	62	61	61	62	63	63	62	63	62	63	62	
April	56	58	58	58	58	58	58	59	58	58	58	58	58	58	58	58	58	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	
	63	63	63	63	63	63	63	63	63	62	62	62	62	62	62	62	62	62	62	62	63	63	63	63	63	63	62	61	61	61	62	62	62	
	57	58	57	57	58	58	58	58	58	58	58	58	58	57	57	57	58	59	58	59	59	59	59	59	59	59	59	59	59	60	60	59	58	
May	61	61	61	61	61	62	61	62	61	62	61	61	61	61	60	61	61	61	62	62	61	61	62	61	62	61	62	62	63	63	63	63	62	62
	59	59	59	59	59	59	59	59	59	59	60	60	60	60	60	60	60	60	60	60	61	61	61	61	61	61	61	61	61	61	61	61	61	61
	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	

Temperature (°F) of water, water year October 1957 to September 1958

Recorder with temperature attachment, continuous ethyl alcohol-actuated thermograph/Recorder with temperature attachment, continuous ethyl alcohol-actuated thermograph

WILLAMETTE RIVER BASIN--Continued

14-1510. FALL CREEK BELOW WINBERRY CREEK, NEAR FALL CREEK, OREG.

LOCATION.--Temperature recorder at gaging station, 10 feet upstream from road bridge, 1.5 miles downstream from Winberry Creek, 2.5 miles southeast of Fall Creek, and 5 miles above mouth, Lane County.

DRAINAGE AREA.--166 square miles.

DATE OF RECORD.--Water temperatures: August 1950 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 79°F, July 28, 1958; Minimum, 34°F Jan. 30, 31, 1951, and during Nov. 14-17, 1955.

EXTREMES, 1950-58.--Water temperatures: Maximum, 79°F, July 28, 1958; Minimum, 34°F Jan. 30, 31, 1951, and during Nov. 14-17, 1955.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1568.

Temperature (°F) of water, water year October 1957 to September 1958

/Recorder with temperature attachment, continuous ethyl alcohol-actuated thermograph

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum.....	62	61	58	54	52	52	53	53	53	53	56	56	54	54	53	51	51	50	49	47	47	47	49	51	53	53	53	52	50	50	50	52
Minimum.....	61	58	54	52	52	51	51	52	51	53	53	54	54	53	50	49	48	48	47	46	45	46	47	49	50	52	50	48	49	49	49	51
November																																
Maximum.....	49	45	44	42	41	41	41	42	42	44	45	45	46	46	44	44	41	43	43	42	41	40	40	40	41	42	42	40	40	39	--	42
Minimum.....	45	43	41	40	39	40	40	40	42	42	44	44	45	44	44	41	41	41	42	41	39	39	39	39	41	40	40	38	37	--	41	41
December																																
Maximum.....	40	41	41	40	40	43	46	47	45	44	44	44	43	44	44	45	45	45	46	46	46	44	44	44	45	45	45	46	46	44	44	44
Minimum.....	38	40	40	38	39	40	43	45	44	43	43	43	43	44	44	44	45	44	43	45	44	44	44	44	44	45	44	44	46	44	43	43
January																																
Maximum.....	44	45	45	44	43	42	42	43	44	45	45	46	46	46	46	47	46	46	45	44	44	44	44	44	45	45	45	46	46	46	45	45
Minimum.....	43	44	44	43	42	42	42	42	43	44	45	45	45	45	46	46	46	45	44	44	44	42	43	44	45	44	44	45	46	45	44	44
February																																
Maximum.....	45	45	46	46	46	47	47	47	47	46	46	46	45	45	45	46	47	47	47	47	47	47	48	48	48	48	46	45	45	--	--	46
Minimum.....	44	45	46	46	46	46	46	46	46	46	46	46	45	45	45	46	47	47	47	47	46	47	47	48	48	46	45	44	--	--	--	46
March																																
Maximum.....	44	44	45	44	43	43	42	41	43	43	44	44	44	45	44	44	44	46	46	47	48	48	48	47	48	48	48	48	47	47	45	45
Minimum.....	42	42	44	42	43	41	41	40	41	42	43	42	43	42	42	42	42	44	43	46	47	46	47	47	47	48	48	47	46	46	46	44
April																																
Maximum.....	48	48	48	47	49	48	48	48	49	53	53	55	53	53	52	51	51	49	49	49	49	48	47	47	48	48	50	52	53	54	--	50
Minimum.....	47	47	46	45	45	47	46	47	48	49	49	50	50	49	51	50	49	47	48	49	48	47	46	46	46	46	47	48	50	47	48	50
May																																
Maximum.....	55	55	55	56	54	52	57	57	60	61	60	53	56	59	62	64	63	64	66	65	67	67	67	66	63	65	66	65	66	66	65	61
Minimum.....	51	50	51	51	52	51	50	54	54	55	53	51	48	51	54	59	58	59	60	61	61	62	63	62	59	60	62	61	63	62	64	56
June																																
Maximum.....	63	62	61	61	61	61	58	57	57	55	55	55	58	63	65	67	70	71	73	74	73	74	74	85	66	66	62	62	62	64	--	64
Minimum.....	59	59	56	55	58	57	55	55	55	55	55	54	55	56	59	61	63	65	66	65	67	70	65	61	59	62	60	59	59	58	--	59
July																																
Maximum.....	64	66	68	70	72	73	71	70	72	74	74	74	73	72	73	74	72	73	74	74	73	74	74	74	75	76	78	79	78	76	73	73
Minimum.....	61	60	62	64	66	67	68	67	65	67	68	69	68	66	67	69	68	67	66	68	69	68	69	69	70	70	72	73	71	71	68	68
August																																
Maximum.....	75	75	74	72	73	74	73	74	73	75	74	74	74	76	72	72	72	72	72	71	73	73	74	73	73	73	73	71	69	67	69	70
Minimum.....	71	71	70	67	68	69	69	69	69	70	71	69	67	66	67	68	68	69	68	68	68	69	68	69	69	70	69	67	66	65	66	68
September																																
Maximum.....	69	68	65	64	66	67	69	68	68	67	64	64	62	60	63	63	62	62	62	61	60	59	58	57	58	59	61	61	61	61	--	63
Minimum.....	67	64	62	62	62	63	65	66	66	64	63	62	60	60	59	61	60	59	61	58	59	58	56	54	56	56	57	59	60	58	--	60

WILLAMETTE RIVER BASIN--Continued

14-1595. SOUTH FORK MCKENZIE RIVER NEAR RAINBOW, OREG.

LOCATION.--Temperature recorder at gaging station, 0.2 mile upstream from Cougar Creek, 2 miles south of Rainbow, Lane County, and 5 miles southeast of town of Blue River.

SOUTHEAST OF TOWN OF BIGE RIVER.
DRAINAGE AREA. --211 square miles.

RECORDS AVAILABLE. --Water temperatures: July 1955 to September 1958.

EXTREMES, 1957-58. --Water temperatures: Maximum, 68°F July 28; minimum,

EXTREMES, 1955-58. --Water temperatures: Maximum, 68°F July 28, 1958; Minimum, 41°F July 28, 1958; Average, 57°F July 28, 1958.

REMARKS.--Temperature recorder not operating Apr. 7, 8, Aug. 11 to Sept. 30; range in temperature not defined. Records of discharge for water year October 1957 to September 1958 given in WSP 1568.

Temperature (°F) of water, water year October 1957 to September 1958

/Recorder with temperature attachment, continuous ethyl alcohol-actuated thermograph/

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October	53	52	50	50	49	48	51	48	50	51	53	50	50	50	50	49	50	48	47	48	47	48	48	48	48	51	48	48	48	47	49	49	
Maximum.....	51	50	48	48	48	48	48	48	48	49	49	48	49	49	49	47	46	45	44	45	44	46	47	47	47	48	48	46	45	46	46	47	
Minimum.....	46	44	43	42	42	42	44	44	45	45	45	45	45	45	44	43	41	42	42	40	41	41	42	41	42	41	42	40	41	40	40	43	
November	43	42	40	39	40	40	42	41	43	44	44	44	44	44	43	41	40	41	42	40	39	40	40	40	40	40	40	39	40	38	38	--	41
Maximum.....	40	42	41	40	40	42	43	42	42	42	42	42	42	43	42	43	42	43	42	42	42	42	41	41	42	42	41	42	42	41	42	42	
Minimum.....	39	40	39	39	39	39	42	42	42	41	41	41	41	41	41	42	42	40	40	42	42	41	41	41	41	41	41	40	42	41	40	41	
December	41	41	41	41	41	41	40	40	41	41	41	41	42	41	42	42	42	42	41	41	41	41	41	41	42	42	42	42	42	42	41	42	
Maximum.....	40	41	40	40	40	40	40	40	41	41	41	41	41	41	41	42	42	40	40	42	42	41	41	41	41	41	41	40	42	41	40	41	
Minimum.....	39	40	39	39	39	39	39	39	39	39	40	40	40	40	40	40	40	40	41	41	41	41	41	41	41	41	41	40	42	41	40	41	
January	41	41	41	41	41	41	40	40	41	41	41	41	42	41	42	42	42	42	41	41	41	41	41	41	42	42	42	42	42	42	42	41	
Maximum.....	40	41	40	40	40	40	40	40	41	41	41	41	41	41	41	42	41	40	41	40	40	40	41	41	41	41	41	42	42	41	41	41	
Minimum.....	42	42	42	43	43	43	44	44	43	43	42	42	42	42	42	43	43	44	43	44	44	44	43	43	43	43	43	43	41	42	41	41	
February	41	42	42	42	42	42	43	42	42	42	42	42	42	42	42	42	42	43	43	43	43	43	43	43	43	43	43	41	40	40	--	43	
Maximum.....	41	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	43	43	43	43	43	43	43	43	43	43	41	40	40	--	42	
Minimum.....	39	41	40	40	40	42	39	40	41	42	42	40	40	40	40	39	40	40	40	44	44	45	46	44	44	44	44	45	44	43	44	45	
March	39	41	42	42	42	39	39	39	39	39	40	40	40	40	40	39	40	40	40	44	44	42	43	42	43	42	41	43	42	42	41	43	
Maximum.....	44	44	43	44	45	43	--	--	44	46	48	48	46	47	45	45	44	43	44	44	44	44	43	43	43	43	42	41	43	42	42	41	
Minimum.....	43	42	41	41	41	42	42	--	43	44	42	43	44	43	44	44	43	42	43	44	43	42	42	42	42	43	42	43	42	43	44	--	
April	50	50	49	50	47	51	52	51	49	46	49	45	49	51	53	54	52	54	53	50	55	55	55	52	52	50	55	58	59	55	52	52	
Maximum.....	44	44	45	46	45	44	46	45	44	48	45	48	47	45	47	48	48	49	49	49	50	51	50	50	50	50	51	50	51	51	51	52	
Minimum.....	56	55	52	55	55	54	53	51	51	50	50	50	50	50	50	51	52	54	55	56	55	56	57	56	54	53	55	54	52	51	--	57	
May	51	52	51	51	52	52	50	50	50	50	50	49	49	50	51	52	54	55	56	55	56	57	56	54	53	55	54	52	52	51	--	52	
Maximum.....	56	58	61	62	63	64	64	63	64	64	63	64	63	62	63	64	63	64	64	64	64	64	64	64	64	64	64	65	68	65	65	63	
Minimum.....	52	51	52	53	53	55	55	56	54	53	54	55	53	53	53	54	56	56	54	54	54	55	54	54	55	54	56	57	57	56	55	54	
June	68	65	63	63	64	65	65	65	66	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Maximum.....	56	56	55	54	54	55	55	55	56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Minimum.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
July	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
August	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
September	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Maximum.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Minimum.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

WILLAMETTE RIVER BASIN--Continued

14-1780. NORTH SANTIAM RIVER BELOW BOULDER CREEK, NEAR DETROIT, OREG.

LOCATION.--Temperature recorder at gaging station, 0.5 mile downstream from Boulder Creek and 3 miles southeast of Detroit, Marion County. DRAINAGE AREA.--216 square miles.

RECORDS AVAILABLE.--Water temperatures: April 1951 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 64°F July 28; minimum, 36°F several days in March.

EXTREMES, 1951-58.--Water temperatures: Maximum, 64°F July 28, 1958; minimum, freezing point Dec. 1, 1954, Mar. 5, 1955, Feb. 16, 17, 1956.

REMARKS.--Recorder stopped Mar. 19-25; range not defined. Records of discharge for water year October 1957 to September 1958 given in WSP 1568.

Temperature (°F) of water, water year October 1957 to September 1958

/Recorder with temperature attachment, continuous ethyl alcohol-actuated thermograph/

Month	Day																														Average		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October	51	49	48	45	45	45	45	45	46	46	47	47	47	47	46	44	45	44	43	46	45	45	46	47	47	48	46	45	44	46	46		
Maximum.....	49	48	45	44	45	44	44	44	45	46	46	45	46	46	43	42	42	42	41	43	42	44	45	46	47	47	48	46	45	44	46	46	
Minimum.....	49	48	45	44	45	44	44	44	45	46	46	45	46	46	43	42	42	42	41	43	42	44	45	46	47	47	48	46	45	44	46	46	
November	44	41	41	40	39	39	39	41	41	42	42	42	43	43	41	41	40	40	40	40	39	39	38	40	40	39	38	38	38	38	38	38	38
Maximum.....	41	40	40	38	39	39	39	40	40	42	42	42	42	41	41	40	39	39	40	40	38	38	38	38	38	39	38	38	37	37	37	37	37
Minimum.....	41	40	40	38	39	39	39	40	40	42	42	42	42	41	41	40	39	39	40	40	38	38	38	38	38	39	38	38	37	37	37	37	37
December	39	40	40	36	38	38	38	40	40	39	40	40	39	38	40	40	40	40	37	38	38	38	38	38	38	39	38	38	38	38	38	38	38
Maximum.....	38	39	38	38	38	38	38	40	39	39	39	39	38	38	40	40	40	40	37	37	37	38	38	38	38	39	38	38	38	38	38	38	38
Minimum.....	38	39	38	38	38	38	38	40	39	39	39	39	38	38	40	40	40	40	39	39	39	39	39	39	39	40	40	40	40	40	39	39	39
January	38	39	39	38	38	38	38	38	39	40	40	39	39	39	40	40	40	40	39	39	39	39	39	39	39	40	40	40	40	40	39	39	39
Maximum.....	38	38	38	38	38	38	38	38	38	39	39	39	39	39	40	40	40	40	39	39	39	38	38	38	38	38	38	38	38	38	38	38	38
Minimum.....	38	38	38	38	38	38	38	38	38	39	39	39	39	39	40	40	40	40	39	39	39	38	38	38	38	38	38	38	38	38	38	38	38
February	39	40	40	40	40	40	40	40	40	40	40	40	40	40	39	39	39	40	40	40	41	40	40	40	40	40	40	40	40	40	40	40	40
Maximum.....	38	39	40	40	40	40	40	40	40	40	40	40	40	39	39	39	39	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Minimum.....	38	39	40	40	40	40	40	40	40	40	40	40	40	39	39	39	39	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
March	37	38	37	36	37	37	37	38	38	38	39	39	38	38	38	38	38	39	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Maximum.....	36	36	37	36	36	36	36	36	36	36	36	37	37	36	36	36	36	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
Minimum.....	36	36	37	36	36	36	36	36	36	36	36	37	37	36	36	36	36	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
April	40	40	40	40	41	40	41	41	41	44	44	45	43	43	43	42	42	41	41	41	40	40	40	41	43	42	44	46	47	47	47	47	47
Maximum.....	40	40	40	40	41	40	41	41	41	44	44	45	43	43	43	42	42	41	41	41	40	40	40	41	43	42	44	46	47	47	47	47	47
Minimum.....	40	40	40	40	41	40	41	41	41	44	44	45	43	43	43	42	42	41	41	41	40	40	40	41	43	42	44	46	47	47	47	47	47
May	47	47	47	45	45	49	50	49	49	47	45	48	50	51	52	51	52	52	52	52	52	50	51	48	51	51	51	50	50	52	50	49	49
Maximum.....	42	42	43	42	43	44	44	45	44	44	43	41	43	45	47	46	48	48	48	48	48	48	48	48	48	47	48	48	48	47	48	48	48
Minimum.....	42	42	43	42	43	44	44	45	44	44	43	41	43	45	47	46	48	48	48	48	48	48	48	48	48	47	48	48	48	47	48	48	48
June	50	48	52	50	50	51	49	48	48	47	48	51	55	55	57	58	59	59	60	61	61	57	53	57	55	53	55	52	52	52	52	52	52
Maximum.....	47	47	47	48	48	47	48	48	47	48	48	47	48	48	49	49	50	51	52	53	54	54	53	51	50	51	51	49	50	49	50	49	50
Minimum.....	47	47	47	48	48	47	48	48	47	48	48	47	48	48	49	49	50	51	52	53	54	54	53	51	50	51	51	49	50	49	50	49	50
July	54	56	57	59	60	59	61	60	61	62	61	60	61	60	60	60	62	62	60	61	62	61	62	61	63	62	62	63	64	63	62	62	61
Maximum.....	49	50	51	51	52	53	53	54	53	54	53	52	52	53	54	55	54	55	54	54	54	54	55	55	55	55	56	57	57	56	55	54	54
Minimum.....	49	50	51	51	52	53	53	54	53	54	53	52	52	53	54	55	54	55	54	54	54	55	55	55	55	55	56	57	57	56	55	54	54
August	62	63	60	59	61	62	62	62	61	62	62	60	60	60	59	57	58	58	59	58	60	60	60	59	60	59	60	57	57	56	58	58	60
Maximum.....	55	56	55	53	54	55	55	56	55	55	55	54	55	54	55	52	52	53	54	54	55	55	55	55	56	55	55	54	54	54	53	53	54
Minimum.....	55	56	55	53	54	55	55	56	55	55	55	54	55	54	55	52	52	53	54	54	55	55	55	55	56	55	55	54	54	54	53	53	54
September	58	55	54	54	56	57	57	57	55	54	54	52	52	55	54	54	54	53	53	52	51	52	51	49	51	51	52	53	52	51	51	51	51
Maximum.....	54	52	50	50	51	52	53	55	54	53	53	52	51	51	52	51	51	50	52	49	51	50	49	47	49	48	50	50	50	50	49	49	49
Minimum.....	54	52	50	50	51	52	53	55	54	53	53	52	51	51	52	51	51	50	52	49	51	50	49	47	49	48	50	50	50	50	49	49	49

WILLAMETTE RIVER BASIN--Continued

14--1790. BREITENBUSH RIVER ABOVE CANYON CREEK, NEAR DETROIT, OREG.

LOCATION.--Temperature recorder at gaging station, 600 feet upstream from Canyon Creek and 1.5 miles northeast of Detroit, Marion County.

DRAINAGE AREA.--106 square miles.

RECORDS AVAILABLE.--Water temperatures: December 1950 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 58°F Aug. 22, 25, 26; minimum, 38°F on several days during November, December and January.

EXTREMES, 1950-58.--Water temperatures: Maximum, 58°F on several days during summer months, 1951, 1952, 1956, and 1958; minimum, 33°F Mar. 3-7, 1951, Feb. 17, 1956.

REMARKS.--Records of discharge for water year October 1957 to September 1956 given in WSP 1568.

Temperature (°F) of water, water year October 1957 to September 1958

/Recorder with temperature attachment, continuous ethyl alcohol-actuated thermograph⁷

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October	51	51	49	46	45	45	46	46	47	47	48	--	--	48	46	45	46	46	45	45	45	45	45	45	46	46	47	46	45	45	45	45	
	51	49	46	45	45	45	45	45	46	47	47	--	--	46	45	45	45	45	45	44	44	43	44	45	45	46	45	45	43	43	43	44	
November	44	42	41	40	40	40	39	40	42	42	44	44	44	44	44	43	42	42	41	41	41	41	40	40	39	39	39	39	39	39	38	--	41
	42	41	40	40	40	39	39	40	42	42	44	44	44	44	43	42	42	41	41	41	40	40	39	39	39	39	39	39	39	38	--	40	
December	38	39	39	39	39	39	39	39	39	39	39	39	39	39	39	--	--	--	--	--	--	39	39	39	39	39	39	40	40	40	40	--	40
	38	38	39	39	39	38	36	39	39	39	39	39	38	38	--	--	--	--	--	--	39	39	39	39	39	39	39	40	40	40	40	--	40
January	40	40	40	39	39	39	39	39	40	40	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
	40	40	39	39	39	39	36	36	39	39	40	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
February	41	42	42	42	42	42	42	42	42	42	--	--	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	41	41	--	--	--	--
	41	41	41	41	42	42	42	42	42	42	--	--	42	42	42	42	42	42	42	42	42	42	42	42	42	42	41	41	41	--	--	--	--
March	41	40	41	40	40	40	40	40	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
	40	40	40	40	40	40	40	40	40	41	40	40	41	41	40	40	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
April	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
	42	42	42	42	42	42	42	43	43	43	43	44	43	43	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
May	45	45	45	45	44	44	46	47	47	47	46	44	45	47	46	46	46	48	48	49	50	49	49	48	50	49	50	49	50	51	50	47	47
	42	42	43	43	43	43	44	44	44	44	44	42	42	43	44	44	44	45	45	45	45	46	47	47	46	48	47	47	47	48	48	45	45
June	49	49	49	51	50	50	49	49	48	48	46	48	50	52	52	53	54	54	55	54	54	55	53	52	53	53	52	51	51	51	51	51	51
	47	48	48	48	46	46	46	48	46	48	46	48	46	48	49	50	51	51	51	52	52	52	50	51	51	50	51	50	50	50	49	49	
July	52	53	53	54	55	55	55	55	57	56	57	56	55	55	55	55	55	55	55	56	56	55	56	56	56	56	56	56	56	56	56	55	55
	50	51	51	51	52	53	53	53	53	53	53	54	53	53	53	53	53	54	54	54	54	54	54	54	54	55	55	55	55	55	55	55	53
August	56	56	56	55	56	56	57	56	57	56	56	56	56	56	56	57	57	57	57	56	57	58	57	57	57	56	58	56	57	56	57	57	55
	55	55	55	54	54	55	55	55	55	55	55	55	55	54	55	56	56	56	55	56	56	56	56	56	56	56	56	56	56	56	56	56	56
September	57	56	55	55	56	56	56	57	56	55	55	54	54	54	56	56	55	55	54	54	54	54	54	54	52	54	53	54	54	53	53	53	53
	56	54	53	53	54	54	55	56	55	55	55	54	54	54	54	54	54	54	54	54	52	53	53	52	51	51	52	52	52	52	51	--	55

WILLAMETTE RIVER BASIN--Continued

14-1815. NORTH SANTIAM RIVER AT NIAGARA, OREG.

LOCATION.--Temperature recorder at gaging station, 0.8 mile downstream from Big Cliff Dam, Linn County, and 2.1 miles east of Niagara, Marion County. DRAINAGE AREA.--453 square miles.

RECORDS AVAILABLE.--January 1953 to September 1958.

EXTREMES 1957-58.--Water temperatures: Maximum, 62°F July 28, 29; minimum, 41°F on many days during January, February, and March.

EXTREMES 1953-58.--Water temperatures: Maximum, 62°F July 28, 29, 1958; minimum, 35°F several days during January and February, 1957.

REMARKS.--Recorder stopped Dec. 19-25; range not defined. Records of discharge for water year October 1957 to September 1958 given in WSP 1668.

Temperature (°F) of water, water year October 1957 to September 1958
/Temperature recorder, continuous ethyl alcohol-actuated thermograph/

Month	Day																														Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	54	54	54	54	54	54	55	55	55	55	55	55	55	55	55	55	55	55	56	56	56	56	55	55	55	55	54	54	54	54	55	
Maximum.....	54	54	54	54	54	54	55	55	55	55	55	55	55	55	55	55	55	55	56	56	56	56	55	55	55	55	54	54	54	54	55	
Minimum.....	54	54	54	54	54	54	54	54	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	54	54	54	54	54	55	
November	54	54	54	54	54	54	53	53	53	52	52	52	52	50	50	50	49	49	48	48	48	48	48	47	47	47	47	47	46	--	50	
Maximum.....	54	54	54	54	54	54	53	53	53	52	52	52	52	50	50	50	49	49	48	48	48	48	48	47	47	47	47	47	46	--	50	
Minimum.....	54	54	54	54	54	54	53	53	52	52	52	52	50	50	50	49	48	48	48	48	48	48	47	47	47	47	47	47	46	--	50	
December	46	46	45	45	45	45	45	45	45	45	45	45	45	45	44	44	44	44	--	--	--	--	--	--	--	42	42	42	42	42	44	
Maximum.....	46	46	45	45	45	45	45	45	45	45	45	45	45	45	44	44	44	44	--	--	--	--	--	--	--	42	42	42	42	42	44	
Minimum.....	46	45	45	45	45	45	45	45	45	45	45	45	45	44	44	44	44	43	--	--	--	--	--	--	--	42	42	42	42	42	44	
January	42	42	42	42	42	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	
Maximum.....	42	42	42	42	42	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	
Minimum.....	42	42	42	42	42	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	
February	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	
Maximum.....	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	
Minimum.....	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	
March	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	
Maximum.....	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	
Minimum.....	41	42	42	42	42	42	42	41	41	41	41	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	
April	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	
Maximum.....	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	
Minimum.....	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	
May	47	47	46	45	45	45	46	47	47	49	49	48	48	48	48	47	48	52	51	50	50	48	47	49	53	54	50	49	48	48	48	48
Maximum.....	47	47	46	45	45	45	46	47	47	49	49	48	48	48	47	48	52	51	50	50	48	47	49	53	54	50	49	48	48	48	48	48
Minimum.....	47	46	45	45	45	45	45	46	47	47	47	47	47	47	46	45	45	48	49	48	48	47	47	49	50	49	48	48	48	47	47	47
June	47	46	46	46	47	46	47	46	47	51	51	53	55	52	51	53	54	54	53	53	52	50	48	47	48	49	48	47	46	--	50	
Maximum.....	47	46	46	46	47	46	47	46	47	51	51	53	55	52	51	53	54	54	53	53	52	50	48	47	48	49	48	47	46	--	50	
Minimum.....	46	46	46	46	45	45	46	46	49	48	47	49	51	51	51	51	51	51	50	50	50	48	47	47	48	49	48	47	46	--	50	
July	47	46	47	48	48	48	46	48	51	52	55	51	50	49	48	52	50	49	49	50	48	50	48	50	55	59	60	61	62	61	61	52
Maximum.....	47	46	47	48	48	48	46	48	51	52	55	51	50	49	48	52	50	49	49	50	48	50	48	50	55	59	60	61	62	61	61	52
Minimum.....	45	45	46	46	46	46	46	46	48	49	51	49	49	48	48	48	48	48	48	48	48	47	47	50	55	57	58	58	58	56	50	50
August	58	55	52	51	51	49	49	49	49	50	51	50	49	48	48	48	48	49	49	49	49	49	49	50	50	49	50	49	49	49	49	50
Maximum.....	58	55	52	51	51	49	49	49	49	50	51	50	49	48	48	48	48	49	49	49	49	49	49	50	50	49	50	49	49	49	49	50
Minimum.....	54	52	50	50	49	49	49	49	49	49	49	49	49	48	48	48	48	48	48	48	48	48	49	49	49	49	49	48	48	48	49	49
September	50	50	50	50	50	51	51	50	50	50	50	50	50	50	50	51	51	51	55	55	56	56	56	54	53	52	48	48	48	52	--	51
Maximum.....	50	50	50	50	50	51	51	50	50	50	50	50	50	50	50	51	51	51	55	55	56	56	56	54	53	52	48	48	48	52	--	51
Minimum.....	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	53	54	53	52	52	52	48	48	48	48	--	50

WILLAMETTE RIVER BASIN--Continued

14-1865. MIDDLE SANTIAM RIVER AT MOUTH, NEAR FOSTER, OREG.

LOCATION.--Temperature recorder at gaging station, 0.5 mile upstream from mouth and 2.5 miles northeast of Foster, Linn County. DRAINAGE AREA.--287 square miles.

RECORDS AVAILABLE.--Water temperatures: September 1953 to September 1956.

EXTREMES, 1957-58.--Water temperatures: Maximum, 77°F July 28; minimum, 34°F Feb. 1, 2, 1956.

EXTREMES, 1953-56.--Water temperatures: Maximum, 77°F July 28, 1956; minimum, 34°F Feb. 1, 2, 1956.

REMARKS.--Records of discharge for water year October 1957 to September 1958.

Temperature (°F) of water, water year October 1957 to September 1958

/Recorder with temperature attachment, continuous ethyl alcohol-actuated thermograph⁷

Month	Day																																Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October	61	60	57	52	50	50	50	50	51	52	54	54	53	53	52	51	50	50	49	48	47	47	49	50	52	53	53	51	50	50	50	52	
Maximum.....	60	57	52	50	49	49	49	49	50	51	52	54	53	53	52	51	49	49	47	46	46	47	49	50	52	53	53	51	50	50	50	52	
Minimum.....	48	45	42	41	40	40	40	42	42	43	45	46	47	46	45	44	42	43	43	42	41	40	40	40	41	42	42	40	40	38	--	43	
November	45	42	40	39	38	38	39	41	42	43	45	46	45	44	44	42	42	42	42	41	40	40	40	39	41	40	40	40	38	37	--	41	
Maximum.....	40	42	40	40	40	43	44	44	43	42	43	43	42	43	43	44	44	43	43	43	42	42	42	42	42	42	42	42	42	41	42	42	
Minimum.....	38	40	40	39	39	40	43	43	42	42	42	42	42	42	43	43	44	41	41	43	42	42	42	42	42	42	42	41	42	41	40	42	
January	41	42	42	40	40	40	41	41	42	42	42	42	42	42	43	43	43	43	42	42	42	42	42	43	43	43	43	43	43	43	41	41	42
Maximum.....	40	41	40	40	40	40	40	41	41	42	42	42	42	42	42	42	42	42	41	42	42	41	41	42	42	42	42	42	43	41	41	41	42
Minimum.....	42	43	43	43	43	43	44	44	44	44	44	44	44	43	43	43	44	44	44	44	45	45	45	45	45	45	42	43	42	--	--	44	44
February	42	42	43	43	43	43	44	44	44	44	44	44	43	43	43	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
Maximum.....	42	42	43	43	43	43	44	44	44	44	44	44	43	43	43	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
Minimum.....	42	42	43	43	43	43	44	44	44	44	44	44	43	43	43	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
March	42	41	42	42	41	41	41	39	40	41	42	42	42	42	42	43	43	43	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
Maximum.....	41	40	41	40	41	40	39	39	40	41	41	41	41	41	40	41	42	42	42	42	43	44	44	44	44	44	44	44	44	44	44	44	44
Minimum.....	45	45	44	44	45	45	45	45	45	47	48	48	48	47	47	46	46	44	45	45	45	45	44	44	46	46	48	48	49	50	--	46	46
April	44	44	43	43	43	44	44	44	45	45	45	45	45	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
Maximum.....	51	51	52	52	51	50	53	54	56	56	56	52	52	55	58	58	58	60	61	61	63	63	63	63	61	63	63	62	63	63	63	58	58
Minimum.....	48	48	49	49	50	49	50	48	52	52	51	49	50	52	54	55	56	57	58	58	60	59	58	58	56	59	59	59	59	61	59	54	54
May	61	60	58	60	61	60	56	55	55	55	54	54	55	55	58	60	63	66	70	70	72	73	73	65	65	65	61	60	60	60	60	60	61
Maximum.....	57	57	55	54	58	55	53	53	53	53	53	53	53	54	58	60	63	66	67	66	66	66	66	65	60	61	60	58	56	57	--	59	59
Minimum.....	60	64	66	68	69	71	71	71	70	71	72	72	71	69	70	71	70	69	69	70	72	72	72	74	74	74	76	77	76	74	74	71	71
June	59	59	62	64	66	68	70	68	66	69	70	69	67	66	69	69	68	68	68	68	69	70	71	71	71	72	72	73	74	72	71	69	69
July	73	73	71	69	70	71	72	72	71	73	73	72	72	71	69	72	72	72	72	72	74	75	75	75	76	74	71	69	67	68	70	72	72
Maximum.....	71	71	68	67	66	68	69	69	69	70	69	68	67	67	67	68	68	67	67	67	69	70	70	71	71	68	67	66	65	65	68	68	68
Minimum.....	71	69	65	65	66	68	69	68	68	67	66	63	61	60	61	61	61	61	63	60	59	58	57	56	57	58	60	62	62	62	62	63	63
September	66	63	62	60	60	61	63	64	68	63	62	61	60	59	58	60	59	59	60	58	56	57	55	55	55	56	56	56	57	58	58	--	60

WILLAMETTE RIVER BASIN--Continued

14-1910. WILLAMETTE RIVER AT SALEM, OREG.--Continued

Temperature (°F) of water, water year October 1957 to September 1958

Month		Day																														Average	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		31
October.....	--	--	--	--	--	--	--	--	--	--	--	--	56	57	55	56	58	57	59	60	57	56	56	54	54	53	53	--	52	53	54	--	
November.....	50	51	49	47	45	46	47	--	--	50	52	53	52	53	53	53	49	50	47	48	49	49	47	46	45	47	47	43	45	42	45	48	
December.....	44	44	45	44	46	49	47	47	43	46	45	45	47	46	47	45	46	44	46	45	44	45	45	44	--	45	47	43	45	42	45	45	
January.....	45	44	43	44	43	44	42	45	47	45	46	44	44	43	42	--	--	42	43	46	45	45	45	43	45	44	43	45	45	47	46	44	
February.....	47	47	47	46	45	46	48	48	46	47	46	48	47	48	47	49	47	--	--	46	47	46	47	45	46	47	48	46	--	--	47	44	
March.....	47	46	45	45	47	48	47	48	47	45	46	46	--	45	47	47	48	47	48	48	48	50	52	53	50	--	--	49	50	--	48	48	
April.....	47	46	47	50	50	--	49	48	47	47	--	48	49	50	52	49	--	--	51	49	50	52	52	53	51	54	53	55	55	--	50	50	
May.....	54	54	53	52	56	60	62	61	64	63	62	61	60	63	--	63	63	--	64	66	67	66	65	64	65	64	62	63	64	63	64	62	
June.....	63	64	62	63	64	--	63	63	64	65	66	64	64	66	67	65	67	67	68	66	64	--	65	66	67	68	69	70	68	68	--	66	66
July.....	68	68	67	--	--	--	66	67	65	68	69	70	72	69	66	65	66	68	67	67	66	65	68	69	71	70	73	70	72	69	69	68	
August.....	70	--	69	69	68	67	69	67	66	67	69	68	66	68	67	64	67	68	65	66	67	66	68	69	68	--	72	69	67	68	68	68	
September..	65	66	68	66	65	--	--	65	66	64	65	63	65	64	64	63	65	62	63	60	58	58	57	59	60	64	--	62	62	--	63	63	

LEWIS RIVER BASIN

14-2205. LEWIS RIVER AT ARIEL, WASH.

LOCATION.--Temperature recorder at gaging station at Ariel, Cowlitz County, half a mile downstream from Ariel Dam and powerplant, and 3 miles upstream from Cedar Creek.
DRAINAGE AREA.--731 square miles.

DRAINAGE AREA.--731 square miles.

RECORDS AVAILABLE.--Water temperatures: October 1950 to September 1956, October 1957 to September 1958.

EXTREMES, 1957-58. --Water temperatures: Maximum, not determined; minimum, 42°F several days during January, February, and March.

EXTREMES, 1950-56, 1957-58. --Water temperatures: Maximum, 61°F Oct. 2-5, 1951; minimum, 36°F Feb. 28, 29, Mar. 1, 2, 11, 12, 1956.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1568.

Temperature (°F) of water, water year October 1957 to September 1958

[illegible]

LEWIS RIVER BASIN--Continued
14-2225. EAST FORK LEWIS RIVER NEAR HEISSON, WASH.

LOCATION.--Temperature recorder at gaging station, 60 feet downstream from Basket Creek, 1.5 miles northeast of Heisson, Clark County, and 20 miles upstream from mouth.

DRAINAGE AREA.--125 square miles.

RECORDS AVAILABLE.--Water temperatures: June 1950 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum not determined; minimum, 39°F Jan. 7, Mar. 6.

EXTREMES, 1950-58.--Water temperatures: Maximum, 74°F Aug. 4, 1952; minimum, freezing point Jan. 24 to Feb. 1, 1957.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1568.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October	61	60	57	53	52	51	50	50	51	54	55	54	53	52	51	49	51	51	48	47	46	49	49	49	49	49	49	49	48	48	50	50	
	60	57	53	52	51	50	50	50	50	51	53	53	52	51	49	48	49	48	47	46	45	45	49	49	49	49	49	49	47	47	48	48	
November	48	44	45	41	40	40	40	41	41	45	45	46	46	46	46	46	43	44	44	44	42	42	42	41	44	44	44	44	42	41	--	43	
	44	42	41	40	40	40	40	41	41	45	45	46	46	46	46	43	43	43	44	42	41	41	41	40	41	44	42	42	40	40	--	42	
December	43	44	44	43	43	44	45	45	44	44	44	44	44	44	43	43	43	43	44	44	44	43	43	43	44	44	44	44	44	44	43	44	
	41	43	43	43	43	43	44	45	44	44	44	44	42	42	42	43	43	43	44	44	44	43	43	43	43	44	44	44	44	43	42	43	
January	42	42	42	42	41	40	40	41	42	42	43	43	43	43	43	44	44	44	43	43	42	42	42	44	44	44	44	44	44	44	44	43	
	41	41	42	41	40	39	40	41	42	42	42	43	43	43	43	44	44	44	43	43	42	42	42	42	44	44	44	44	44	44	44	42	
February	44	44	44	44	44	44	45	45	45	44	44	44	44	44	44	45	45	46	46	46	46	46	46	46	46	46	46	43	43	42	--	45	
	44	44	44	44	44	44	44	44	45	45	44	44	44	44	44	44	44	45	46	46	46	46	46	46	46	46	46	43	43	42	--	44	
March	42	42	42	42	42	41	41	40	41	41	41	42	42	42	42	42	42	42	44	44	45	45	46	46	46	46	46	44	45	45	43	43	
	41	41	40	40	41	41	40	39	40	40	40	41	40	41	41	40	42	42	42	43	43	44	44	43	43	43	43	42	42	42	43	41	
April	43	44	44	44	46	46	46	46	45	47	48	51	51	47	46	45	45	45	45	45	45	45	46	46	46	46	46	47	50	51	52	--	46
	43	42	43	42	43	44	45	45	45	44	46	47	46	46	45	45	45	44	44	45	45	44	44	44	44	44	44	44	46	47	--	45	
May	52	52	52	53	49	54	54	53	52	51	52	51	52	57	59	59	60	60	61	61	62	63	63	62	64	65	65	59	60	61	61	58	
	48	47	49	47	49	49	49	51	51	52	51	48	47	51	54	56	56	58	59	58	59	61	61	58	57	62	57	57	58	59	59	54	
June	61	61	58	62	67	67	61	61	60	58	56	56	55	55	--	--	--	--	--	--	--	--	--	--	--	--	62	62	59	57	56	--	--
	58	58	57	56	62	58	56	58	58	56	56	55	55	--	--	--	--	--	--	--	--	--	--	--	--	--	58	59	58	57	56	55	--
July	60	62	65	65	66	67	68	68	66	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	54	59	61	62	63	65	66	66	65	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
August	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
September	--	--	--	--	--	--	--	--	--	--	--	58	58	58	59	59	58	59	61	59	57	57	55	51	--	--	--	--	--	--	--	--	
	--	--	--	--	--	--	--	--	--	--	--	57	58	58	58	58	58	57	59	56	57	53	53	52	--	--	--	--	--	--	--	--	

KALAMA RIVER BASIN

14--2235. KALAMA RIVER BELOW ITALIAN CREEK, NEAR KALAMA, WASH.

LOCATION.--Temperature recorder at gaging station, 2.5 mile northeast of Kalama, Cowlitz County, 3 miles upstream from mouth, and 5 miles downstream from Italian Creek.
 DRAINAGE AREA 201 square miles.

RECORDS AVAILABLE.--Water temperatures: October 1954 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 69°F July 28, 1958; minimum, 39°F Mar. 7-9.

EXTREMES, 1954-58.--Water temperatures: Maximum, 69°F July 28, 1958; minimum, 33°F Jan. 26-31, 1957.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1568.

Temperature (°F) of water, water year October 1957 to September 1958

	Month																															Average		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
October	56	55	54	52	50	50	50	50	50	51	52	51	52	52	51	49	49	49	48	48	48	50	50	51	51	51	50	50	48	49	49	50		
	55	54	52	52	49	49	49	49	49	50	51	51	51	51	51	49	47	48	47	47	46	47	48	50	50	50	49	47	47	48	48	49		
	Maximum	48	46	44	42	40	41	42	42	44	46	46	46	46	46	45	45	43	44	44	44	42	42	42	44	44	44	44	43	41	42	--	43	
November	46	44	41	40	40	40	41	41	42	44	46	46	46	45	45	45	43	44	42	43	42	41	41	41	40	42	44	44	41	40	40	--	42	
	Maximum	44	44	44	43	44	44	44	43	42	44	44	44	43	43	44	44	44	43	43	43	42	42	43	44	44	44	44	43	42	41	43	43	
	Minimum	42	44	44	43	43	44	44	43	42	44	44	44	43	42	42	43	44	44	42	42	42	41	42	42	43	42	42	42	42	41	40	43	
December	42	42	42	40	40	40	41	42	43	43	43	43	43	43	43	44	44	44	42	42	42	42	43	43	43	43	43	43	44	44	44	43	43	
	Maximum	41	42	42	40	40	40	41	42	43	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	43	
	Minimum	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	45	45	44	44	44	44	45	45	45	43	42	42	--	44	44	
January	43	44	44	44	44	44	44	44	44	44	43	44	44	44	44	44	44	44	45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	
	Maximum	41	41	41	41	42	42	41	39	41	41	42	42	42	42	43	42	43	42	43	44	45	45	44	44	44	44	44	43	43	43	42	42	
	Minimum	41	41	41	41	41	41	39	39	40	40	40	41	41	41	41	42	42	42	43	44	44	44	44	44	44	44	44	43	42	43	43	42	42
February	43	43	43	43	44	44	45	45	45	46	47	47	47	46	45	44	45	45	44	44	44	44	44	44	44	44	44	45	46	47	48	49	45	
	Maximum	43	42	42	42	43	44	45	44	44	45	45	46	45	44	44	44	44	43	44	44	44	44	44	44	44	44	44	44	45	46	47	44	
	Minimum	49	50	49	49	49	51	53	52	52	52	52	52	52	53	55	56	57	56	58	59	60	59	58	60	62	62	56	57	58	58	55	55	
March	48	48	49	47	49	48	48	50	51	49	48	46	46	48	50	52	53	54	54	54	54	55	56	54	54	57	56	53	54	54	54	51	51	
	Maximum	58	58	55	59	62	58	58	58	55	53	53	52	57	61	63	64	65	63	66	67	65	60	57	56	56	57	55	54	--	59	59		
	Minimum	53	55	53	52	56	54	54	55	53	52	51	52	52	55	56	58	59	60	57	60	61	60	56	54	55	54	54	53	52	--	55	55	
April	59	61	63	65	65	66	65	64	62	65	66	65	63	63	65	66	64	63	63	61	63	64	65	66	66	67	68	69	67	64	64	64	64	
	Maximum	53	55	57	58	60	61	61	61	60	62	62	60	57	59	61	62	60	58	59	59	61	61	62	62	63	64	65	64	63	62	60	60	
	Minimum	65	65	63	63	64	64	64	64	64	64	64	64	64	64	64	63	63	63	64	63	65	65	64	61	59	57	58	61	63	61	59	59	
May	61	61	61	59	59	60	62	60	59	60	61	60	60	59	60	60	60	59	58	59	60	61	61	61	61	61	60	59	57	56	56	56	56	
	Maximum	60	58	56	58	60	60	60	61	60	57	56	56	55	56	55	56	55	54	55	54	53	52	51	52	53	54	55	54	55	54	--	56	54
	Minimum	58	55	52	54	55	56	57	58	57	55	55	55	54	54	54	54	54	54	54	53	52	51	50	50	50	50	52	52	54	--	54	52	54

COWLITZ RIVER BASIN

14-2325. CISPUS RIVER NEAR RANDLE, WASH.

LOCATION.--Temperature recorder at gaging station, 60 feet upstream from bridge to Tower Rock ranger station, 4 miles downstream from North Fork, and 8 miles southeast of Randle, Lewis County.

DRAINAGE AREA.--321 square miles.

RECORDS AVAILABLE.--Water temperatures: May 1950 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 62°F July 27-29; minimum, 37°F Dec. 22, 23, 26, 31, Jan. 1.

EXTREMES, 1950-58.--Water temperatures: Maximum, 62°F July 27-29, 1958; minimum, freezing point on Jan. 20, 1954.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1588.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																														Average		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum.....	52	50	48	46	48	46	45	45	47	49	49	48	48	48	47	46	48	48	45	45	45	45	47	47	47	48	46	46	47	48	47	47	
Minimum.....	50	48	46	44	44	43	45	44	45	45	46	46	47	47	44	43	45	43	42	42	42	44	45	46	47	46	44	44	45	47	45	45	
November																																	
Maximum.....	45	42	41	41	41	41	43	42	43	43	43	43	43	43	42	41	40	41	41	41	39	41	41	40	42	42	41	40	38	39	--	41	
Minimum.....	42	40	39	39	39	41	41	40	42	43	43	43	42	41	40	39	40	39	40	41	39	38	39	40	38	40	41	40	38	38	--	40	
December																																	
Maximum.....	40	40	40	39	40	39	40	40	39	40	40	39	40	39	40	39	40	40	38	39	39	38	38	38	39	39	38	40	39	39	38	39	
Minimum.....	39	40	39	38	38	39	39	38	38	39	39	38	38	38	39	39	39	40	38	38	38	37	37	37	38	37	38	38	39	38	37	38	
January																																	
Maximum.....	38	39	39	39	39	39	39	40	40	40	40	40	40	40	41	41	41	40	40	40	40	40	40	40	40	41	40	41	41	41	40	40	
Minimum.....	37	38	39	39	38	39	38	39	39	40	40	40	40	40	40	40	40	40	39	39	39	39	40	40	40	40	39	40	41	40	40	39	
February																																	
Maximum.....	41	41	41	42	42	42	42	42	41	40	41	41	41	41	41	41	42	42	42	42	43	43	43	42	41	40	40	40	40	--	--	42	
Minimum.....	40	40	40	41	41	41	41	41	41	40	40	40	41	40	41	41	41	42	42	41	41	42	42	42	41	40	40	39	39	--	--	41	
March																																	
Maximum.....	40	39	41	40	40	41	39	40	40	40	40	41	42	41	41	41	42	43	43	43	43	44	43	42	44	43	43	41	40	41	41	39	
Minimum.....	38	38	39	38	38	38	38	38	38	38	38	38	38	38	40	39	40	40	41	41	42	40	41	41	41	41	40	39	41	40	41	41	
April																																	
Maximum.....	43	42	43	42	44	45	46	43	45	44	47	47	44	43	42	44	43	41	42	42	41	41	42	41	41	42	43	44	45	47	48	--	44
Minimum.....	41	40	40	40	40	40	41	42	41	42	42	42	42	42	41	42	41	40	41	41	41	40	41	41	41	41	41	41	41	41	42	43	41
May																																	
Maximum.....	47	47	45	46	45	44	48	46	47	47	46	42	46	48	49	49	48	48	49	49	50	50	49	49	51	51	50	47	48	50	49	48	
Minimum.....	43	43	44	43	43	43	43	43	43	42	41	40	43	43	43	44	45	44	45	45	45	45	46	45	46	47	46	46	45	46	47	44	
June																																	
Maximum.....	51	49	48	52	53	52	50	51	49	49	49	48	48	54	55	55	56	56	56	58	57	58	56	54	52	56	52	52	50	51	--	53	
Minimum.....	46	47	47	47	49	48	47	47	48	47	47	47	47	47	47	50	51	51	51	52	51	52	53	50	49	49	48	48	48	--	49	--	
July																																	
Maximum.....	54	56	57	56	59	58	59	59	59	60	60	59	58	59	60	61	59	60	61	61	61	61	61	61	61	61	61	62	62	61	81	60	
Minimum.....	48	49	50	50	50	52	53	53	53	53	53	52	51	52	53	53	54	53	55	54	56	54	54	54	54	54	55	56	56	55	55	53	
August																																	
Maximum.....	61	61	55	59	60	61	60	59	60	61	60	60	61	61	61	58	59	59	59	60	61	61	61	61	61	61	60	55	55	53	58	59	
Minimum.....	53	53	53	51	52	54	55	53	52	53	54	53	52	53	53	52	52	53	52	52	53	54	54	54	54	54	54	53	52	51	51	51	
September																																	
Maximum.....	55	54	51	56	57	58	59	57	55	54	52	52	52	52	53	52	51	51	50	50	49	50	49	48	48	47	46	49	51	53	53	52	
Minimum.....	53	51	48	49	49	50	51	52	53	52	51	50	50	50	50	50	49	48	49	48	48	47	46	45	45	48	48	47	47	49	47	--	

COWLITZ RIVER BASIN--Continued

14-2335. COWLITZ RIVER NEAR KOSMOS, WASH.

LOCATION.--Temperature recorder at gaging station, 0.5 mile downstream from Tumwater Creek, 1.5 miles downstream from Cispus River and 4 miles southeast of Kosmos, Lewis County.

DRAINAGE AREA.--1,042 square miles.

RECORDS AVAILABLE.--Water temperatures: November 1952 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 55°F July 11, 12, 1958; minimum, 37°F Jan. 5, 1954, Nov. 12, 1955, Jan. 15, 26, 27, 1956.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1958.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																												Average				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October	59	58	57	54	52	52	52	52	52	52	52	52	52	52	51	49	50	49	48	46	46	46	48	48	48	48	48	48	48	49	49	51	
Maximum.....	58	57	54	52	51	52	52	51	51	52	51	52	52	52	51	49	49	48	46	46	46	46	48	48	48	48	48	48	48	49	49	50	
Minimum.....	49	46	43	42	41	41	42	42	42	43	43	43	43	43	43	42	42	42	42	42	42	41	41	41	41	42	42	42	41	40	--	42	
November	46	43	42	41	41	41	41	41	41	41	41	41	41	41	41	42	42	42	42	42	42	40	40	41	41	42	42	41	40	--	42	42	
Maximum.....	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	
Minimum.....	40	41	41	41	41	41	41	41	41	41	41	41	41	41	41	42	42	42	42	42	42	42	41	41	42	42	42	42	42	42	40	41	
December	40	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	
Maximum.....	40	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	
Minimum.....	40	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	
January	40	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	
Maximum.....	40	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	
Minimum.....	40	40	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	
February	40	40	41	41	41	42	43	43	42	42	42	42	42	42	42	42	42	42	42	42	42	42	43	43	43	42	41	41	--	--	--	42	
Maximum.....	40	40	41	41	41	41	41	42	43	43	42	42	42	42	42	42	42	42	42	42	42	42	42	43	43	42	41	41	--	--	--	42	
Minimum.....	40	40	40	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	
March	41	40	41	41	41	41	41	40	40	40	40	40	40	40	40	41	41	42	43	43	43	43	44	44	44	44	44	44	44	43	43	42	
Maximum.....	40	40	41	41	41	40	40	40	40	40	40	40	40	40	41	41	42	43	43	43	43	43	44	44	44	44	44	44	44	43	43	41	
Minimum.....	43	43	44	46	46	47	47	46	46	46	48	49	49	48	46	45	45	44	43	43	43	44	44	44	44	44	44	45	47	48	--	45	
April	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	
Maximum.....	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	
Minimum.....	48	49	49	49	49	49	49	49	49	49	49	49	49	49	50	50	50	50	50	50	50	50	50	50	50	50	51	51	50	51	51	49	
May	48	49	49	49	49	49	49	49	49	49	49	49	49	49	50	50	50	50	50	50	50	50	50	50	50	50	51	51	50	51	51	49	
Maximum.....	48	49	49	49	49	49	49	49	49	49	49	49	49	49	50	50	50	50	50	50	50	50	50	50	50	50	51	51	50	51	51	49	
Minimum.....	48	49	49	49	49	49	49	49	49	49	49	49	49	49	50	50	50	50	50	50	50	50	50	50	50	50	51	51	50	51	51	49	
June	51	50	49	52	53	53	50	51	51	50	50	50	49	53	55	55	56	58	58	59	59	60	60	60	60	60	60	60	60	60	60	60	54
Maximum.....	50	49	49	52	53	53	50	51	51	50	50	50	49	53	55	55	56	58	58	59	59	60	60	60	60	60	60	60	60	60	60	54	
Minimum.....	50	49	49	52	53	53	50	51	51	50	50	50	49	53	55	55	56	58	58	59	59	60	60	60	60	60	60	60	60	60	60	54	
July	58	60	61	61	59	62	63	62	63	64	65	63	61	62	62	62	62	62	62	62	63	63	63	63	63	64	64	64	64	63	62	62	
Maximum.....	54	57	58	59	58	59	60	61	60	61	62	62	60	58	59	59	60	60	60	60	61	61	61	61	61	61	61	61	61	61	61	60	
Minimum.....	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	60	
August	60	60	59	56	57	59	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	
Maximum.....	56	56	54	53	55	57	58	58	57	57	55	53	53	53	53	53	53	53	53	53	52	51	51	50	49	51	52	55	55	54	54	54	
Minimum.....	57	56	54	51	53	54	54	57	58	57	55	53	53	53	53	53	53	53	53	53	52	51	51	50	49	51	52	55	55	54	54	54	

COWLITZ RIVER BASIN--Continued
14-2355. WEST FORK TILTON RIVER NEAR MORTON, WASH.

LOCATION ---Temperature recorder at gaging station, 0.8 mile upstream from mouth, and 4 miles northeast of Morton, Lewis County.
DRAINAGE AREA ---16.4 square miles.
RECORDS AVAILABLE ---Water temperatures: August 1950 to September 1958.
EXTREMES, 1957-58 ---Water temperatures: Maximum, 60°g Aug. 25-27; minimum, not determined.
EXTREMES, 1950-58 ---Water temperatures: Maximum, 66°g Aug. 12, 1952; minimum, 33°g on several days during winter months.
REMARKS ---Records of discharge for water year October 1957 to September 1958.

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	55	53	51	49	49	49	49	48	48	50	50	50	51	50	49	47	48	48	47	46	45	47	47	47	47	47	47	46	47	47	47	49
Maximum.....	55	53	51	49	49	49	49	48	48	50	50	50	51	50	49	47	48	48	47	46	45	47	47	47	47	47	47	46	47	47	47	49
Minimum.....	55	53	51	49	49	49	49	48	48	50	50	50	51	50	49	47	48	48	47	46	45	47	47	47	47	47	46	45	46	47	45	48
November	45	44	43	42	41	42	43	42	41	42	42	43	43	43	42	42	42	42	42	41	40	41	41	42	44	---	---	---	---	---	---	42
Maximum.....	45	44	43	42	41	42	43	42	41	42	42	43	43	43	42	42	42	42	42	41	40	41	41	42	44	---	---	---	---	---	---	42
Minimum.....	44	43	42	41	41	41	42	41	40	41	42	42	42	42	42	42	41	41	41	40	40	40	41	41	42	---	---	---	---	---	---	41
December	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Maximum.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Minimum.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
January	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Maximum.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Minimum.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
February	42	42	43	42	42	42	42	42	42	42	42	42	42	42	42	42	42	43	43	43	42	42	42	42	42	42	43	43	43	42	42	---
Maximum.....	42	42	43	42	42	42	42	42	42	42	42	42	42	42	42	42	42	43	43	43	42	42	42	42	42	42	43	43	43	42	42	---
Minimum.....	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
March	41	41	41	41	41	41	41	40	40	40	40	40	40	40	40	40	40	40	41	41	41	42	42	42	42	42	42	42	42	42	42	41
Maximum.....	41	41	41	41	41	41	41	40	40	40	40	40	40	40	40	40	40	40	41	41	41	42	42	42	42	42	42	42	42	42	42	41
Minimum.....	41	41	40	40	41	40	40	40	40	39	39	39	39	40	40	39	40	40	40	40	41	41	41	41	42	42	41	41	42	42	42	40
April	42	42	43	43	44	44	44	44	44	44	45	45	45	45	45	45	44	44	44	44	44	44	44	44	44	44	44	45	45	45	46	44
Maximum.....	42	42	43	43	44	44	44	44	44	44	45	45	45	45	45	45	44	44	44	44	44	44	44	44	44	44	44	45	45	45	46	44
Minimum.....	42	42	43	42	42	42	43	44	43	43	43	43	43	43	43	44	44	44	44	44	44	44	44	44	44	44	44	44	43	43	44	43
May	47	48	48	48	48	48	48	48	49	50	50	49	49	49	50	50	50	51	51	51	51	52	53	53	53	53	53	53	53	52	52	50
Maximum.....	46	46	47	46	48	47	48	48	49	49	49	48	48	48	49	49	49	50	51	51	51	52	53	53	53	53	53	53	52	52	52	49
Minimum.....	52	52	52	52	53	53	53	53	53	53	53	52	52	52	53	54	54	54	54	54	54	55	55	55	56	56	55	54	53	53	53	53
June	51	51	51	51	52	52	52	52	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	55	55	54	53	53	53	53
Maximum.....	51	51	51	51	52	52	52	52	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	55	55	54	53	53	53	53
Minimum.....	51	51	51	51	52	52	52	52	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	55	55	54	53	53	53	53
July	52	53	53	54	55	55	55	56	56	57	57	57	57	57	57	57	57	58	58	58	58	58	58	58	58	58	58	58	59	59	59	57
Maximum.....	51	51	52	53	53	54	55	55	55	56	56	56	56	56	56	56	57	57	57	57	57	57	57	57	57	57	58	58	59	59	59	56
Minimum.....	59	58	58	57	57	56	57	57	57	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	60	60	59	58	57	58	58
August	58	57	57	56	56	56	56	56	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	58	58	57	56	57	57
Maximum.....	57	57	57	56	56	56	56	56	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	58	58	57	56	57	57
Minimum.....	57	57	57	56	56	56	56	56	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	58	58	57	56	57	57
September	57	57	57	56	56	56	56	56	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	58	58	57	56	57	57
Maximum.....	57	57	57	56	56	56	56	56	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	58	58	57	56	57	57
Minimum.....	57	57	57	56	56	56	56	56	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	58	58	57	56	57	57

COWLITZ RIVER BASIN--Continued

14-2380. COWLITZ RIVER NEAR MAYFIELD, WASH.

LOCATION.--Temperature recorder at gaging station, 1 mile upstream from Mill Creek, 2 miles downstream from Winston Creek, and 2.2 miles west of Mayfield, Lewis County.

DRAINAGE AREA.--1,400 square miles.

RECORDS AVAILABLE.--Water temperatures: October 1950 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 70°F July 28, 29; minimum, 39°F Dec. 31, Jan. 1-3, 5-10.

EXTREMES, 1950-58.--Water temperatures: Maximum, 70°F July 28, 29, 1958; minimum, 33°F Jan. 28 to Feb. 2, 1956.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1568.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																													Aver- age			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum.....	59	57	54	52	52	52	51	51	52	53	55	54	54	54	53	51	52	52	51	50	49	49	49	50	50	51	51	50	50	51	51	52	
Minimum.....	59	57	54	52	52	51	51	51	51	51	53	53	53	53	53	51	50	50	49	48	48	48	49	49	50	50	49	49	49	49	51	51	
November																																	
Maximum.....	51	48	45	44	42	42	43	43	43	45	46	46	46	46	46	46	46	44	43	43	43	42	42	42	43	43	43	41	41	--	44		
Minimum.....	48	45	44	42	42	42	42	43	43	43	45	46	46	46	46	46	44	43	43	43	41	41	42	42	42	43	43	41	41	--	43		
December																																	
Maximum.....	43	43	43	43	43	42	42	42	42	41	42	42	42	42	41	41	41	41	41	41	41	41	40	40	42	41	40	40	40	40	41	41	
Minimum.....	41	43	43	42	42	42	42	42	41	41	42	42	41	41	41	41	41	41	41	41	41	41	40	40	40	41	40	40	40	39	41	41	
January																																	
Maximum.....	39	39	40	40	40	39	39	39	39	40	41	41	41	42	42	42	42	42	42	41	41	41	42	42	42	42	42	43	43	43	41	41	
Minimum.....	39	39	39	40	39	39	39	39	39	40	41	41	41	41	41	42	42	42	42	41	41	41	41	42	42	42	42	43	43	42	41	41	
February																																	
Maximum.....	42	42	43	43	44	44	45	45	45	45	44	44	44	44	44	44	44	45	46	46	46	46	46	47	46	44	44	42	--	--	--	45	
Minimum.....	42	42	42	43	43	44	44	45	45	45	44	44	44	44	44	44	44	45	46	46	45	46	46	46	46	44	44	42	--	--	--	44	
March																																	
Maximum.....	42	42	42	42	42	42	42	42	41	42	42	42	43	43	43	43	44	45	46	46	46	46	46	46	46	45	46	46	45	45	45	44	
Minimum.....	41	41	41	41	42	42	42	41	41	41	41	41	41	41	41	42	43	44	45	45	45	45	45	45	45	45	45	45	45	45	44	43	
April																																	
Maximum.....	44	44	44	44	47	47	48	48	47	48	49	50	48	47	45	45	45	45	44	44	44	44	44	44	44	44	45	47	47	48	49	--	46
Minimum.....	44	44	44	44	44	46	46	47	46	46	47	48	48	47	45	44	44	43	44	42	42	43	43	43	43	43	44	45	45	47	--	45	
May																																	
Maximum.....	50	50	50	50	50	48	49	50	50	49	46	48	51	53	53	53	52	52	51	53	52	51	53	52	51	50	53	50	51	54	53	51	
Minimum.....	48	49	49	48	47	47	49	48	48	47	49	48	44	47	50	51	50	51	50	50	50	51	49	47	50	51	50	50	51	52	49	49	
June																																	
Maximum.....	54	54	53	55	58	58	54	56	56	54	53	52	56	60	61	62	62	62	62	64	64	64	64	61	58	57	57	56	55	--	--	58	
Minimum.....	51	52	51	52	55	54	52	52	54	52	52	51	52	56	57	58	58	58	58	60	60	60	60	60	58	56	57	56	55	--	--	55	
July																																	
Maximum.....	59	61	63	64	64	65	65	64	64	65	65	64	63	64	65	65	65	63	63	63	65	65	67	67	68	69	70	67	67	65	65	65	
Minimum.....	55	58	60	61	62	62	63	63	63	62	63	61	60	61	62	63	63	62	63	63	64	65	67	65	65	66	67	68	67	66	65	63	
August																																	
Maximum.....	66	66	66	63	63	65	66	65	65	66	67	66	66	66	67	66	65	65	65	66	67	67	68	68	68	66	63	61	61	63	66	66	
Minimum.....	66	65	63	62	63	63	65	64	65	66	65	66	66	66	66	66	65	64	64	64	65	66	67	67	66	66	63	61	60	61	61	64	
September																																	
Maximum.....	64	63	62	61	62	64	66	66	66	66	63	62	60	59	61	61	60	60	60	60	59	56	56	54	55	57	58	59	59	--	--	60	
Minimum.....	63	62	60	59	60	61	63	65	65	63	62	60	59	59	59	60	60	60	60	60	59	56	55	54	53	54	55	57	58	56	--	59	

COWLITZ RIVER BASIN--Continued

LOCATION--Temperature recorder at gaging station, just downstream from highway bridge, 0.5 mile downstream from confluence of North and South Forks, and 5 miles northeast of Silver Lake, Cowlitz County.
DRAINAGE AREA.--474 square miles.

RECORDS AVAILABLE.--Water temperatures: October 1950 to September 1958.

EXTREMES, 1950-58. ---Water temperatures: Maximum, 72°F Aug. 4, 1952; minimum, 33°F Jan. 1-3, Nov. 29, 30, 1952.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1568.

Temperature (°F) of water, water year October 1957 to September 1958																																		
Month	Day																															Average		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
October	57	56	52	49	50	49	48	48	51	53	55	51	52	51	49	47	51	49	48	47	47	50	50	50	50	51	51	49	49	51	52	49	50	
Maximum.....	56	52	49	47	48	47	48	48	49	51	50	50	49	46	45	47	46	45	43	43	43	43	47	49	49	49	49	47	48	48	50	47	48	
Minimum.....	47	44	42	42	43	44	43	43	46	46	46	45	44	44	43	41	43	43	40	43	40	43	42	41	44	44	43	42	41	41	41	--	41	
November	44	41	40	39	39	42	41	40	43	46	46	45	44	43	41	40	41	43	40	43	40	38	40	40	39	41	43	41	41	39	39	--	41	
Maximum.....	42	43	42	42	42	43	43	43	43	43	43	42	42	42	43	43	43	43	42	42	42	42	41	41	42	43	42	42	42	41	40	42	42	
Minimum.....	41	42	42	41	41	42	42	43	41	40	41	42	41	41	41	42	43	41	41	42	41	40	40	41	42	41	41	41	41	42	41	40	39	41
January	40	41	41	41	40	39	39	41	41	42	42	42	42	42	43	43	43	43	42	41	41	41	42	43	43	43	43	43	43	43	42	42	42	
Maximum.....	39	40	41	40	39	39	39	40	41	42	42	42	42	42	42	43	42	40	41	41	41	41	41	41	42	43	41	41	43	42	42	41	41	
Minimum.....	42	43	43	44	44	46	46	45	45	45	45	45	45	45	45	45	48	49	48	48	47	48	49	50	50	47	46	46	--	--	--	46	46	
February	41	42	42	43	44	44	44	44	44	45	44	45	44	45	44	45	45	48	47	46	46	47	47	49	47	47	45	45	44	--	--	--	45	
Maximum.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	44	47	46	47	46	45	46	46	46	44	47	46	--	--	
Minimum.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	44	44	43	44	44	43	41	42	44	43	43	44	--	--	
April	45	45	46	45	49	47	49	49	47	49	52	52	50	49	47	48	48	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Maximum.....	44	43	43	43	44	46	47	47	47	48	47	47	48	47	46	48	45	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Minimum.....	54	54	54	54	54	54	55	56	55	52	49	53	56	58	58	57	56	55	55	55	57	57	55	54	57	58	56	50	53	53	52	55	55	
May	49	50	49	50	49	50	51	51	49	50	48	45	43	49	51	51	50	51	51	49	50	51	51	49	50	50	49	48	49	49	50	49	49	
Maximum.....	55	54	50	55	58	57	53	53	52	49	49	49	55	57	60	62	63	62	63	62	63	64	65	65	59	55	56	56	55	56	55	--	56	
Minimum.....	49	49	49	48	51	50	48	48	49	48	47	47	47	49	51	52	55	55	55	56	57	58	59	54	52	55	55	52	53	52	53	52	52	
June	60	64	65	67	67	67	66	65	64	67	69	67	64	66	69	69	66	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Maximum.....	52	56	56	59	60	61	61	62	62	61	63	62	60	58	61	62	63	63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
August	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Maximum.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Minimum.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
September	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Maximum.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Minimum.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

COWLITZ RIVER BASIN--Continued

14-2430. COWLITZ RIVER AT CASTLE ROCK, COWLITZ COUNTY, 2.5 miles downstream from Toutle River and

LOCATION.--Temperature recorder at gaging station, at highway bridge in Castle Rock, Cowlitz County, 2.5 miles downstream from Toutle River and 14 miles upstream from mouth.

DRAINAGE AREA.--2,238 square miles.

RECORDS AVAILABLE.--Water temperatures: August 1950 to September 1958.

EXTREMES, 1950-58.--Water temperatures: Maximum, 78°F July 28-30, 1958; minimum, 40°F Dec. 31 to Jan. 2.

EXTREMES, 1950-58.--Water temperatures: Maximum, 78°F July 28-30, 1958; minimum, 40°F Dec. 31 to Jan. 2.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1568.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																													Average		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum.....	62	62	61	59	56	55	55	54	54	55	56	56	55	55	55	54	53	53	52	51	50	50	50	50	50	50	50	50	50	51	50	54
Minimum.....	62	61	59	56	55	55	54	54	54	54	54	55	55	55	54	53	53	52	51	50	48	49	50	50	50	50	50	50	50	50	50	53
November																																
Maximum.....	50	48	47	45	43	42	43	43	43	44	45	45	45	46	45	45	43	42	42	42	42	41	44	41	42	42	42	42	42	41	44	
Minimum.....	48	47	45	43	43	42	42	43	43	43	44	45	45	45	43	43	42	42	42	42	41	41	41	41	41	42	42	42	41	41	43	
December																																
Maximum.....	41	42	42	42	42	42	42	42	42	41	42	42	42	42	42	41	42	42	42	42	42	42	41	42	43	43	43	42	42	41	42	
Minimum.....	41	41	42	42	41	41	42	42	41	41	41	41	42	42	41	41	42	42	42	42	42	41	41	41	42	43	42	42	42	41	40	42
January																																
Maximum.....	40	41	41	41	41	41	41	41	41	42	42	42	42	42	43	43	42	42	42	41	41	41	41	41	41	42	42	42	42	42	42	42
Minimum.....	40	40	41	41	41	41	41	41	41	41	42	42	42	42	42	42	42	42	41	41	41	41	41	41	41	41	42	42	42	42	42	41
February																																
Maximum.....	42	42	42	43	43	43	44	44	44	44	44	44	43	43	43	43	43	43	44	44	44	45	45	45	45	45	44	43	43	43	43	44
Minimum.....	42	42	42	42	43	43	43	44	44	44	44	43	43	43	43	43	43	43	44	44	44	44	45	45	45	45	44	43	43	43	43	44
March																																
Maximum.....	43	43	43	43	43	43	43	43	43	43	44	44	44	44	44	45	45	45	46	46	46	47	47	47	47	47	47	47	47	47	47	45
Minimum.....	43	43	43	43	43	43	43	43	43	43	44	44	44	44	44	45	45	45	46	46	46	47	47	47	47	47	47	47	47	46	47	45
April																																
Maximum.....	47	47	47	47	47	48	49	49	49	50	51	51	51	51	50	48	48	48	46	46	46	46	46	46	46	46	47	48	49	50	51	48
Minimum.....	46	47	47	46	46	47	48	49	49	49	50	51	50	50	48	47	48	46	46	46	46	46	45	45	46	46	46	47	48	49	50	47
May																																
Maximum.....	51	51	51	51	51	51	51	52	52	52	52	51	49	51	53	55	55	55	55	55	55	55	54	55	54	55	55	55	55	53	54	53
Minimum.....	51	51	51	51	51	51	51	51	52	52	51	49	49	49	51	53	55	55	55	55	55	55	54	55	54	52	54	55	53	53	52	52
June																																
Maximum.....	54	54	54	55	58	58	58	57	56	56	55	54	54	54	57	61	62	62	62	62	62	64	65	65	65	62	60	59	59	59	59	59
Minimum.....	54	54	54	54	54	55	56	56	55	54	54	54	54	54	54	57	61	62	62	61	62	64	65	65	62	60	59	59	59	59	59	59
July																																
Maximum.....	60	63	64	66	68	68	69	69	68	68	69	69	69	69	69	70	70	70	69	69	68	69	71	71	72	72	74	75	75	75	72	69
Minimum.....	58	60	63	64	66	68	68	67	68	68	69	69	69	68	69	69	68	69	69	68	68	69	71	71	72	72	74	75	75	75	72	69
August																																
Maximum.....	71	71	70	69	70	71	70	70	71	71	71	71	71	71	72	71	71	71	69	70	71	72	72	73	73	72	71	69	66	64	70	68
Minimum.....	71	71	70	69	69	70	70	69	70	69	70	70	70	71	72	71	70	69	67	68	69	70	70	69	70	71	70	68	64	63	69	63
September																																
Maximum.....	66	65	63	63	64	66	67	67	67	67	66	65	64	62	62	62	62	62	62	62	61	60	59	57	57	50	60	60	60	60	60	63
Minimum.....	64	63	62	61	61	62	64	66	66	66	65	64	62	62	62	62	62	62	62	61	60	59	57	56	56	56	58	57	59	58	58	61

COWLITZ RIVER BASIN--Continued
14-2450. COWEMAN RIVER NEAR KELSEO, WASH.

LOCATION.--Temperature recorder at gaging station, 3 miles downstream from Goble Creek, 3.8 miles southeast of Kelseo, Cowlitz County, and 1.5 miles upstream from mouth.
DRAINAGE AREA.--19 square miles.
RECORDS AVAILABLE.--Water temperatures: July 1950 to September 1958.
EXTREMES, 1957-58.--Water temperatures: Maximum, 85°F July 27, 28; minimum, 39°F Nov. 4-6, 24.
EXTREMES, 1950-58.--Water temperatures: Maximum, 85°F July 27, 28, 1958; minimum, freezing point on several days during winter months.
REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1568.

Temperature (°F) of water, water year October 1957 to September 1958																																	
Month	Day																															Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October	63	62	58	55	52	52	52	53	55	57	57	57	57	56	54	51	53	53	51	49	48	50	52	52	53	53	53	52	53	54	53	54	
Maximum.....	62	58	55	51	51	51	51	52	51	52	55	55	55	54	50	49	51	51	48	46	45	48	50	52	52	53	53	51	51	53	51	52	
Minimum.....	51	48	44	41	39	40	41	42	42	46	47	48	48	48	48	47	44	46	45	45	42	42	42	41	44	44	43	42	42	42	42	44	
Maximum.....	48	44	41	39	39	40	41	41	42	46	47	48	48	47	44	43	44	43	44	42	40	40	40	39	41	43	42	42	40	40	40	42	
Minimum.....	45	46	46	45	44	45	46	46	46	43	44	44	44	43	43	44	44	44	45	45	45	44	43	44	46	46	44	44	44	43	42	44	
Maximum.....	43	45	45	44	44	44	45	46	43	42	42	44	43	43	42	42	44	44	44	45	44	43	43	43	44	44	44	44	44	43	42	40	43
Minimum.....	41	43	43	41	40	40	40	42	42	45	45	45	45	45	45	47	47	47	47	45	43	44	44	45	46	46	46	46	46	46	46	44	
Maximum.....	40	41	43	41	40	40	40	42	42	45	45	45	45	45	45	46	47	45	43	43	44	44	45	46	46	46	46	46	46	45	45	44	
Minimum.....	46	47	47	47	47	47	48	48	47	47	46	47	47	46	47	47	48	50	48	48	48	48	49	49	49	49	49	46	45	44	44	47	
Maximum.....	45	46	46	46	47	45	46	47	47	46	45	46	46	46	46	47	47	48	46	46	46	48	48	49	46	45	44	44	44	44	44	46	
Minimum.....	43	43	43	43	44	42	42	42	43	43	43	44	44	44	44	44	44	45	44	45	47	47	48	47	46	47	46	43	43	45	48	47	45
Maximum.....	42	42	41	41	43	41	41	41	42	40	40	41	41	42	41	42	43	44	44	45	46	45	46	47	46	47	46	43	45	44	45	45	43
Minimum.....	46	46	47	46	48	47	50	49	47	51	53	54	53	49	48	48	48	47	47	47	47	47	47	48	49	48	50	51	53	55	55	49	
Maximum.....	45	44	44	43	44	44	47	47	46	47	48	48	49	48	47	47	47	45	46	47	47	46	45	46	46	46	45	46	47	49	49	46	
Minimum.....	54	55	54	54	54	53	55	58	59	58	55	53	57	60	63	64	66	65	65	68	69	67	67	63	64	69	69	67	62	65	65	64	61
Maximum.....	50	49	52	49	51	50	51	53	54	52	48	48	48	51	55	57	60	60	58	60	58	60	62	63	60	61	64	60	58	60	61	56	56
Minimum.....	66	64	60	68	72	70	64	62	60	59	58	57	63	68	71	74	75	73	73	76	77	75	68	63	63	62	62	61	59	59	66	66	
Maximum.....	59	60	58	59	64	59	57	59	60	59	58	56	56	57	60	62	65	68	68	65	68	69	68	63	60	61	59	58	56	56	56	61	
Minimum.....	66	69	72	74	76	75	72	70	74	75	74	69	72	76	77	75	72	73	70	74	76	77	76	76	77	80	82	82	77	72	75	74	
Maximum.....	56	61	63	66	68	69	69	68	66	66	68	68	65	62	66	69	70	69	65	66	65	68	66	68	70	70	72	74	73	70	68	67	
Minimum.....	75	76	72	74	76	73	74	75	75	74	75	76	76	74	75	76	74	72	74	76	74	76	77	74	72	66	64	62	64	68	73	73	
Maximum.....	66	66	66	64	64	66	70	66	64	65	68	65	66	67	67	67	67	65	63	64	67	69	69	68	70	65	64	61	61	60	60	65	
Minimum.....	67	62	59	63	65	68	70	68	68	67	63	62	60	62	62	62	59	60	62	60	58	56	56	54	56	57	58	59	58	58	58	61	
Maximum.....	62	58	56	55	58	60	62	64	65	63	60	59	59	59	59	59	57	57	59	56	56	54	53	51	62	53	54	55	57	54	54	58	
Minimum.....	67	62	59	63	65	68	70	68	68	67	63	62	60	62	62	62	59	60	62	60	58	56	56	54	56	57	58	59	58	58	58	61	

ELOKOMIN RIVER BASIN

14-2475. ELOKOMIN RIVER NEAR CATHLAMET, WASH.

LOCATION.--Temperature recorder at gaging station, 125 feet upstream from railroad bridge, 2.5 miles northeast of Cathlamet, Wabkiakum County, and 4.5 miles upstream from mouth.

DRAINAGE AREA.--65.8 square miles.

RECORDS AVAILABLE.--Water temperatures: June 1950 to September 1958.

EXTREMES, 1957-58.--Water temperatures: Maximum, 74°F Sept. 7; minimum, 41°F Mar. 8, 10-16.

EXTREMES, 1950-58.--Water temperatures: Maximum, 74°F July 19, 1956, Sept. 7, 1958; minimum, freezing point Feb. 17, 1956.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1568.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	61	60	56	54	50	51	51	51	53	55	57	55	55	55	52	50	52	52	51	51	50	54	53	53	53	53	54	53	52	55	56	54
	58	56	51	49	49	48	49	46	49	50	52	52	53	51	46	48	49	47	46	46	45	50	52	52	52	52	52	51	49	51	54	50
November	50	46	45	45	46	46	47	47	50	51	53	52	51	50	49	47	49	49	48	46	47	46	45	48	45	48	45	45	45	45	48	48
	46	45	44	44	44	44	45	46	47	50	51	51	50	49	47	46	47	48	46	45	44	44	45	44	44	45	44	44	44	44	44	44
December	47	49	48	47	46	48	48	46	48	46	48	47	46	45	47	46	46	46	47	47	46	45	46	47	46	47	46	47	46	44	43	47
	45	47	47	46	46	46	48	48	46	45	46	46	45	44	45	44	45	46	45	47	46	45	45	45	46	46	46	46	44	43	46	
January	43	44	44	44	43	42	42	43	43	44	44	44	44	44	45	46	46	46	45	44	43	43	43	44	44	45	45	45	45	45	45	44
	43	43	44	43	42	42	42	43	43	43	44	44	44	44	44	45	46	45	44	43	43	43	44	44	44	45	45	43	43	45	44	44
February	45	45	45	46	46	46	47	47	47	46	46	46	46	45	45	46	46	47	47	47	47	48	49	49	48	45	44	44	44	44	44	46
	44	44	44	45	45	45	46	46	46	44	45	45	44	44	44	45	45	46	45	45	46	47	47	48	45	44	44	44	43	---	---	45
March	44	43	44	44	44	44	44	41	43	43	43	43	42	44	43	43	44	43	44	45	45	48	48	49	49	48	48	48	49	47	48	45
	42	42	42	42	43	42	42	41	42	41	41	41	41	41	41	41	42	43	43	45	45	45	45	46	46	44	44	46	44	45	45	43
April	45	45	46	45	50	49	51	50	47	52	52	53	52	49	48	49	49	47	48	49	48	47	48	48	49	47	50	52	53	53	---	49
	45	44	44	43	43	43	45	48	47	44	47	47	47	49	48	47	46	47	45	46	47	47	45	44	44	44	44	44	46	47	48	---
May	53	52	51	51	51	52	53	55	54	52	50	53	56	59	59	60	61	63	62	60	61	63	62	60	61	64	60	57	59	60	57	52
	50	49	49	48	49	49	50	50	50	51	49	46	46	49	52	53	52	56	56	55	56	56	58	56	57	57	56	55	55	55	55	52
June	60	58	60	64	67	62	62	64	60	57	58	59	59	65	68	70	73	72	67	69	72	72	67	64	61	59	61	63	58	60	---	64
	54	56	55	56	59	57	56	57	57	56	55	54	56	57	60	59	63	64	63	61	63	64	63	59	58	58	56	55	54	---	58	
July	65	67	68	71	72	69	64	61	62	66	67	66	65	68	70	68	68	63	65	65	65	66	68	69	69	71	73	70	66	62	68	67
	54	57	58	61	62	62	61	59	58	60	60	59	56	59	62	62	62	60	59	59	60	60	61	62	61	62	62	64	62	59	58	60
August	65	66	65	65	66	67	68	67	67	67	68	69	69	70	67	67	67	67	68	70	71	68	71	72	69	68	65	60	59	65	67	67
	56	57	58	55	56	59	63	61	58	58	61	60	61	61	61	61	60	60	59	61	63	65	64	65	63	60	60	58	59	58	60	
September	65	63	63	68	69	73	74	70	69	68	67	65	64	66	63	62	62	63	61	60	58	57	54	51	52	61	61	63	63	64	---	60
	61	56	60	59	61	64	66	67	67	67	62	61	61	63	61	61	61	61	61	59	58	58	55	52	54	55	56	60	61	57	---	64

GRAYS RIVER BASIN

14-2505. WEST BRANCH GRAYS RIVER NEAR GRAYS RIVER, WASH.

LOCATION ---Temperature recorder at gaging station, 1 mile upstream from mouth and 3.2 miles northeast of Grays River, Wahkiakum County.

DRAINAGE AREA ---16.3 square miles

RECORDS AVAILABLE ---Water temperatures: June 1950 to September 1958

EXTREMES, 1957-58 ---Water temperatures: Maximum, 68°F July 27, 28; minimum, 44°F Dec. 30, Jan. 1.

EXTREMES, 1950-58 ---Water temperatures: Maximum, 69°F July 27, 28, 1958; minimum, 33°F Feb. 17, 1956.

REMARKS ---Records of discharge for water year October 1957 to September 1958 given in WSP 1568.

Temperature (°F) of water, water year October 1957 to September 1958

Month	Day																													Average			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum.....	58	58	56	53	53	53	53	53	54	55	55	55	54	53	52	51	52	51	51	50	50	52	52	52	52	52	52	52	53	53	53	53	
Minimum.....	58	56	53	50	52	51	52	51	52	53	54	52	53	52	49	51	51	49	48	50	49	50	52	52	52	52	52	51	51	51	53	52	
November																																	
Maximum.....	52	51	50	49	48	48	48	48	48	49	49	49	49	50	50																		
Minimum.....	51	49	49	46	46	48	48	48	48	48	48	49	49	49	49																		
December																																	
Maximum.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Minimum.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
January																																	
Maximum.....	41	45	45	45	45	45	45	45	45	45	45	45	45	45	45																		
Minimum.....	44	45	45	45	45	45	45	45	45	45	45	45	45	45	45																		
February																																	
Maximum.....	48	48	48	48	48	48	48	48	48	48	48	48	48	48	46	48	48	48	49	49	49	49	49	49	49	49	49	49	49	49	49	49	
Minimum.....	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	49	49	49	49	49	49	49	49	49	49	49	49	49	
March																																	
Maximum.....	47	46	47	46	46	45	45	45	45	45	45	45	45	46	47	46	46	47	47	48	48	48	48	48	48	48	48	48	48	48	47	47	
Minimum.....	46	46	46	46	45	45	45	45	45	45	45	45	45	45	45	45	46	46	47	47	47	48	48	48	47	48	48	48	47	47	47	46	
April																																	
Maximum.....	48	48	47	47	48	49	50	50	49	49	50	52	52	51	49	49	49	49	49	49	49	49	49	49	49	49	50	51	53	53	53	50	
Minimum.....	47	47	47	46	47	47	49	49	47	47	48	49	51	49	49	48	49	48	49	49	49	49	49	49	49	49	49	49	49	49	50	51	
May																																	
Maximum.....	52	52	53	53	53	53	54	54	54	54	54	54	54	56	58	56	59	58	59	60	62	62	61	61	64	64	61	60	60	60	59	57	
Minimum.....	52	51	52	51	53	51	52	50	50	52	52	50	49	51	53	54	55	57	56	58	59	59	59	58	59	61	60	59	59	59	59	55	
June																																	
Maximum.....	61	62	60	65	66	64	60	60	60	60	59	59	58	61	63	65	66	66	65	67	67	67	67	67	64	62	61	61	61	61	59	83	
Minimum.....	59	60	60	60	63	60	58	58	60	59	58	57	58	58	59	60	62	63	63	61	62	64	64	62	61	60	60	59	59	58	58	80	
July																																	
Maximum.....	62	62	64	66	67	67	66	62	61	64	65	64	62	64	66	65	65	64	63	63	65	64	65	66	66	68	69	69	69	69	69	65	
Minimum.....	57	58	59	61	62	62	62	61	61	61	62	61	59	61	59	61	62	62	61	61	62	61	62	61	62	63	63	65	66	66	66	61	
August																																	
Maximum.....	65	65	64	64	64	64	65	64	64	64	64	64	65	65	65	65	65	63	63	65	65	65	65	66	66	66	63	63	61	61	60	84	
Minimum.....	62	62	62	61	60	61	63	62	61	61	62	61	61	61	61	61	61	61	62	61	62	64	63	63	63	61	61	60	60	60	60	81	
September																																	
Maximum.....	61	61	62	62	61	63	62	60	60	60	59	59	57	57	57	56	56	55	55	55	55	54	54	54	51	50	52	54	54	54	54	56	
Minimum.....	60	59	58	57	57	59	59	60	60	59	58	57	57	57	57	56	55	55	55	54	54	54	51	51	50	51	52	54	54	54	54	57	

ALSEA RIVER BASIN

14-3061. NORTH FORK ALSEA RIVER AT ALSEA, OREG.

LOCATION.--Temperature recorder at gaging station, 0.2 mile southeast of Alsea, Benton County, 0.3 mile upstream from road bridge, and 0.5 mile above confluence with South Fork.

DRAINAGE AREA.--63.0 square miles.

RECORDS AVAILABLE.--Water temperatures: March to September 1958.

EXTREMES, March to September 1958.--Water temperatures: Maximum, 76°F July 27, 26; minimum, 46°F on several days during March and April.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1568.

Temperature (°F) of water, March to September 1958

[Recorder with temperature attachment, continuous ethyl alcohol-actuated thermograph]

Month	Day																															Aver- age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum.....	49	48	47	48	49	48	50	49	49	53	54	55	53	51	50	50	52	50	51	52	52	50	49	49	51	51	52	54	55	56	55	51
Minimum.....	46	46	46	46	47	48	47	48	49	48	49	48	49	48	49	49	50	49	50	51	50	49	48	47	48	48	48	49	50	51	51	48
November																																
Maximum.....	56	56	55	55	54	53	58	58	60	60	57	54	56	58	61	63	62	63	64	63	64	62	64	62	63	62	61	62	63	60	60	60
Minimum.....	51	51	52	51	51	51	54	54	54	53	50	49	51	53	55	56	57	58	57	58	57	59	58	58	56	58	57	57	57	57	55	55
December																																
Maximum.....	62	62	58	62	61	60	60	59	59	59	58	59	58	64	66	68	70	68	70	72	74	69	62	68	65	66	62	60	63	63	64	64
Minimum.....	56	57	57	56	58	58	56	57	56	57	56	56	56	56	59	60	62	63	62	64	66	62	60	60	62	59	58	57	58	57	59	59
January																																
Maximum.....	64	67	69	72	74	74	70	70	71	72	73	71	69	69	72	71	72	71	72	72	73	73	72	73	72	74	76	76	75	74	75	72
Minimum.....	59	60	61	63	65	67	66	64	64	64	65	64	63	60	63	65	65	65	65	66	65	66	64	64	65	66	68	68	66	67	65	65
February																																
Maximum.....	75	73	69	69	71	72	71	71	71	72	73	73	72	73	73	72	73	72	70	70	73	74	74	74	74	74	72	67	67	64	70	71
Minimum.....	67	66	64	62	63	64	65	64	63	63	63	63	63	64	64	64	64	64	62	63	64	65	66	66	66	65	63	61	62	62	63	64
March																																
Maximum.....	69	64	62	64	67	69	70	65	65	65	63	59	60	59	65	63	64	64	62	60	62	59	58	54	61	62	64	65	65	63	63	61
Minimum.....	63	59	56	56	58	60	62	64	62	61	58	57	58	58	59	60	59	60	59	60	57	58	56	54	52	54	55	56	58	59	58	58

ALSEA RIVER BASIN

14-3062. SOUTH FORK ALSEA RIVER NEAR ALSEA, OREG.

LOCATION.--Temperature recorder at gaging station, 0.8 mile above confluence with North Fork and 1.1 mile south of Alsea, Benton County.

DRAINAGE AREA.--49.5 square miles.

RECORDS AVAILABLE.--Water temperatures: April to September 1958.

EXTREMES, April to September 1958.--Water temperatures: Maximum, 76°F July 27, 28; minimum, 47°F Apr. 23-26.

REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1566.

Temperature (°F) of water, April to September 1958

[Recorder with temperature attachment, continuous ethyl alcohol-actuated thermograph]

Month	Day																																Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
October																																	
Maximum.....																																	
Minimum.....																																	
November																																	
Maximum.....																																	
Minimum.....																																	
December																																	
Maximum.....																																	
Minimum.....																																	
January																																	
Maximum.....																																	
Minimum.....																																	
February																																	
Maximum.....																																	
Minimum.....																																	
March																																	
Maximum.....																																	
Minimum.....																																	
April																																	
Maximum.....																																	
Minimum.....																																	
May																																	
Maximum.....	54	54	55	56	55	54	56	57	58	58	56	54	54	56	58	60	59	59	60	61	62	59	62	58	60	60	58	60	61	59	60	58	
Minimum.....	52	52	53	52	53	51	52	54	54	54	53	51	50	51	53	55	56	56	57	56	57	58	57	56	56	58	57	57	57	57	55	55	
June																																	
Maximum.....	61	61	59	61	59	58	59	59	59	59	58	58	58	58	63	65	67	69	67	70	73	74	70	62	67	64	63	60	60	62	63	63	
Minimum.....	57	58	57	56	57	57	57	57	57	57	57	56	56	56	58	58	59	61	63	63	65	67	62	60	59	61	59	57	57	57	59	59	
July																																	
Maximum.....	64	67	68	71	73	73	70	70	69	72	72	70	69	69	71	70	70	69	71	71	72	72	70	72	72	72	73	76	76	73	74	71	
Minimum.....	59	60	61	63	65	66	66	64	64	64	65	64	62	61	62	64	65	65	65	65	66	66	64	64	65	66	68	69	66	67	64	64	
August																																	
Maximum.....	73	72	68	68	70	70	70	71	70	70	71	72	71	72	73	72	71	71	70	72	72	73	73	73	73	72	68	67	65	69	69	70	
Minimum.....	67	66	64	61	62	63	66	65	62	63	65	63	64	64	65	65	64	63	64	63	64	66	66	68	67	66	63	61	62	63	63	64	
September																																	
Maximum.....	69	65	62	63	65	67	69	66	66	66	63	60	60	60	65	63	62	62	63	60	59	58	56	52	58	58	60	61	62	60	62	62	
Minimum.....	62	58	56	56	57	59	60	63	62	61	58	57	58	58	60	60	58	57	57	54	56	54	51	50	52	52	53	55	56	55	57	57	

COQUILLE RIVER BASIN--Continued

14-3249. SOUTH FORK COQUILLE RIVER NEAR POWERS, OREG.

LOCATION.--Temperature recorder at gaging station, 0.7 mile upstream from Hall Creek and 7 miles southeast of Powers, Coos County.

DRAINAGE AREA.--93.2 square miles.

RECORDS AVAILABLE.--Water temperatures: November 1956 to September 1958.

EXTREMES, 1957-58	Water temperatures:	Maximum, 76°F	July 30, 31, Aug. 1;	minimum, 41°F	Nov. 5, 6.
EXTREMES, 1956-58	Water temperatures:	Maximum, 76°F	July 30, 31, Aug. 1	minimum, 37°F	Dec. 7, 8, 1956

EXTRIMES, 1938--38.---water temperatures: maximum, 76 F JULY 30, 31, AUG. 1, 1938; minimum, 37 F. REMARKS.---Records of discharge for water year October 1957 to September 1958 given in WSP 1568.

RECORDS OF DISCHARGE FOR WATER YEAR OCTOBER 1957 TO SEPTEMBER 1958

Temperature (°F) of water near October 1957 to September 1958

temperature (-F) of water, water year October 1957 to September 1958

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	59	59	56	54	51	50	50	54	54	54	54	54	54	53	52	52	51	50	50	49	49	50	52	52	53	52	51	50	50	50	50	52
	Maximum.....	56	54	51	49	50	49	50	52	52	52	52	52	52	50	50	49	48	46	47	46	48	50	51	51	50	49	48	46	49	48	50
November	48	46	44	43	43	43	43	46	46	47	47	47	48	48	47	47	47	48	48	48	48	47	46	46	45	45	45	44	44	43	--	46
	Maximum.....	46	44	42	41	41	42	43	45	46	47	47	47	47	47	47	47	47	48	48	47	46	46	45	45	45	44	44	43	43	--	45
December	44	44	44	43	43	43	45	47	46	45	45	45	45	45	46	46	46	46	46	46	47	45	45	46	47	46	45	46	45	44	43	45
	Maximum.....	43	44	43	43	43	45	46	45	44	44	44	45	45	45	46	46	46	46	46	46	45	44	45	46	45	45	44	43	43	45	48
January	45	45	45	44	44	44	44	45	45	45	45	45	44	45	46	46	46	46	46	46	44	43	43	44	44	45	46	46	45	45	45	45
	Maximum.....	44	45	44	44	43	43	43	44	45	45	44	44	44	45	45	46	46	46	46	43	42	43	44	44	45	46	46	45	45	45	48
February	45	45	45	45	45	46	46	46	46	46	46	47	46	47	48	48	49	49	49	48	48	48	48	49	48	46	46	45	45	45	45	48
	Maximum.....	44	45	45	45	45	46	46	46	46	46	47	46	47	48	48	49	49	49	48	48	48	48	49	48	46	46	45	45	45	45	48
March	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	48
	Maximum.....	44	45	44	44	44	43	43	43	43	43	44	44	44	44	44	44	44	44	44	44	44	44	44	44	45	46	46	45	45	45	48
April	46	46	46	46	47	47	47	47	48	49	49	50	50	48	48	48	48	48	48	48	49	49	48	49	48	49	50	51	52	53	--	48
	Maximum.....	46	46	45	46	47	47	47	48	48	48	48	48	47	48	48	48	48	47	48	49	49	46	47	47	48	49	50	51	52	53	--	48
May	54	54	55	55	55	55	56	57	59	59	55	54	55	57	59	61	63	63	63	64	65	65	63	63	64	66	66	63	63	62	62	60
	Maximum.....	52	51	52	53	53	53	55	56	55	54	52	51	53	55	57	59	60	60	61	61	62	61	61	61	63	63	61	61	61	57	60
June	62	62	61	61	63	63	61	61	60	62	62	60	61	65	67	66	69	69	70	73	73	73	73	68	70	70	66	65	65	64	--	65
	Maximum.....	59	61	59	58	60	61	60	60	60	60	60	59	60	63	64	66	67	67	66	68	70	68	66	66	66	64	63	63	--	63	
July	64	67	69	70	72	72	72	71	72	73	72	72	71	72	72	70	71	72	72	73	72	72	71	72	73	73	75	76	76	72	70	69
	Maximum.....	63	65	65	66	68	69	68	69	70	69	68	69	68	69	69	70	68	69	70	70	70	66	69	70	72	73	75	73	72	70	69
August	76	74	72	73	73	73	74	73	72	73	73	72	72	74	73	74	73	72	72	73	73	73	73	73	72	72	69	68	67	70	70	69
	Maximum.....	70	69	67	67	67	67	68	68	67	68	67	66	67	68	68	68	66	67	68	68	68	68	69	68	68	66	65	65	65	65	67
September	67	66	64	65	66	68	67	66	64	63	62	62	61	62	64	61	62	63	63	61	61	59	58	57	59	60	61	62	62	--	60	63
	Maximum.....	65	62	61	60	61	63	64	64	62	61	60	59	59	61	62	60	61	61	59	59	58	56	55	57	56	58	59	61	59	--	60
Minimum.....	65	62	61	60	61	63	64	64	62	61	60	59	59	61	62	60	61	61	59	59	58	56	55	57	56	58	59	61	59	--	60	63
	Minimum.....	65	62	61	60	61	63	64	64	62	61	60	59	59	61	62	60	61	61	59	59	58	56	55	57	56	58	59	61	59	--	60

ROGUE RIVER BASIN

14-3615. ROGUE RIVER AT GRANTS PASS, OREG.

LOCATION --At bridge on U.S. Highway 99 at Grants Pass, Josephine County and 0.6 miles downstream from gaging station.

DRAINAGE AREA --2,420 square miles, approximately.

RECORDS AVAILABLE --Chemical analyses: January 1953 to September 1958.

Water temperatures: January 1953 to September 1958.

EXTREMES, 1957-58 --Dissolved solids: Maximum, 86 ppm May 16-31.

Hardness: Maximum, 42 ppm Mar. 16-31; minimum, 26 ppm Dec. 1-31.

Specific conductance: Maximum daily, 104 microhos Oct. 11, Mar. 17, 18, 22; minimum daily, 63 microhos May 19, 23, 26.

Water temperatures: Maximum, 73°F Aug. 10, 11, 16, 19, 21; minimum, 38°F Nov. 30, Dec. 1, 2.

EXTREMES, 1953-58 --Dissolved solids: Maximum, 136 ppm Feb. 16-22, 1954; minimum, 53 ppm May 22-31, 1955.

Hardness: Maximum, 84 ppm Feb. 16-22, 1954; minimum, 21 ppm June 21-30, 1955.

Specific conductance: Maximum daily, 251 microhos Feb. 21, 1954; minimum daily, 58 microhos Jan. 19, 1953.

Water temperatures: Maximum, 73°F on several days during summer months, 1955, 1956; minimum, 35°F Jan. 29, 30, 1957.

REMARKS --Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1957 to September 1958 given in NSF 1508.

Chemical analyses, in parts per million, water year October 1957 to September 1958

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃	Sodium adsorption ratio	Specific conductance (microhos at 25°C)
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate	
Oct. 1-31, 1957..	1,798			9.5	2.9	5.9		50	0	1.9	3.2		0.4	79	0.11	384	36	0	100
Nov. 1-30.....	2,788			9.9	2.9	5.9		54	0	2.8	3.0		.4	82	.11	617	36	0	101
Dec. 1-31.....	6,391			9.1	2.9	5.0		50	0	2.4	2.2		.6	86	.12	1,484	34	0	91
Jan. 1-31, 1958..	10,040			9.6	2.9	4.4		48	0	2.7	1.8		.6	79	.11	2,142	36	0	90
Feb. 1-28.....	14,800			9.6	2.4	4.0		48	0	2.4	1.5		.7	83	.11	3,272	34	0	86
Mar. 1-15.....	6,349			9.5	3.2	4.2		51	0	2.9	1.5		.2	71	.10	1,217	37	0	93
Mar. 16-31.....	4,791			11	3.5	5.2		56	0	2.7	2.0		.1	76	.11	1,009	42	0	102
Apr. 1-30.....	5,476			9.5	3.0	4.9		53	0	2.5	2.0		.1	73	.10	1,079	36	0	93
May 1-15.....	4,397			6.5	2.4	3.4		33	0	1.8	1.2		.2	64	.08	780	28	0	76
May 16-30.....	4,063			6.5	2.3	4.1		42	0	1.9	1.2		.6	69	.08	757	30	0	68
June 1-30.....	1,959			7.8	2.8	4.5		48	0	1.9	2.0		.7	75	.10	391	31	0	82
July 1-29.....	1,317			8.0	2.7	5.4		47	0	2.2	1.5		.8	72	.10	267	31	0	83
July 30-Aug. 19..	1,321			7.5	3.0	5.0		50	0	1.5	2.0		.5	77	.10	275	31	0	87
Aug. 20-Sept. 9..	1,508			8.0	3.4	5.6		50	0	1.6	2.0		.4	81	.11	330	34	0	91
Sept. 10-30.....								49	0	2.4	1.8			78	0.11	621	34	0	88
Weighted average				9.1	2.8	4.5		49	0	2.4	1.8			78	0.11	621	34	0	88

ROGUE RIVER BASIN--Continued

14-3815. ROGUE RIVER AT GRANTS PASS, OREG.--Continued

Temperature (°F) of water, water year October 1957 to September 1958
Once-daily measurement at approximately 11:45 a.m.

Month	Day																															Average		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
October....	56	54	53	53	52	51	50	50	49	49	49	48	49	49	50	50	49	49	49	49	49	50	49	49	49	49	50	49	49	49	48	50		
November....	48	46	45	45	44	43	42	41	41	41	41	41	42	42	42	42	42	43	43	43	43	43	42	42	40	40	40	39	39	38	--	42		
December....	38	38	39	39	39	39	40	41	41	40	40	40	39	40	40	41	42	43	43	44	44	43	43	44	43	43	43	43	43	43	42	41		
January....	40	40	39	39	39	39	40	41	42	43	43	44	44	43	44	44	44	43	43	43	43	44	45	45	45	45	44	44	44	44	44	43		
February....	43	43	44	--	44	44	43	43	43	44	43	44	45	45	48	45	47	48	49	49	47	46	46	47	46	47	47	46	--	--	45	45		
March.....	45	44	44	--	44	43	43	43	43	43	44	44	44	44	44	44	44	43	43	44	45	45	46	46	47	48	48	48	47	47	47	45	45	
April.....	47	47	47	47	46	46	45	46	47	47	47	50	51	51	51	50	51	51	50	50	50	49	49	48	48	49	50	50	51	52	--	49		
May.....	53	54	55	55	55	56	57	58	57	57	56	57	57	57	58	59	59	59	59	59	58	58	58	58	57	57	58	58	58	58	57	57		
June.....	57	58	58	58	58	57	57	56	57	57	58	58	59	59	60	62	63	65	66	67	68	68	69	69	68	68	68	69	69	--	62	62		
July.....	69	69	69	70	70	70	70	70	70	70	71	70	70	70	70	70	70	70	71	71	71	72	72	72	72	72	72	72	72	72	72	71	71	
August.....	72	72	72	72	72	72	72	72	72	73	73	72	72	72	72	72	72	73	73	72	73	72	71	71	71	71	71	70	69	68	68	72		
September..	67	66	66	68	65	65	64	64	63	63	62	62	61	61	60	60	60	59	59	59	58	58	54	54	54	54	54	56	56	--	60	60		

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